ISIT

ATHENS 2024

2024
IEEE International Symposium on Information Theory

Athens, Greece, July 7 - 12, 2024

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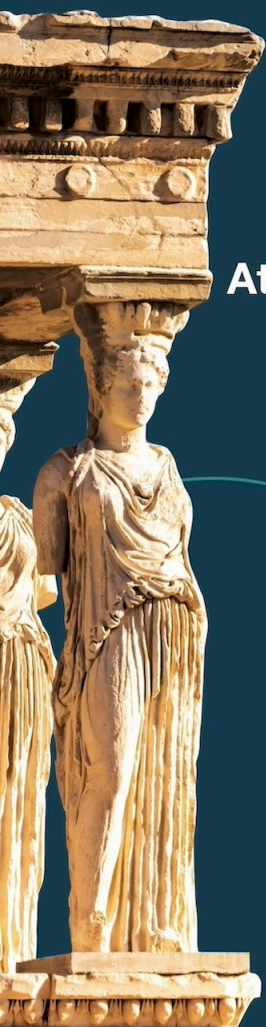
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Welcome to ISIT 2024 in Athens!

The International Symposium on Information Theory (ISIT) is the annual flagship conference of the IEEE Information Theory Society. In addition to the exceptional technical contributions we have each year, in 2024, we have some new programs. In particular, we invite to you take part in the following events.

- For the first time, we have satellite workshops to be held on Sunday before the symposium starts with a reception to follow.

- The ISIT welcome reception will be held on Monday evening in the architectural gem of the Stavros Niarchos Foundation.

- We will have seminars by leading chess players (including a Grand Master), followed by a simultaneous chess game of 30 ISIT participants against our Grand Master.

- The Bits n Bots competition will have an on site event.

We hope you like these innovations, and we welcome your feedback.

The conference would not have been possible without the dedicated work of the ISIT 2024 volunteer organization, including the Organizing Committee and the Technical Program Committee. In particular, the Technical Program Committee coordinated reviewing of the paper submissions. The three TPC co-chairs, Christina Fragouli, Ioannis Kontoyannis, and Joachim Rosenthal oversaw the entire process and put together our outstanding technical program. The tutorial chairs, Alex Dimakis and Lalitha Sankar, put together an expansive tutorial program of six tutorials. The Student Travel Grant Committee, consisting of George Alexandropoulos, Hye Won Chung, Flavio du Pin Calmon, and Rajesh Sundaresan coordinated the student travel award program. The workshops chairs Stark Draper, Henry Pfister, Osvaldo Simeone managed workshop selection and organization. The Bits n Bots Competition event has been organized by Hyeji Kim, Marco Mondelli, Stefano Rini, Farhad Shirani, Cynthia Rush, and Vincent Tan. The Chess Event has been organized by Lampros Gavalakis and Ioannis Kontoyiannis. The recent results session was coordinated by Yuejie Chi and Petros Elia and had a record number of submissions. Constantinos Papadias headed the sponsorship program, which was robust for ISIT 2024.

There are some positions within the organizing committee that perhaps do not get the recognition they deserve, as these colleagues often work behind the scenes, but we are indebted to their herculean efforts. The Finance chair, Ali Tajer, constructed and shepherded the ISIT 2024 budget, no small feat. The Publications chairs, Tobias Koch and I-Hsiang Wang, were responsible for the conference proceedings, publications and the smooth running of the conference app. The local arrangements chair, Aris Moustakas, helped sort through the complexities of local conference logistics and was our resident gourmet. The ISIT 2024 Webmaster, Christian Senger, handled all aspects of web presence and was a paragon of efficiency and patience.

We wish to also recognize our colleagues at MeetingPlanner. Conferences such as ISIT can no longer be brought to life by volunteers alone and we are grateful for their assistance in navigating the Greek meeting landscape. Special thanks go to Matina Gika, Popi Patsouli, and Michalis Sarris.

The Shannon Lecture this year will be presented by Andrew Barron on "Information Theory and High-Dimensional Bayes Computation". We are so pleased with the excellent plenary program designed by our TPC chairs. Rebecca Willett will tell us about "Learning Low-rank Functions with Neural Networks"; Gregory Wornell will ask "Will We Ever Learn? A Sensor's Lament, and other Stories"; Venkatesan Guruswami will talk about "A few options go a long way: List decoding and applications"; and Emina Soljanin will present "Codes: (Always) at Your Service."

We are very grateful to the organizations who have provided generous financial support, or support in kind, to ISIT 2024. This includes Huawei, Qualcomm, META, The American College of Greece, Samsung, Sentient, Aitomatic, Aegean Airlines and Mitsubishi Electric Research Labs. We also thank Cambridge University Press, NOW publishers, and Entropy for participating as publisher exhibitors. We especially thank the United States National Science Foundation and the US Army Research Office for their generous support of ISIT 2024's student travel grant program for US based students. The IEEE Information Theory Society Diversity & Inclusion (D&I) Committee and the ISIT 2024 conference both provided meaningful support for student travel for non-US based students.

Finally, we remind everyone about the (now) annual, society-driven events: Alumni in Industry, WITHITS and D&I, meet the Shannon Lecturer, Mentoring and Outreach, Early Career Funding panel as well as a conversation around artificial intelligence and machine learning.

We wish you a fruitful and productive time at ISIT 2024 and an enjoyable visit to Athens!

Urbashi Mitra,
ISIT 2024 General Co-Chair

Leandros Tassiulas,
ISIT 2024 General Co-Chair

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Hyeji Kim

Marco Mondelli

Cynthia Rush

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Aris Moustakas

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Yuejie Chi

Petros Elia

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ISIT 2024 Program at a Glance

Sunday July 7, 2024	Monday July 8, 2024	Tuesday July 9, 2024	Wednesday July 10, 2024	Thursday July 11, 2024	Friday July 12, 2024
Workshops 8:30-17:15					
AM Tutorials Part 1 8:30-10:00	Plenary Talk by Rebecca Willett: *Learning Low-rank Functions With Neural Networks* 8:30-9:55 (Ballroom II & III)	Plenary Talk by Gregory Wornell: *Will We Ever Learn? A Sensor's Lament, and other Stories* 8:30-9:35 (Ballroom II & III)	Plenary Talk by Venkatesan Guruswami: *A few options go a long way: List decoding and applications* 8:30-9:40 (Ballroom II & III)	Shannon Lecture by Andrew Barron: *Information Theory and High-Dimensional Bayes Computation* 8:30-9:35 (Ballroom II & III)	Plenary Talk by Emina Soljanin: *Codes: (Always) at Your Service* 8:30-9:35 (Ballroom II & III)
	Moving Break 9:55-10:05	Moving Break 9:35-9:45	Moving Break 9:40-9:50	Moving Break 9:35-9:45	Moving Break 9:35-9:45
Coffee Break & Snacks 10:00-10:30	Session MO1 10:05-11:25	Session TU1 9:45-11:05	Session WE1 9:50-11:10	Session TH1 9:45-11:05	Session FR1 9:45-11:05
AM Tutorials Part 2 10:30-12:00		Coffee Break & Snacks 11:05-11:30	Coffee Break & Snacks 11:10-11:30	Coffee Break & Snacks 11:05-11:30	Coffee Break & Snacks 11:05-11:30
	Coffee Break & Snacks 11:25-11:50				
Lunch Break 12:00-13:30	Session MO2 11:50-12:50	Session TU2 11:30-12:50	Session WE2 11:30-12:50	Session TH2 11:30-12:50	Session FR2 11:30-12:50
Sandwich Bar 12:15-13:15 (Level -1 & -2 Lobbies)					
	Lunch Break 12:50-14:35 / Sandwich Bar 13:05-14:05 (Level -1 & -2 Lobbies)	Lunch Break 12:50-14:25 / Sandwich Bar 13:05-14:05 (Level -1 & -2 Lobbies)	Chess Event 13:00-18:00 (Ballroom I)	Lunch Break 12:50-14:35 / Sandwich Bar 13:05-14:05 (Level -1 & -2 Lobbies)	Lunch Break 12:50-14:35 / Sandwich Bar 13:05-14:05 (Level -1 & -2 Lobbies)
	Alumni in Industry 12:50-14:35 (Ballroom I)	WITHITS/D&I 12:50-14:25 (Ballroom I)		Meet the Shannon Lecturer 12:50-14:35 (Ballroom I)	Mentoring & Outreach 12:50-14:35 (Ballroom I)
PM Tutorials Part 1 13:30-15:00					
	Session MO3 14:35-15:55	Session TU3 14:25-15:45		Session TH3 14:35-15:55	Session FR3 14:35-15:55
Coffee Break & Snacks 15:00-15:30					
	Coffee Break & Snacks 15:55-16:25	Coffee Break & Snacks 15:45-16:05			
PM Tutorials Part 2 15:30-17:00	Recent Results Poster 15:25-16:55 (Level -1 Lobby)			Coffee Break & Snacks 15:55-16:25	Coffee Break & Snacks 15:55-16:25
	Session MO4 16:25-17:45	Session TU4 16:05-17:25		Session TH4 16:25-17:45	Session FR4 16:25-17:45
		Unconference: Generative AI and LLMs 16:05-17:25 (Ballroom I)		Bits n Bots Solutions Showcase 16:25-17:45 (Ballroom I)	Early Career Funding Panel 16:25-17:45 (Ballroom I)
		Awards Session 17:30-18:30 (Ballroom II & III)			
Workshops & Tutorials Reception 17:15-19:15 (Level -2 Lobby)					
		Awards Reception 18:30-20:30 (Level -1 & -2 Lobbies)			
	Welcome Reception 19:00-22:30 (Stavros Niarchos Foundation)			Banquet 19:30-00:30 (Ble Azure)	

Coffee and beverages will be served every day (except Wednesday) from 8:00 to 16:00.

ISIT 2024 Per-Day Program

Sunday, July 7

Tutorials

8:30–12:00	**AM Tutorials:**

Theory and Methods for Deep Generative Models . . . . Lamda

Language Model Inference: Theory and Algorithms . . . . Omega

Information-Theoretic, Statistical and Algorithmic Foundations of Reinforcement Learning . . . . VIP

13:30–17:00	**PM Tutorials:**

Graph Matching: Fundamental Limits and Efficient Algorithms . . . . Lamda

Scaling and Reliability Foundations in Machine Learning . . . . Omega

Coding Theory for Modern Exascale Storage Systems . . . . VIP

Workshops   8:30–17:15

Coding Theory and Algorithms for DNA-based Data Storage . . . . Arcade I-II

NeurIT: Information Theory in Neuroscience and Neuroengineering . . . . Omikron I

Learn to Compress . . . . Omikron II

Quantum Information Knowledge (QuIK) . . . . Ypsilon I-II-III

Information-Theoretic Methods for Trustworthy Machine Learning (IT-TML) . . . . Ypsilon IV-V-VI

Other Events

17:15–19:15	**Workshops & Tutorials Reception** . . . . Level -2 Lobby

Monday, July 8

Learning Low-rank Functions With Neural Networks

Rebecca Willett, University of Chicago, USA

Neural networks are increasingly prevalent and transformative across domains. Understanding how these networks operate in settings where mistakes can be costly (such as transportation, finance, healthcare, and law) is essential to uncovering potential failure modes. Many of these networks operate in the "overparameterized regime," in which there are far more parameters than training samples, allowing the training data to be fit perfectly. What does this imply about the predictions the network will make on new samples? That is, if we train a neural network to interpolate training samples, what can we say about the interpolant, and how does this depend on the network architecture? In this talk, I will describe insights into the role of network depth using the notion of representation costs – i.e., how much it "costs" for a neural network to represent various functions. Understanding representation costs helps reveal the role of network depth in machine learning and the types of functions learned, relating them to Barron and mixed variation function spaces, such as single- and multi-index models.

Biography

Rebecca Willett is a Professor of Statistics and Computer Science and the Director of AI in the Data Science Institute at the University of Chicago, and she holds a courtesy appointment at the Toyota Technological Institute at Chicago. Her research is focused on the mathematical foundations of machine learning, scientific machine learning, and signal processing. Prof. Willett is the Deputy Director for Research at the NSF-Simons Foundation National Institute for Theory and Mathematics in Biology and a member of the NSF Institute for the Foundations of Data Science Executive Committee. She is the Faculty Director of the Eric and Wendy Schmidt AI in Science Postdoctoral Fellowship at the University of Chicago and helps direct the Air Force Research Lab University Center of Excellence on Machine Learning. Willett received the National Science Foundation CAREER Award in 2007, was a member of the DARPA Computer Science Study Group, received an Air Force Office of Scientific Research Young Investigator Program award in 2010, was named a Fellow of the Society of Industrial and Applied Mathematics in 2021, and was named a Fellow of the IEEE in 2022. Prof. Willett completed her PhD in Electrical and Computer Engineering at Rice University in 2005 and was an Assistant then tenured Associate Professor of Electrical and Computer Engineering at Duke University from 2005 to 2013. She was an Associate Professor of Electrical and Computer Engineering, Harvey D. Spangler Faculty Scholar, and Fellow of the Wisconsin Institutes for Discovery at the University of Wisconsin-Madison from 2013 to 2018. She serves on the advisory boards of the US National Science Foundation's Institute for Mathematical and Statistical Innovation, the US National Science Foundation's Institute for the Foundations of Machine Learning, and the MATH+ Berlin Mathematics Research Center, as well as National Academies of Science, Engineering and Medicine committees.

Sessions

MO1 — 10:05–11:25

MO1.R1: Student Paper Award 1	MO1.R2: Topics in Machine Learning 1	MO1.R3: Topics in Modern Coding Theory 1	MO1.R4: Lossless Source Coding	MO1.R5: Probability and Bounds	MO1.R6: Coding in Biology 1	MO1.R7: Combinatorial Coding Theory 1	MO1.R8: Channel Capacity	MO1.R9: Secure Communication and Computation
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

MO2 — 11:50–12:50

MO2.R1: Student Paper Award 2	MO2.R2: Binary Classification	MO2.R3: Fairness	MO2.R4: Lossy Compression Applications	MO2.R5: Estimation and Prediction	MO2.R6: Information Theory in NeuroScience	MO2.R7: Reed Muller Codes	MO2.R8: Identification	MO2.R9: Secret Key Schemes
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

MO3 — 14:35–15:55

MO3.R1: Quantum Information 1	MO3.R2: Classification and Regression	MO3.R3: Differential Privacy in Learning 1	MO3.R4: Rate Distortion Theory 1	MO3.R5: LDPC Codes 1	MO3.R6: Coding in Biology 2	MO3.R7: Reed Solomon Codes	MO3.R8: Channels with Feedback	MO3.R9: Statistical Estimation and Detection
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

MO4 — 16:25–17:45

MO4.R1: Quantum Information 2	MO4.R2: Topics in Machine Learning 2	MO4.R3: Differential Privacy in Learning 2	MO4.R4: Joint Source-Channel Coding	MO4.R5: LDPC Codes 2	MO4.R6: DNA storage and coding	MO4.R7: Combinatorial Coding Theory 2	MO4.R8: Discrete Channels	MO4.R9: AMP, Sparsity and Sketching
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

Other Events

12:50–14:35 **Alumni in Industry** . . . . Ballroom I

15:25–16:55 **Recent Results Poster** . . . . Level -1 Lobby

19:00–22:30 **Welcome Reception** . . . . Stavros Niarchos Foundation

Bus Transfer:

18:30   Athenaeum InterContinental Athens → Stavros Niarchos Foundation

from 20:30   Stavros Niarchos Foundation → Athenaeum InterContinental Athens & ISIT 2024 Shuttle Bus Stop

Tuesday, July 9

Plenary Talk   (Ballroom II & III)   8:30–9:35

Will We Ever Learn? A Sensor's Lament, and other Stories

Gregory Wornell, Massachusetts Institute of Technology, USA

Over many decades, information theoretic analysis has proven to be extraordinary useful in reimagining system architecture in diverse applications. Indeed, such analysis clarifies where information is and is not needed, and quantifies the impact of design constraints. Among other examples, this talk will focus on problems of acquisition and digital conversion of sensor data, which straddles the analog/digital interface. The lack of adaptability at this interface often necessitates considerable overprovisioning in contemporary systems, and leads to a significant bottleneck in the information pipeline. Highlighting efforts within and beyond the community, this talk will discuss some of what information theory reveals about what might be possible with respect to addressing these challenges, and about the prospects of learning at the edge.

Biography

Gregory W. Wornell received his Ph.D. from the Massachusetts Institute of Technology (MIT) in electrical engineering and computer science in 1991. Since then he has been on the faculty at MIT, where he is the Sumitomo Professor of Engineering in the department of Electrical Engineering and Computer Science (EECS). At MIT he leads the Signals, Information, and Algorithms Laboratory, and is affiliated with the Research Laboratory of Electronics (RLE), and the Computer Science and Artificial Intelligence Laboratory (CSAIL). He has been involved in the Information Theory and Signal Processing societies in a variety of capacities, and maintains a number of industrial relationships and activities. Among awards for his research and teaching is the 2019 IEEE Leon K. Kirchmayer Graduate Teaching Award.

Sessions

TU1 — 9:45–11:05

TU1.R1: Statistical Learning	TU1.R2: Quantum Information 3	TU1.R3: Codes for Storage 1	TU1.R4: Hypothesis Testing 1	TU1.R5: Rate-Distortion Theory 2	TU1.R6: Biology: Sequence Reconstruction	TU1.R7: Algebraic Decoding	TU1.R8: Privacy in Coded Computing	TU1.R9: Age of Information 1
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

TU2 — 11:30–12:50

TU2.R1: Bayesian estimation	TU2.R2: Quantum Shannon Theory 1	TU2.R3: Codes for Storage 2	TU2.R4: Change Point Detection	TU2.R5: Rate-Distortion-Perception	TU2.R6: Biology: Insertions and Deletions	TU2.R7: Sequences 1	TU2.R8: Coding and Access for Memory	TU2.R9: Age of Information 2
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

TU3 — 14:25–15:45

TU3.R1: Deep Learning in Communications	TU3.R2: Quantum Shannon Theory 2	TU3.R3: Codes for Storage 3	TU3.R4: Hypothesis Testing 2	TU3.R5: Error Exponents	TU3.R6: Network Coding 1	TU3.R7: Sequences 2	TU3.R8: Distributed Computing	TU3.R9: Age of Information 3
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

TU4 — 16:05–17:25

TU4.R1: Deep Learning in Coding	TU4.R2: Quantum Shannon Theory 3	TU4.R3: Codes for Storage 4	TU4.R4: Seq. Hypothesis Testing and Change Detection	TU4.R5: Mismatched and Universal Decoding	TU4.R6: Network Coding 2	TU4.R7: Rank Metric Codes	TU4.R8: Coded Caching	TU4.R9: Energy and Computational Efficiency
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

Other Events

Wednesday, July 10

A few options go a long way: List decoding and applications

Venkatesan Guruswami, University of California, Berkeley, USA

List decoding allows the error-correction procedure to output a small list of candidate codewords, and the decoding is deemed successful if the list includes the original uncorrupted codeword. List decoding has enjoyed a number of influential consequences. It allows bridging between the Shannon and Hamming worlds and achieving "capacity" even in worst-case error models. It serves as a versatile subroutine in varied error-correction scenarios not directly tied to list decoding. It boasts a diverse array of "extraneous" applications in computational complexity, combinatorics, cryptography, and quantum computing. And it has infused several novel algebraic, probabilistic, combinatorial, and algorithmic techniques and challenges into coding theory.

This talk will provide a glimpse of several facets of list decoding, its origins, evolution, constructions, connections, and applications.

Biography

Venkatesan Guruswami received his Bachelor's degree in Computer Science from the Indian Institute of Technology at Madras in 1997 and his Ph.D. in Computer Science from the Massachusetts Institute of Technology in 2001. He is currently a Chancellor's Professor in the Electrical Engineering and Computer Science Department at the University of California, Berkeley, and a senior scientist at the Simons Institute for the Theory of Computing. He was a Miller Research Fellow at UC Berkeley and held faculty positions at the University of Washington and Carnegie Mellon University prior to his current position. His research interests span many topics such as coding and information theory, approximate optimization, computational complexity, pseudo-randomness, and related mathematics. Prof. Guruswami has served the theoretical computer science community in several leadership roles. He is the current Editor-in-Chief of the Journal of the ACM, and was previously Editor-in-Chief of the ACM Transactions on Computation Theory. He has served as the president of the Computational Complexity Foundation and on the editorial boards of JACM, the SIAM Journal on Computing and the IEEE Transactions on Information Theory. He has been program committee chair for the conferences CCC (2012), FOCS (2015), ISIT (2018, co-chair), FSTTCS (2022), and ITCS (2024). Prof. Guruswami is a recipient of a Guggenheim Fellowship, a Simons Investigator award, the Presburger Award, Packard and Sloan Fellowships, the ACM Doctoral Dissertation Award, an IEEE Information Theory Society Paper Award and a Distinguished Alumnus Award from IIT Madras. He was an invited speaker at the 2010 International Congress of Mathematicians. Prof. Guruswami is a fellow of the ACM, IEEE, and AMS.

WE1 9:50–11:10

WE1.R1: Symmetric Cryptography	WE1.R2: Federated Learning	WE1.R3: Coded Caching: Privacy and Security	WE1.R4: Multi Terminal Source Coding	WE1.R5: Broadcast Channels	WE1.R6: Coding in Biology 3	WE1.R7: Combinatorics and Information Theory 1	WE1.R8: Convolutional and Streaming Codes 1	WE1.R9: Wireless 1
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

WE2 11:30–12:50

WE2.R1: Code Based Cryptography	WE2.R2: Semi-Supervised and Federated Learning	WE2.R3: Secure Multiparty Computation	WE2.R4: Entropy Coding, Compression and Quantization	WE2.R5: Channel Synthesis and Coordination	WE2.R6: Information Theory in Biology	WE2.R7: Combinatorics and Information Theory 2	WE2.R8: Convolutional and Streaming Codes 2	WE2.R9: Wireless 2
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

Other Events

13:00–18:00	**Chess Event: Invited Talks and Simultaneous Game** . . . . Ballroom I
	13:00–14:00 Lunch
	14:00–14:30 "The machine learning tools and ideas behind the top chess engines" by Jonathan Rosenthal
	14:30–15:00 "How chess engines have transformed the game of chess" by Vasilios Kotronias
	15:00–15:30 Coffee Break
	15:30–18:00 Simultaneous Chess Game

Thursday, July 11

Information Theory and High-Dimensional Bayes Computation

Andrew Barron, Yale University, USA

Information theory provides foundations and links among the problems of model discovery, prediction, compression, estimation and communication of data sequences. Various procedures are available to tackle such problems. Among such, the Bayes procedures are not only average case optimal, they also provide favorable individual case performance. Importantly for engineering and scientific practice, a number of Bayesian modeling developments are associated with providing computationally effective methods for sequence prediction, compression, and channel decoding. Laplace's approximation of Bayes factors, the use of Jeffreys' prior, their relationship to stochastic complexity and to minimax redundancy and to minimax regret, the index of resolvability, the average case optimality of Bayes predictive distributions for relative entropy loss, and the information-theoretic determination minimax statistical risk provide some starting points which we may discuss at the overlap of Bayes theory and information theory.

Models for sequences of discrete outcomes and models for continuous parameter function estimation provide natural playgrounds. For discrete data models, Laplace's rule of succession, the Krichevsky-Trofimov rule, the Shtarkov minimax regret rule, on-line learning with log-loss, the Willems et al. Context Tree Weighting Algorithm, and capacity-achieving LDPC codes with Bayesian belief propagation/message passing are among the important developments we may discuss. Colleagues are exploring the impact of some of these models considerably beyond their originally intended context.

Particular attention will be given to continuous data models. We start with the Bayesian interpretation of the development of least squares by Gauss and the Bayesian and information theory implications of the extensions to recursive least squares, linear predictive coding, Kalman filtering, and online learning with squared error loss. As with certain discrete models, these continuous models permit explicit determination of procedures that are Bayes optimal and nearly pointwise regret optimal for arbitrary sequences. For log-concave distributions the critical development of information-theoretic characterization of rapid mixing, initiated by Bakry and Emery and carried forward by various prominent scholars, brings many other Bayesian prediction and estimation problems into the computationally feasible playground, even in high dimensions. We may discuss various such problems. These include the class of all the location estimation problems and linear regression problems with log-concave error distributions, for which the uniform prior is provably minimax for cumulative Kullback loss and minimax for data compression given initial data. Also included are Cover's universal portfolios which are log-concave integrations that become computable even with a large number of stocks. For Gaussian channel communication via superposition codes (also called regression codes), adaptive successive decoders and approximate message passing algorithms for approximate computation of Bayes optimal decoders are provably computationally feasible and capacity achieving.

However, the lack of provably effective optimization or sampling methods plague the important classes of high-dimensional nonlinear function modeling problems, including modern artificial neural networks via deep learning. These network models can be proven to be information-theoretically, statistically, and approximation-theoretically accurate even in high-dimensional settings for suitable classes of functions. These artificial neural networks models have multimodal posterior distributions. Nevertheless, we show, in joint work with Curtis McDonald, how to overcome the computation-theoretic challenge by the introduction of certain auxiliary parameters for which the conditional distribution of the network parameters given the data and the auxiliary parameters are always log-concave. Importantly, when the network parameter dimension exceeds the sample size to the 1.5 power, we show that the distribution of the auxiliary parameters becomes log-concave. Accordingly, we can first sample the auxiliary parameters and then conditionally sample the network parameters to computationally efficiently produce Bayes optimal Monte Carlo neural net estimates, appealing to the above-mentioned information-theoretic results. These provide the first demonstration of computational learnability of accurate statistical estimates for such neural networks, in particular for the class of functions with bounded variation with respect to the neural network class.Over many decades, information theoretic analysis has proven to be extraordinarily useful in reimagining system architecture in diverse applications. Indeed, such analysis clarifies where information is and is not needed, and quantifies the impact of design constraints. Among other examples, this talk will focus on problems of acquisition and digital conversion of sensor data, which straddles the analog/digital interface. The lack of adaptability at this interface often necessitates considerable overprovisioning in contemporary systems, and leads to a significant bottleneck in the information pipeline. Highlighting efforts within and beyond the community, this talk will discuss some of what information theory reveals about what might be possible with respect to addressing these challenges, and about the prospects of learning at the edge.

Biography

Andrew R Barron, Professor of Statistics and Data Science at Yale University, has made outstanding contributions at the overlap of Information Theory with Probability and Statistics. Prior to joining Yale University in 1992, Barron was a faculty member in Statistics and Electrical and Computer Engineering at the University of Illinois at Urbana Champaign. Barron received his MS and PhD degrees from Stanford University in Electrical Engineering in 1985 under the direction of Tom Cover and a Bachelor's degree in the fields of Mathematical Science and Electrical Engineering from Rice University in 1981. Barron is a Fellow of the IEEE, a Medallion Prize winner of the Institute of Mathematical Statistics, and a winner along with Bertrand Clarke of the IEEE Thompson Prize. Andrew Barron has served as a Secretary of the Board of Governors of the IEEE Information Theory Society and several terms as an elected member of this Board. He has been an associate editor of the IEEE Transactions on Information Theory and the Annals of Statistics. Barron has served on and subsequently chaired the Thomas M. Cover Dissertation Prize Committee. At Yale University, Barron regularly teaches courses in Information Theory, Theory of Statistics, High-Dimensional Function Estimation and Artificial Neural Networks.

Barron has served terms as department chair, director of graduate studies, director of undergraduate studies in Statistics, director of undergraduate studies in Applied Mathematics, and courtesy appointee as Professor of Electrical Engineering. Barron has proudly mentored 20 PhD students. Often working with these students and other colleagues, Barron is known for several specific research accomplishments: in particular, for generalizing the AEP to continuous-valued ergodic processes, for proving an information-theoretic Central Limit Theorem, for determining information-theoretic aspects of portfolio estimation, for formulating the index of resolvability and providing an associated characterization of performance of Minimum Description Length estimators, for determining the asymptotics of universal data compression in parametric families, for characterizing the concentration of Bayesian posteriors in the vicinity of parameters in the information support of the prior, for an information-theoretic determination of the minimax rates of function estimation, for providing information-theoretic characterization of statistical efficiency, for providing an early unifying view of statistical learning networks, for developing approximation and estimation bounds for artificial neural networks and recent extensions to deep learning, for advancing greedy algorithms for training neural networks, for information-theoretic aggregation of least squares regressions, and for formulating and proving capacity-achieving sparse regression codes for Gaussian noise communication channels. Barron maintains homes in New Haven, Connecticut and in Osijek, Croatia with his wife Lidija. Barron is also a distinguished FAI free flight model glider competitor in the F1A class, as a five time U.S. National Champion, a four time U.S. National Team Member at World Championships (most recently in 2023), as a two time America's Cup Champion, and as a co-manager and co-owner with family members of Barron Field, LLC.

Sessions

TH1 — 9:45–11:05

TH1.R1: Language Models	TH1.R2: Quantum Data and Computation	TH1.R3: Multi-Armed Bandits 1	TH1.R4: Information Measures 1	TH1.R5: Repair Codes 1	TH1.R6: MIMO 1	TH1.R7: Lattice Codes	TH1.R8: Polar Codes 1	TH1.R9: Coding Over Networks
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

TH2 — 11:30–12:50

TH2.R1: Sampling and Samplers	TH2.R2: Quantum Coding Theory 1	TH2.R3: Multi-Armed Bandits 2	TH2.R4: Information Measures and Randomness	TH2.R5: Repair Codes 2	TH2.R6: MIMO 2	TH2.R7: Subspace Codes	TH2.R8: Polar Codes 2	TH2.R9: Scheduling and Networking
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

TH3 — 14:35–15:55

TH3.R1: Information Bottleneck	TH3.R2: Quantum Coding Theory 2	TH3.R3: Secure Federated Learning	TH3.R4: Information Measures II	TH3.R5: Distributed Computing: Matrix Multiplication	TH3.R6: Integrated Sensing and Communication 1	TH3.R7: Algebraic Aspects of Coding Theory 1	TH3.R8: Topics in Modern Coding Theory 2	TH3.R9: Private Information Retrieval 1
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

TH4 — 16:25–17:45

TH4.R1: Generalization Bounds	TH4.R2: Quantum Coding Theory 3	TH4.R3: Secure Aggregation in Federated Learning	TH4.R4: Maximal Leakage	TH4.R5: Coded and Distributed Computing	TH4.R6: Integrated Sensing and Communication 2	TH4.R7: Algebraic Aspects of Coding Theory 2	TH4.R8: Topics in Modern Coding Theory 3	TH4.R9: Private Information Retrieval 2
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

Other Events

12:50–14:35 **Meet the Shannon Lecturer** . . . . Ballroom I

16:25–17:45 **Bits n Bots Solutions Showcase** . . . . Ballroom I

19:30–00:30 **Banquet** . . . . Ble Azure

Bus Transfer:

    18:40   Athenaeum InterContinental Athens → Ble Azure

    18:45   ISIT 2024 Shuttle Bus Stop → Ble Azure

from 22:30   Ble Azure → Athenaeum InterContinental Athens & ISIT 2024 Shuttle Bus Stop

Plenary Talk   (Ballroom II & III)   8:30–9:35

Codes: (Always) at Your Service

Emina Soljanin, Rutgers University, USA

Error control coding is essential in many scientific disciplines and nearly all telecommunication systems. Proposals for new codes and new roles of codes in communications and computing systems continue to appear. Each new proposal initially faces (justified) skepticism and pushback by practitioners until discarded or adopted as a necessary evil. Coding performance metrics have become hard to define and even harder to evaluate. The first part of this talk considers the service rate region of a code, a new performance metric of a distributed system that stores data redundantly using the code. It measures the storage system's ability to serve multiple users requesting different data objects. The second part of the talk asks if there is a coding gain in adding redundancy to distributed computing and how we can evaluate and achieve it.

Biography

Emina Soljanin is a Distinguished Professor of Electrical and Computer Engineering at Rutgers University. Before moving to Rutgers in January 2016, she was a (Distinguished) Member of Technical Staff for 21 years in Bell Labs Math Research. She received her Ph.D. and M.Sc. from Texas A & M University and her B.S. from the University of Sarajevo, all in Electrical Engineering. Prof. Soljanin's research interests and expertise are broad. She has participated in numerous research and business projects. These projects include designing the first distance-enhancing codes implemented in commercial magnetic storage devices, the first forward error correction for Bell Labs optical transmission devices, color space quantization for image processing, link error prediction methods for Hybrid ARQ wireless standards, network and rateless coding, and network data security and user anonymity. Her most recent activities are in distributed computing systems and quantum information science. Prof. Soljanin has served as an Associate Editor for Coding Techniques for the IEEE Transactions on Information Theory and has had various roles in other journal editorial boards, special workshop organizing, and conference program committees. She is an IEEE Fellow, an outstanding alumnus of the Texas A & M School of Engineering, the 2011 Padovani Lecturer, a 2016/17 Distinguished Lecturer, and the 2019 IEEE Information Theory Society President. Prof. Soljanin's favorite recognition is the 2023 Aaron D. Wyner Distinguished Service Award.

Sessions

FR1 — 9:45–11:05

FR1.R1: Post-Quantum Cryptography	FR1.R2: Hypothesis Testing 3	FR1.R3: Polar Codes 3	FR1.R4: Capacity and Guessing	FR1.R5: Multiple Access	FR1.R6: Group Testing 1	FR1.R7: Information Theory and Computer Science	FR1.R8: Differential Privacy	FR1.R9: Complexity and Computation Theory 1
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

FR2 — 11:30–12:50

FR2.R1: Quantum Cryptography	FR2.R2: Network Information Theory 1	FR2.R3: Combinatorial Coding Theory 3	FR2.R4: Information Inequalities 1	FR2.R5: Unsourced Random Access	FR2.R6: Group Testing 2	FR2.R7: Information- theoretic Control	FR2.R8: Privacy and Security in Computing	FR2.R9: Complexity and Computation Theory 2
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

FR3 — 14:35–15:55

FR3.R1: Quantum Security and Privacy	FR3.R2: Network Information Theory 2	FR3.R3: Iterative Decoding	FR3.R4: Information Inequalities 2	FR3.R5: Estimation 1	FR3.R6: Capacity of Biological Channels	FR3.R7: Graph Theory and Analytics	FR3.R8: Privacy in Communication and Computation	FR3.R9: Signal Processing 1
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

FR4 — 16:25–17:45

FR4.R1: Cryptographic Protocols	FR4.R2: MDL and Prediction	FR4.R3: List Decoding	FR4.R4: Entropy Power Inequalities	FR4.R5: Estimation 2	FR4.R6: Information and Coding in Biology	FR4.R7: Distributed Learning	FR4.R8: Private Information Retrieval 3	FR4.R9: Signal Processing 2
Ballroom II & III	Ypsilon I-II-III	Ypsilon IV-V-VI	Omikron II	Omikron I	Sigma/Delta	VIP	Omega	Lamda

Other Events

12:50–14:35	**Mentoring & Outreach**	Ballroom I
16:25–17:45	**Early Career Funding Panel (NSF/ERC)**	Ballroom I

ISIT 2024 Recent Results Poster Session

Monday, July 8

Note: These posters have not gone through a formal review process and will not appear in the published proceedings of ISIT 2024.

Coding Techniques and Applications

A Refinement of Expurgation
Giuseppe Cocco, Albert Guillén i Fàbregas, Josep Font-Segura

Achieving Optimal Short-Blocklength Secrecy Rates Using PAC Codes for the Erasure Wiretap Channel
Hsuan-Yin Lin, Yi-Sheng Su, Mao-Ching Chiu

Binary Cyclic-gap Constant Weight Codes of Order-Optimal Size
Birenjith Sasidharan, Emanuele Viterbo, Son Hoang Dau

Toward Low-latency Iterative Decoding of QLDPC Codes Under Circuit-Level Noise
Anqi Gong, Joseph M. Renes, Sebastian Cammerer

About the structure of binary CSS-T quantum codes
Eduardo Camps-Moreno, Hiram H. López, Gretchen L. Matthews, Diego Ruano, Rodrigo San-José, Ivan Soprunov

An Improved Existence of Hadamard Matrices from Golay Complementary Sequences
Cheng Du, Yi Jiang

Finite-rate sparse quantum codes aplenty
Maxime Tremblay, Guillaume Duclos-Cianci, Stefanos Kourtis

Communications

An Achievable Rate-Distortion Region of Joint Identification and Sensing for Multiple Access Channels
Yaning Zhao, Wafa Labidi, Holger Boche, Eduard Jorswieck, Christian Deppe

Discrete Fourier Transform Randomness Test based on Spectral PAPR
Ying Li, Chia-Chu Lang

GORA: Goal Oriented Random Access
Ahsen Topbas, Cagri Ari, Onur Kaya, Elif Uysal

Orthogonal Space Time Block Coding for Atmospheric Turbulence Mitigation in OAM-based FSO Systems
Merhawit Berhane Teklu, Yeon Ho Chung

SCMA with Rate-One Markovian Encoding
Jian-Jia Weng, Yi-Chien Chen, Yu-Ted Su

Covert Communication Over Additive-Noise Channels
Cécile Bouette, Laura Luzzi, Ligong Wang

Energy Efficient Resource Allocation for Communication and Control Co-design
Zheyuan Yang, Jonathan Casas, Gerhard P. Fettweis

Information Reconciliation to Enhance the Accuracy of CSI-based Physical Layer Authentication
Atsu Kokuvi Angélo Passah, Rodrigo C. de Lamare, Arsenia Chorti

Quasi-Orthogonal Beamspace Spatial Modulation (QO-BSM) in Near-Field LoS MIMO Channel
Lin Chen, Xiaojun Yuan, Ying-Jun Angela Zhang

Towards the Foundations of Semantic Communications for Dynamical Systems
Javad Gholipour, Philipp Schulz, Jonathan Casas, Gerhard Fettweis

Information Theory

Binary Maximal Leakage Meets Local Differential Privacy
Cemre Cadir, Yanina Y. Shkel

Finite Blocklength Performance of Capacity-achieving Codes in the Light of Complexity Theory
Holger Boche, Andrea Grigorescu, Rafael F. Schaefer, H. Vincent Poor

Task-Oriented Lossy Compression with Data, Perception, and Classification Constraints
Yuhan Wang, Youlong Wu, Shuai Ma, Ying-Jun Angela Zhang

Towards Rate-Distortion Analysis in Symbol-Based Assistive Communication
Rosanna Yuen-Yan Chan

The Capacity Region of the MIMO-MAC-RIS Channel: A Large System Analysis
Aris L. Moustakas, George C. Alexandropoulos

Capacity Approximation for the Insertion Channel with Small Insertion Probability
Busra Tegin, Tolga M Duman

On Exact Sequence Reconstruction Over a Stochastic t-Error Channel
Vivian Papadopoulou, V. Arvind Rameshwar, Antonia Wachter-Zeh

The Differential Privacy Framework for the Group Representation and Group Testing Problems
Mira Gonen, Michael Langberg, Alex Sprintson

Understanding Grokking Using Sliced Mutual Information
Shelvia Wongso, Mehul Motani

Machine Learning

A Novel Combinatorial Method for Distributed Matrix Multiplication
Javad Maheri, Petros Elia

Byzantine-Resilient and Information-Theoretically Private Federated Learning
Yue Xia, Christoph Hofmeister, Maximilian Egger, Rawad Bitar

Just Wing It: Optimal Estimation of Missing Mass in a Markovian Sequence
Ashwin Pananjady, Vidya Muthukumar, Andrew Thangaraj

Secure Distributed Matrix Multiplication with Modulo Degree Tables
Christoph Hofmeister, Maximilian Egger, Rawad Bitar, Antonia Wachter-Zeh

Tessellated Distributed Computing
Ali Khalesi, Petros Elia

Adaptive Coded Federated Learning: Privacy Preservation and Straggler Mitigation
Chengxi Li, Ming Xiao, and Mikael Skoglund

High-dimensional sparse classification using exponential weighting with empirical hinge loss
The Tien Mai

Provably E cient Information-Directed Sampling Algorithms for Multi-Agent Reinforcement Learning
Qiaosheng Zhang, Zhuoran Yang, Chenjia Bai, Shuyue Hu, Zhen Wang

Structured Polynomial Codes
Mohammad Reza Deylam Salehi, Ahmad Tanha, Derya Malak

The Impact of Matrix Density and Threshold Variation on Threshold Group Testing
Jin-Taek Seong

New Applications

Collaborative Bayesian Persuasion
Ananya Das, Amitalok J. Budkuley

Information-Theoretical Analysis of Event-Triggered Molecular Communication
Wafa Labidi, Christian Deppe, Holger Boche

Networked-TCL: Modeling Epidemics on Networks
Chaorui Yao, Rahal Nanayakkara, Jonathan Bunton, Matteo Marchi, Pavlos Nikolopoulos, Christina Fragouli, Paulo Tabuada

Performance Analysis of Lightweight Instantly Decodable Network Coding
Rina Su, Qifu Tyler Sun, Le Wang, Zhongshan Zhang

Retro-information implies quantum unitary violation even in absence of Closed Time Curves
Philippe Jacquet, Veronique Joly

The asymptotic behavior of generalized IRLS algorithms
Chiraag Kaushik, Justin Romberg, Vidya Muthukumar

Gaussian Formulation and Noise Variations for Optimal Location Estimation
Dimitris Milioris

Modelling for Efficient Scientific Data Storage Using Simple Graphs in DNA
Asad Usmani, Lena Wiese

Optimizing Risk-Adjusted Decision-Making: Sharpe Ratio Maximization Bandit
Sabrina Khurshid, Mohammed Shahid Abdulla, Gourab Ghatak

Quantum Limits to Phase Estimation with Statistical Mixtures of Displaced and Squeezed Number States
Jacob Trzaska, Amit Ashok

SWAP: Sparse Entropic Wasserstein Regression for Robust Network Pruning
Lei You, Hei Victor Cheng

ISIT 2024 Technical Program

10:05	10:25	10:45	11:05

MO1.R1: Student Paper Award 1 Chair: Aaron Wagner — Ballroom II & III

10:05	10:25	10:45	11:05
MSR Codes with Linear Field Size and Smallest Sub-packetization for Any Number of Helper Nodes *Guodong Li, Ningning Wang, Sihuang Hu, Min Ye*	An entropic inequality in finite Abelian groups analogous to the unified Brascamp-Lieb and Entropy Power Inequality *Chin Wa (Ken) Lau, Chandra NAIR*	Neural Network Equalizers and Successive Interference Cancellation for Bandlimited Channels with a Nonlinearity *Daniel Plabst, Tobias Prinz, Francesca Diedolo, Thomas Wiegart, Georg Böcherer, Norbert Hanik, Gerhard Kramer*	

MO1.R2: Topics in Machine Learning 1 Chair: Deniz Gündüz — Ypsilon I-II-III

10:05	10:25	10:45	11:05
Towards General Function Approximation in Nonstationary Reinforcement Learning *Songtao Feng, Ming Yin, Ruiquan Huang, Yu-Xiang Wang, Jing Yang, Yingbin Liang*	Camouflage Adversarial Attacks on Multiple Agent Systems *Ziqing Lu, Guanlin Liu, Lifeng Lai, Weiyu Xu*	Erasure Coded Neural Network Inference via Fisher Averaging *Divyansh Jhunjhunwala, Neharika Jali, Gauri Joshi, Shiqiang Wang*	Frequency Domain Diffusion Model with Scale-Dependent Noise Schedule *Amir Ziashahabi, Baturalp Buyukates, Artan Sheshmani, Yi-Zhuang You, Salman Avestimehr*

MO1.R3: Topics in Modern Coding Theory 1 Chair: Van Khu Vu — Ypsilon IV-V-VI

10:05	10:25	10:45	11:05
Sparsely Pre-transformed Polar Codes for Low-Complexity SCL Decoding *Geon Choi, Namyoon Lee*	Approaching Maximum Likelihood Decoding Performance via Reshuffling ORBGRAND *Li Wan, Wenyi Zhang*	Improved Construction of Robust Gray Codes *Dorsa Fathollahi, Mary Wootters*	Permutation Codes in Levenshtein, Ulam and Generalized Kendall-tau Metrics *Shuche Wang, Yeow Meng Chee, Van Khu Vu*

MO1.R4: Lossless Source Coding Chair: Tamas Linder — Omikron II

10:05	10:25	10:45	11:05
AIFV Codes Allowing 2-bit Decoding Delays for Unequal Bit Cost *Ken-ichi Iwata, Kengo Hashimoto, Takahiro Wakayama, Hirosuke Yamamoto*	An Asymmetric Encoding-Decoding Scheme for Lossless Data Compression *Hirosuke Yamamoto, Ken-ichi Iwata*	Better Algorithms for Constructing Minimum Cost Markov Chains and AIFV Codes *Mordecai Golin, Reza Hosseini Dolatabad, Arian Zamani*	A (Weakly) Polynomial Algorithm for AIFV Coding *Reza Hosseini Dolatabadi, Mordecai Golin, Arian Zamani*

MO1.R5: Probability and Bounds Chair: Bobak Nazer — Omikron I

10:05	10:25	10:45	11:05
A Third Information-Theoretic Approach to Finite de Finetti Theorems *Mario Berta, Lampros Gavalakis, Ioannis Kontoyiannis*	An extension of Mcdiarmid's inequality *Richard Combes*	A multi-sequence Prophet Inequality under observation constraints *Aristomenis Tsopelakos, Olgica Milenkovic*	L_2 Lower Bounds on Distributed Estimation via Fisher Information *Wei-Ning Chen, Ayfer Özgür*

MO1.R6: Coding in Biology 1 Chair: Eitan Yaakobi — Sigma/Delta

10:05	10:25	10:45	11:05
Coding for Composite DNA to Correct Substitutions, Strand Losses, and Deletions *Frederik Walter, Omer Sabary, Antonia Wachter-Zeh, Eitan Yaakobi*	Correcting a Single Deletion in Reads from a Nanopore Sequencer *Anisha Banerjee, Yonatan Yehezkeally, Antonia Wachter-Zeh, Eitan Yaakobi*	Error-Correcting Codes for Combinatorial Composite DNA *Omer Sabary, Inbal Preuss, Ryan Gabrys, Zohar Yakhini, Leon Anavy, Eitan Yaakobi*	The Capacity of the Weighted Read Channel *Omer Yerushalmi, Tuvi Etzion, Eitan Yaakobi*

MO1.R7: Combinatorial Coding Theory 1 Chair: Ago-Erik Riet — VIP

10:05	10:25	10:45	11:05
On the existence of some completely regular codes in Hamming graphs *Denis Krotov*	Parity-check matrix for Z/p^s-additive codes: efficient computation *Cristina Fernández-Córdoba, Adrián Torres-Martín, Carlos Vela, Mercè Villanueva*	Explicit Good Codes Approaching Distance 1 in Ulam Metric *Elazar Goldenberg, Mursalin Habib, Karthik C. S.*	Near-optimal constructions of constant weight codes and constant composition codes asymptotically attaining the Johnson bound *Miao Liu, Chong Shangguan*

MO1.R8: Channel Capacity Chair: Amos Lapidoth — Omega

10:05	10:25	10:45	11:05
Competitive Analysis of Arbitrary Varying Channels *Michael Langberg, Oron Sabag*	The State-Dependent Channel with a Rate-Limited Cribbing Helper *Amos Lapidoth, Yossef Steinberg*	Fixed-Memory Capacity Bounds for the Gilbert-Elliott Channel *Yutong Han, Albert Guillén i Fàbregas*	An Achievable Scheme for Channels with an Amplitude Constraint Using Walsh Functions *Ron Dabora, Shlomo Shamai (Shitz), H. Vincent Poor*

MO1.R9: Secure Communication and Computation Chair: Martina Cardone — Lamda

10:05	10:25	10:45	11:05
On the Secrecy Capacity of 1-2-1 Atomic Networks *Mohammad Milanian, Minoh Jeong, Martina Cardone*	Covert Distributed Detection over Discrete Memoryless Channels *Abdelaziz Bounhar, Mireille Sarkiss, Michèle Wigger*	A Monotone Circuit Construction for Individually-Secure Multi-Secret Sharing *Cailyn Bass, Alejandro Cohen, Rafael D'Oliveira, Muriel Medard*	Bounds on the Statistical Leakage-Resilience of Shamir's Secret Sharing *Utkarsh Gupta, Hessam Mahdavifar*

11:50	12:10	12:30	12:50

MO2.R1: Student Paper Award 2 Chair: Meir Feder — Ballroom II & III

Resource-Efficient Entanglement-Assisted Covert Communications over Bosonic Channels

Shi-Yuan Wang, Shang-Jen Su, Matthieu Bloch

Optimal Redundancy in Exact Channel Synthesis

Sharang Sriramu, Aaron Wagner

Linear Operator Approximate Message Passing: Power Method with Partial and Stochastic Updates

Riccardo Rossetti, Bobak Nazer, Galen Reeves

MO2.R2: Binary Classification Chair: Albert Guillén i Fàbregas — Ypsilon I-II-III

Mining Invariance from Nonlinear Multi-Environment Data: Binary Classification

Austin Goddard, Kang Du, Yu Xiang

Benefits of Stochastic Mirror Descent in High-Dimensional Binary Classification

Nithin Varma Kanumuri, Babak Hassibi

Regularized Linear Regression for Binary Classification

Danil Akhtiamov, Reza Ghane, Babak Hassibi

MO2.R3: Fairness Chair: Flavio Calmon — Ypsilon IV-V-VI

Group Fairness with Uncertain Sensitive Attributes

Abhin Shah, Maohao Shen, Jongha Ryu, Subhro Das, Prasanna Sattigeri, Yuheng Bu, Gregory Wornell

A Unified View of Group Fairness Tradeoffs Using Partial Information Decomposition

Faisal Hamman, Sanghamitra Dutta

Intrinsic Fairness-Accuracy Tradeoffs under Equalized Odds

Meiyu Zhong, Ravi Tandon

MO2.R4: Lossy Compression Applications Chair: Nir Weinberger — Omikron II

Minimizing Distortion in Data Embedding Using LDGM Codes and the Cavity Method

Masoumeh Alinia, David Mitchell

Reinforcement Learning for Near-Optimal Design of Zero-Delay Codes for Markov Sources

Liam Cregg, Tamas Linder, Serdar Yuksel

Characterization of the Distortion-Perception Tradeoff for Finite Channels with Arbitrary Metrics

Dror Freirich, Nir Weinberger, Ron Meir

MO2.R5: Estimation and Prediction Chair: Osvaldo Simeone — Omikron I

Generalization and Informativeness of Conformal Prediction

Matteo Zecchin, Sangwoo Park, Osvaldo Simeone, Fredrik Hellström

Cross-Validation Conformal Risk Control

Kfir M. Cohen, Sangwoo Park, Osvaldo Simeone, Shlomo Shamai

Risk Bound on MDL Estimator for Simple ReLU Networks

Yoshinari Takeishi, Jun'ichi Takeuchi

MO2.R6: Information Theory in NeuroScience Chair: Pulkit Grover — Sigma/Delta

Message-Relevant Dimension Reduction of Neural Populations

Amanda Merkley, Alice Nam, Kate Hong, Pulkit Grover

A Simple Self-Decoding Model for Neural Coding

Thach V. Bui

Causality Testing, Directed Information and Spike Trains

Andreas Theocharous, Georgia Gregoriou, Panos Sapountzis, Ioannis Kontoyiannis

MO2.R7: Reed Muller Codes Chair: Moshe Schwartz — VIP

Estimating the Weight Enumerators of Reed-Muller Codes via Sampling

Shreyas Jain, V Arvind Rameshwar, Navin Kashyap

Generalized Reed-Muller codes: A new construction of information sets

José Joaquín Bernal

Recursive Subproduct Codes with Reed-Muller-like Structure

Aditya Siddheshwar, Lakshmi Prasad Natarajan, Prasad Krishnan

MO2.R8: Identification Chair: Holger Boche — Omega

Deterministic identification over channels with finite output: a dimensional perspective on superlinear rates

Pau Colomer, Christian Deppe, Holger Boche, Andreas Winter

Deterministic Identification: From Theoretical Analysis to Practical Identification Codes

Ilya Vorobyev, Christian Deppe, Luis Torres-Figueroa, Holger Boche

Second-Order Identification Capacity of AWGN Channels

Zhicheng Liu, Yuan Li, Huazi Zhang, Jun Wang, Guiying Yan, Zhiming Ma

MO2.R9: Secret Key Schemes Chair: Cheuk Ting Li — Lamda

Variable-Length Secret Key Agreement via Random Stopping Time

Junda Zhou, Cheuk Ting Li

A Perfect Ideal Hierarchical Secret Sharing Scheme Based on The CRT for Polynomial Rings

Jing Yang, Shu-Tao Xia, Xianfang Wang, Jiangtao Yuan, Fang-Wei Fu

Repurposing Physical Layer Secret Keys: A Novel Paradigm for Common Randomness Generation

Prashanth Kumar Herooru Sheshagiri, Juan Alberto Cabrera, Frank H. P. Fitzek

Monday, July 8

14:35	14:55	15:15	15:35

MO3.R1: Quantum Information 1 Chair: Christoph Hirche — Ballroom II & III

Limit Distribution for Quantum Relative Entropy	A Causal Model for Quantifying Multipartite Classical and Quantum Correlations	Entanglement cost of discriminating quantum states under locality constraints	Locally-Measured Rényi Divergences
Sreejith Sreekumar, Mario Berta	*Shuchan Wang, Gerhard Wunder*	*Chenghong Zhu, Chengkai Zhu, Zhiping Liu, Xin Wang*	*Tobias Rippchen, Sreejith Sreekumar, Mario Berta*

MO3.R2: Classification and Regression Chair: Adam Krzyzak — Ypsilon I-II-III

Effect of Weight Quantization on Learning Models by Typical Case Analysis	Sharp information-theoretic thresholds for shuffled linear regression	Data-Driven Estimation of the False Positive Rate of the Bayes Binary Classifier via Soft Labels	Rate of convergence of an over-parametrized convolutional neural network image classifier learned by gradient descent
Shuhei Kashiwamura, Ayaka Sakata, Masaaki Imaizumi	*Leon Lufkin, Yihong Wu, Jiaming Xu*	*Minoh Jeong, Martina Cardone, Alex Dytso*	*Michael Kohler, Adam Krzyzak, Benjamin Walter*

MO3.R3: Differential Privacy in Learning 1 Chair: Oliver Kosut — Ypsilon IV-V-VI

On the Privacy Guarantees of Differentially Private Stochastic Gradient Descent	Controlled privacy leakage propagation throughout differential private overlapping grouped learning	Utilitarian Privacy and Private Sampling	Age Aware Scheduling for Differentially-Private Federated Learning
Shahab Asoodeh, Mario Diaz	*Shahrzad Kiani, Franziska Boenisch, Stark C. Draper*	*Aman Bansal, Rahul Chunduru, Deepesh Data, Manoj Prabhakaran*	*Kuan-Yu Lin, Hsuan-Yin Lin, Yu-Pin Hsu, Yu-Chih Huang*

MO3.R4: Rate Distortion Theory 1 Chair: Wenyi Zhang — Omikron II

On the Rate-Distortion Function for Sampled Cyclostationary Gaussian Processes with Memory	On Convergence of Discrete Schemes for Computing the Rate-Distortion Function of Continuous Source	On the Lossy Compression of Spatial Networks	Estimation of Rate-Distortion Function for Computing with Decoder Side Information
Zikun Tan, Ron Dabora, H. Vincent Poor	*Lingyi Chen, Shitong Wu, Wenyi Zhang, Huihui Wu, Hao Wu*	*Praneeth Kumar Vippathalla, Martin Wachiye Wafula, Mihai-Alin Badiu, Justin P. Coon*	*Heasung Kim, Hyeji Kim, Gustavo De Veciana*

MO3.R5: LDPC Codes 1 Chair: Pascal Vontobel — Omikron I

Design and analysis of a family of complexity-constrained LDPC codes	Generalized Quasi-Cyclic LDPC Codes: Design and Efficient Encoding	Progressive Reconstruction of Large QC-LDPC Codes over a Noisy Channel	Group Codes with Low-Density Orthogonal Idempotent
Massimo Battaglioni, Matteo Amagliani, Marco Baldi, Franco Chiaraluce, Giovanni Cancellieri	*Roxana Smarandache, Anthony Gómez-Fonseca, David Mitchell*	*Yuanbo Mi, Zhao Chen, Liuguo Yin, Xi Chen*	*Fabian Molina, Paolo Santini, Marco Baldi*

MO3.R6: Coding in Biology 2 Chair: Emanuele Viterbo — Sigma/Delta

Achieving DNA Labeling Capacity with Minimum Labels through Extremal de Bruijn Subgraphs	Coding Scheme for Noisy Nanopore Sequencing with Backtracking and Skipping Errors	Covering All Bases: The Next Inning in DNA Sequencing Efficiency	Asymptotically Optimal Codes Correcting One Substring Edit
Christoph Hofmeister, Anina Gruica, Dganit Hanania, Rawad Bitar, Eitan Yaakobi	*Yeow meng Chee, Kees A. Schouhamer Immink, Van Khu Vu*	*Hadas Abraham, Ryan Gabrys, Eitan Yaakobi*	*Yuting Li, Yuanyuan Tang, Hao Lou, Ryan Gabrys, Farzad Farnoud*

MO3.R7: Reed Solomon Codes Chair: Eduardo Camps — VIP

Efficient Decoding of a Class of Reed-Solomon Codes over Fermat Fields	Reed-Solomon Codes over Cyclic Polynomial Ring with Lower Encoding/Decoding Complexity	Deep Holes of Twisted Reed-Solomon Codes	Repairing Reed-Solomon Codes with Less Bandwidth
Chao Chen, Baoming Bai, Xiao Ma, Yunghsiang S Han, Nianqi Tang, Xiaotian Wang	*Wenhao Liu, Zhengyi Jiang, Zhongyi Huang, Linqi Song, Hanxu Hou*	*Weijun Fang, Jingke Xu*	*SHU LIU, Yunqi Wan, CHAOPING XING*

MO3.R8: Channels with Feedback Chair: Ram Zamir — Omega

Information Velocity of Cascaded AWGN Channels with Feedback	Message-Cognizant Assistance and Feedback for the Gaussian Channel	Channel Coding with Mean and Variance Cost Constraints	Systematic Transmission With Fountain Parity Checks for Erasure Channels With Stop Feedback
Elad Domanovitz, Anatoly Khina, Tal Philosof, Yuval Kochman	*Amos Lapidoth, Ligong Wang, Yiming Yan*	*Adeel Mahmood, Aaron Wagner*	*Hengjie Yang, Richard Wesel*

MO3.R9: Statistical Estimation and Detection Chair: Shirin Jalali — Lamda

Missing Mass under Random Duplications	Low-rank Matrix Sensing With Dithered One-Bit Quantization	Sharper rates of convergence for the tensor graphical Lasso estimator	Detection of Signals in Colored Noise: Leading Eigenvalue Test for Non-central F-matrices
Prafulla Chandra, Andrew Thangaraj	*Farhang Yeganegi, Arian Eamaz, Mojtaba Soltanalian*	*Shuheng Zhou, Kristjan Greenewald*	*Prathapasinghe Dharmawansa, Saman Atapattu, Jamie Evans, Kandeepan Sithamparanathan*

Monday, July 8   16:25–17:45

16:25	16:45	17:05	17:25

MO4.R1: Quantum Information 2 Chair: Christoph Hirche   Ballroom II & III

| Bipartite entanglement of noisy stabilizer states through the lens of stabilizer codes | Quantum Illumination Advantage for Classification Among an Arbitrary Library of Targets | Quantum Doeblin coefficients: A simple upper bound on contraction coefficients | Empirical Risk Minimization and Uniform Convergence for Probabilistically Observed and Quantum Measurement Hypothesis Classes |
| *Kenneth Goodenough, Aqil Sajjad, Eneet Kaur, Saikat Guha, Don Towsley* | *Ali Cox, Quntao Zhuang, Jeffrey Shapiro, Saikat Guha* | *Christoph Hirche* | *Abram Magner, Arun Padakandla* |

MO4.R2: Topics in Machine Learning 2 Chair: Lalitha Sankar   Ypsilon I-II-III

| Conditional Mutual Information Constrained Deep Learning: Framework and Preliminary Results | Supervised Contrastive Representation Learning: Landscape Analysis with Unconstrained Features | Theoretical Guarantees of Data Augmented Last Layer Retraining Methods | Robust VAEs via Generating Process of Noise Augmented Data |
| *En-Hui Yang, Shayan Mohajer Hamidi, Linfeng Ye, Renhao Tan, Beverly Yang* | *Tina Behnia, Christos Thrampoulidis* | *Monica Welfert, Nathan Stromberg, Lalitha Sankar* | *Hiroo Irobe, Wataru Aoki, Kimihiro Yamazaki, Yuhui Zhang, Takumi Nakagawa, Hiroki Waida, Yuichiro Wada, Takafumi Kanamori* |

MO4.R3: Differential Privacy in Learning 2 Chair: Ayfer Ozgur   Ypsilon IV-V-VI

| Optimal Private Discrete Distribution Estimation with One-bit Communication | Differentially Private Synthetic Data with Private Density Estimation | Training Generative Models from Privatized Data via Entropic Optimal Transport | Differentially Private Fair Binary Classifications |
| *Seung-Hyun Nam, Vincent Y. F. Tan, Si-Hyeon Lee* | *Nikolija Bojkovic, Po-Ling Loh* | *Daria Reshetova, Wei-Ning Chen, Ayfer Ozgur* | *Hrad Ghoukasian, Shahab Asoodeh* |

MO4.R4: Joint Source-Channel Coding Chair: Neri Merhav   Omikron II

| Few-Shot Channel-Agnostic Analog Coding: A Near-Optimal Scheme | One Shot Joint Source Channel Coding | Unequal Message Protection: One-Shot analysis via Poisson Matching Lemma | Power-limited Modulation-Estimation with a Helper |
| *Mohammad Ali Maddah-Ali, Soheil Mohajer* | *Nir Elkayam, Meir Feder* | *Ashish Khisti, Arash Behboodi, Gabriele Cesa, Pratik Kumar* | *Anatoly Khina, Neri Merhav* |

MO4.R5: LDPC Codes 2 Chair: Pascal Vontobel   Omikron I

| Analysis of Coded Shaped QAM Signaling at Short and Moderate Lengths | Short Regular Girth-8 QC-LDPC Codes From Exponent Matrices with Vertical Symmetry | Probabilistic Design of Multi-Dimensional Spatially-Coupled Codes | Pseudoredundancy for the Bit-Flipping Algorithm |
| *Irina Bocharova, Boris Kudryashov, Sander Mikelsaar* | *Guohua Zhang, Aijing Sun, Ling Liu, Yi Fang* | *Canberk Irimagzi, Ata Tanrikulu, Ahmed Hareedy* | *Jens Zumbrägel* |

MO4.R6: DNA storage and coding Chair: Eitan Yaakobi   Sigma/Delta

| Short Systematic Codes for Correcting Random Edit Errors in DNA Storage | Efficient DNA Synthesis Codes with Error Correction and Run-length Limited Constraint | A Combinatorial Perspective on Random Access Efficiency for DNA Storage | Capacity of Frequency-based Channels: Encoding Information in Molecular Concentrations |
| *Serge Kas Hanna* | *Tuan Thanh Nguyen, Kui Cai, Schouhamer Immink Kees* | *Anina Gruica, Daniella Bar-Lev, Alberto Ravagnani, Eitan Yaakobi* | *Yuval Gerzon, Ilan Shomorony, Nir Weinberger* |

MO4.R7: Combinatorial Coding Theory 2 Chair: Ferdinando Zullo   VIP

| Pair-Covering Codes | On the Classification of $\mathbb{Z}_2\mathbb{Z}_4\mathbb{Z}_8$-Linear Hadamard Codes | Endomorphisms of Linear Block Codes | Nonlinear Codes with Low Redundancy |
| *Avital Boruchovsky, Tuvi Etzion, Eitan Yaakobi* | *Dipak Kumar Bhunia, Cristina Fernández-Córdoba, Mercè Villanueva* | *Jonathan Mandelbaum, Sisi Miao, Holger Jäkel, Laurent Schmalen* | *SHU LIU, CHAOPING XING* |

MO4.R8: Discrete Channels Chair: Luca Barletta   Omega

| Binomial Channel: On the Capacity-Achieving Distribution and Bounds on the Capacity | Information Rates Over DMCs With Many Independent Views | Capacity-Maximizing Input Symbol Selection for Discrete Memoryless Channels | New Algorithms for Computing Sibson Capacity and Arimoto Capacity |
| *Luca Barletta, Ian Zieder, Antonino Favano, Alex Dytso* | *V. Arvind Rameshwar, Nir Weinberger* | *Maximilian Egger, Rawad Bitar, Antonia Wachter-Zeh, Deniz Gündüz, Nir Weinberger* | *Akira Kamatsuka, Yuki Ishikawa, Koki Kazama, Takahiro Yoshida* |

MO4.R9: AMP, Sparsity and Sketching Chair: Ramji Venkataramanan   Lamda

| On the Success Probability of the L_0-regularized Box-constrained Babai Point | Linear Operator Approximate Message Passing: Power Method with Partial and Stochastic Updates | A Convergence Analysis of Approximate Message Passing with Non-Separable Functions and Applications to Multi-Class Classification | Efficient Nonconvex Optimization for Two-way Sparse Reduced-Rank Regression |
| *Xiao-Wen Chang, Yingzi Xu* | *Riccardo Rossetti, Bobak Nazer, Galen Reeves* | *Burak Çakmak, Yue M. Lu, Manfred Opper* | *Cheng Cheng, Ziping Zhao* |

Tuesday, July 9 09:45–11:05

09:45	10:05	10:25	10:45

TU1.R1: Statistical Learning Chair: Meir Feder — Ballroom II & III

09:45	10:05	10:25	10:45
Equivalence of the Empirical Risk Minimization to Regularization on the Family of f-Divergences *Francisco Daunas, Iñaki Esnaola, Samir M. Perlaza, H. Vincent Poor*	Error Exponent in Agnostic PAC Learning *Adi Hendel, Meir Feder*	Universal Batch Learning Under The Misspecification Setting *Shlomi Vituri, Meir Feder*	Minimal Communication-Cost Statistical Learning *Milad Sefidgaran, Abdellatif Zaidi, Piotr Krasnowski*

TU1.R2: Quantum Information 3 Chair: Uzi Pereg — Ypsilon I-II-III

09:45	10:05	10:25	10:45
Violation of Leggett-Garg Inequalities Implies Information Erasure *Alberto Montina, Stefan Wolf*	Adversarial Quantum Machine Learning: An Information-Theoretic Generalization Analysis *Petros Georgiou, Sharu Theresa Jose, Osvaldo Simeone*	Receiver algorithms to approach the quantum limit of demodulating pulse position modulation *Leo Bia, Christos Gagatsos, Saikat Guha*	On Two-stage Quantum Estimation and Asymptotics of Quantum-enhanced Transmittance Sensing *Zihao Gong, Boulat Bash*

TU1.R3: Codes for Storage 1 Chair: Emina Soljanin — Ypsilon IV-V-VI

09:45	10:05	10:25	10:45
MSR Codes with Linear Field Size and Smallest Sub-packetization for Any Number of Helper Nodes *Guodong Li, Ningning Wang, Sihuang Hu, Min Ye*	More results for regenerating codes on graphs *Adway Patra, Alexander Barg*	On the Parameters of Codes for Data Access *Altan Kilic, Alberto Ravagnani, Emina Soljanin*	Low-Complexity Constrained Coding Schemes for Two-Dimensional Magnetic Recording *Dogukan Ozbayrak, Duru Uyar, Ahmed Hareedy*

TU1.R4: Hypothesis Testing 1 Chair: Venugopal Veeravalli — Omikron II

09:45	10:05	10:25	10:45
The optimal finite-sample error probability in asymmetric binary hypothesis testing *Valentinian Lungu, Ioannis Kontoyiannis*	Asymptotically optimal multistage tests for multihypothesis testing *Yiming Xing, Georgios Fellouris*	Non-Convex Robust Hypothesis Testing using Sinkhorn Uncertainty Sets *Jie Wang, Rui Gao, Yao Xie*	Robust Multi-Hypothesis Testing with Moment-Constrained Uncertainty Sets *Akshayaa Magesh, Zhongchang Sun, Venugopal Veeravalli, Shaofeng Zou*

TU1.R5: Rate-Distortion Theory 2 Chair: Aaron Wagner — Omikron I

09:45	10:05	10:25	10:45
Low-Rate, Low-Distortion Compression with Wasserstein Distortion *Yang Qiu, Aaron B. Wagner*	A Distributionally Robust Approach to Shannon Limits using the Wasserstein Distance *Vikrant Malik, Taylan Kargin, Victoria Kostina, Babak Hassibi*	A Converse Bound on the Mismatched Distortion-Rate Function *Maël Le Treust, Tristan Tomala*	Uniform Distribution on (n-1)-Sphere: Rate-Distortion under Squared Error Distortion *Alex Dytso, Martina Cardone*

TU1.R6: Biology: sequence reconstruction Chair: Netanel Raviv — Sigma/Delta

09:45	10:05	10:25	10:45
On k-Mer-Based and Maximum Likelihood Estimation Algorithms for Trace Reconstruction *Kuan Cheng, Elena Grigorescu, Xin Li, Madhu Sudan, Minshen Zhu*	Tree Trace Reconstruction - Reductions to String Trace Reconstruction *Thomas Maranzatto*	Sequence Reconstruction over 3-Deletion Channels *Di Zhang, Gennian Ge, Yiwei Zhang*	Reconstruction of multiple strings of constant weight from prefix-suffix compositions *Yaoyu Yang, Zitan Chen*

TU1.R7: Algebraic Decoding Chair: Julia Lieb — VIP

09:45	10:05	10:25	10:45
A Relay Algorithm of BCH Codes for a Quick Start of the Berlekamp-Massey Algorithm *Naoaki Kokubun, Yuki Kondo, Hironori Uchikawa*	An Earlier Termination Algorithm to Find Error Locator Polynomial in Error Correction of RS Codes *Zhengyi Jiang, Hao Shi, Zhongyi Huang, Bo Bai, Gong Zhang, Hanxu Hou*	An Explicit Construction of q-ary MDS Array Codes and Their Efficient Decoding *Jingjie Lv, Weijun Fang, Shu-Tao Xia, Hanxu Hou*	Coset Error Patterns in Recursive Projection-Aggregation Decoding *Fanyun Chen, Bin Zhang, Qin Huang*

TU1.R8: Privacy in Coded Computing Chair: Athina Markopoulou — Omega

09:45	10:05	10:25	10:45
Private Sum Computation: Trade-Off between Shared Randomness and Privacy *Remi Chou, Joerg Kliewer, Aylin Yener*	Perfect Subset Privacy in Polynomial Computation *Zirui (Ken) Deng, Vinayak Ramkumar, Netanel Raviv*	Private Multiple Linear Computation: A Flexible Communication-Computation Tradeoff *Jinbao Zhu, Lanping Li, Xiaohu Tang, Ping Deng*	On Multi-Message Private Computation *Ali Gholami, Kai Wan, Tayyebeh Jahani-Nezhad, Hua Sun, Mingyue Ji, Giuseppe Caire*

TU1.R9: Age of Information 1 Chair: Alex Sprintson — Lamda

09:45	10:05	10:25	10:45
Peak Age of Information under Tandem of Queues *Ashirwad Sinha, Shubhransh Singhvi, Praful Mankar, Harpreet Dhillon*	AoI-optimal Scheduling for Arbitrary K-channel Update-Through-Queue Systems *Won Jun Lee, Chih-Chun Wang*	Optimizing Information Freshness in Mobile Networks with Age-Threshold ALOHA *Fangming Zhao, Nikolaos Pappas, Chuan Ma, Xinghua Sun, Tony Q. S. Quek, H. Howard Yang*	Protocol Sequences for Age of Information under Multiple-Packet Reception *Yinian Zheng, Fang Liu, Yuan-Hsun Lo, Tsai-Lien Wong, Kangkang Xu, Yijin Zhang*

Tuesday, July 9

11:30	11:50	12:10	12:30

TU2.R1: Bayesian estimation Chair: Wojtek Szpankowski — Ballroom II & III

11:30	11:50	12:10	12:30
Low Complexity Approximate Bayesian Logistic Regression for Sparse Online Learning	Personalized heterogeneous Gaussian mean estimation under communication constraints	Multivariate Priors and the Linearity of Optimal Bayesian Estimators under Gaussian Noise	Bayesian Persuasion: From Persuasion toward Counter-suasion
Gil I. Shamir, Wojciech Szpankowski	*Ruida Zhou, Suhas Diggavi*	*Leighton Barnes, Alex Dytso, Jingbo Liu, H Vincent Poor*	*Ananya Das, Aishwarya Soni, Amitalok Budkuley*

TU2.R2: Quantum Shannon Theory 1 Chair: Uzi Pereg — Ypsilon I-II-III

11:30	11:50	12:10	12:30
Quantum Intersection and Union	Min-Entropic Quantities Induced by Cones: Properties & Operational Interpretations	Fully quantum arbitrarily varying channel coding for entanglement-assisted communication	Secure Communication with Unreliable Entanglement Assistance
Naqueeb Ahmad Warsi, Ayanava Dasgupta	*Ian George, Eric Chitambar*	*Paula Belzig*	*Meir Lederman, Uzi Pereg*

TU2.R3: Codes for Storage 2 Chair: Rawad Bitar — Ypsilon IV-V-VI

11:30	11:50	12:10	12:30
Universal Framework for Parametric Constrained Coding	Decoding Sparse Reed-Solomon Codes with Known Support	Thermal-Aware Channel with Multiple Wires	Tight Lower Bound on Cross-Rack Update Bandwidth and Explicit Constructions
Adir Kobovich, Orian Leitersdorf, Daniella Bar-Lev, Eitan Yaakobi	*Wilton Kim, Joel Nathanael Raj, Stanislav Kruglik, Han Mao Kiah*	*Yeow Meng Chee, Tuvi Etzion, Schouhamer Immink Kees, Tuan Thanh Nguyen, Van Khu Vu, Jos H. Weber, Eitan Yaakobi*	*Zhengyi Jiang, Bin Yu, Zhongyi Huang, Linqi Song, Bo Bai, Gong Zhang, Hanxu Hou*

TU2.R4: Change Point Detection Chair: Yajun Mei — Omikron II

11:30	11:50	12:10	12:30
High Probability Latency Quickest Change Detection over a Finite Horizon	Syndrome-based Fusion Rules in Heterogeneous Distributed Quickest Change Detection	Quickest Detection in High-Dimensional Linear Regression Models via Implicit Regularization	Monitoring High-dimensional Streaming Data via Fusing Nonparametric Shiryaev-Roberts Statistics
Yu-Han Huang, Venugopal Veeravalli	*Wen-Hsuan Li, Yu-Chih Huang*	*Qunzhi Xu, Yi Yu, Yajun Mei*	*Xinyuan Zhang, Yajun Mei*

TU2.R5: Rate-distortion-perception Chair: Yasutada Oohama — Omikron I

11:30	11:50	12:10	12:30
Rate-Distortion-Perception Tradeoff for Lossy Compression Using Conditional Perception Measure	Computation of the Multivariate Gaussian Rate-Distortion-Perception Function	The Rate-Distortion-Perception Trade-off: The Role of Private Randomness	Copula-based Estimation of Continuous Sources for a Class of Constrained Rate-Distortion-Functions
Sadaf Salehkalaibar, Jun Chen, Ashish Khisti, Wei Yu	*Giuseppe Serra, Photios A. Stavrou, Marios Kountouris*	*Yassine Hamdi, Aaron B. Wagner, Deniz Gündüz*	*Giuseppe Serra, Photios A. Stavrou, Marios Kountouris*

TU2.R6: Biology: Insertions and Deletions Chair: Maël Le Treust — Sigma/Delta

11:30	11:50	12:10	12:30
Improved Non-Asymptotic Lower Bound on the Size of Optimal Insertion/Deletion Correcting Code	New Construction of q-ary Codes Correcting a Burst of at most t Deletions	Improving the Singleton-type Upper Bounds for Non-Linear Deletion Correcting Codes	On Fixed Length Systematic All Limited Magnitude Zero Deletion/ Insertion Error Control Codes
Yuhang Pi, Zhifang Zhang, Yaqian Zhang	*Wentu Song, Kui Cai, Tony Quek*	*Shiqin Liu, Chen Wang, Gennian Ge, Yiwei Zhang*	*Luca Tallini, Hoang Vu, Bella Bose*

TU2.R7: Sequences 1 Chair: Ram Zamir — VIP

11:30	11:50	12:10	12:30
Mixed-Weight Conflict-Avoiding Codes	Frame Codes for the Block-Erasure Channel	Construction of 4-phase Golay Complementary Sequence Sets with Small Number of Constituent Sequences and Arbitrary Length	A New Construction of Enhanced Cross Z-Complementary Sets With Maximum Zero Correlation Zone
Yijin Zhang, Tsai-Lien Wong, Kangkang Xu, Yuan-Hsun Lo	*Itamar Jacoby, Ram Zamir*	*Cheng Du, Yi Jiang*	*Zhen-Ming Huang, Cheng-Yu Pai, Zilong Liu, Chao-Yu Chen*

TU2.R8: Coding and Access for Memory Chair: Ron Roth — Omega

11:30	11:50	12:10	12:30
Write Voltage Optimization to Increase Flash Lifetime in a Two-Variance Gaussian Channel	Fast Readable Multi-Cell Coding for Flash Memory	Efficient and Timely Memory Access	On-access error correction in certain types of content-addressable memories
Ava Asmani, Semira Galijasevic, Richard Wesel	*Hironori Uchikawa, Noboru Shibata, Taira Shibuya*	*Vishakha Ramani, Ivan Seskar, Roy Yates*	*Ron M Roth, Giacomo Pedretti*

TU2.R9: Age of Information 2 Chair: Chih-Chun Wang — Lamda

11:30	11:50	12:10	12:30
Timely Gossip with Age-Dependent Networks	Age of Gossip in Random and Bipartite Networks	Goal-Oriented Communications for Remote Inference under Two-Way Delay with Memory	
Han Xu, Yinfei Xu, Tiecheng Song	*Thomas Maranzatto*	*Cagri Ari, Md Kamran Chowdhury Shisher, Elif Uysal, Yin Sun*	

14:25	14:45	15:05	15:25

TU3.R1: Deep Learning in Communications Chair: Iñaki Esnaola — Ballroom II & III

14:25	14:45	15:05	15:25
PAC Learnability for Reliable Communication over Discrete Memoryless Channels *Jiakun Liu, Wenyi Zhang, H. Vincent Poor*	Neural Estimation of Multi-User Capacity Regions over Discrete Channels *Bashar Huleihel, Dor Tsur, Ziv Aharoni, Oron Sabag, Haim Permuter*	Neural Network Equalizers and Successive Interference Cancellation for Bandlimited Channels with a Nonlinearity *Daniel Plabst, Tobias Prinz, Francesca Diedolo, Thomas Wiegart, Georg Böcherer, Norbert Hanik, Gerhard Kramer*	Graph Neural Network-based Joint Equalization and Decoding *Jannis Clausius, Marvin Geiselhart, Daniel Tandler, Stephan ten Brink*

TU3.R2: Quantum Shannon Theory 2 Chair: Mario Berta — Ypsilon I-II-III

14:25	14:45	15:05	15:25
Optimality of meta-converse for channel simulation *Mario Berta, Omar Fawzi, Aadil Oufkir*	New Bounds on Quantum Sample Complexity of Measurement Classes *Mohsen Heidari, Wojciech Szpankowski*	Coherent Distributed Source Simulation as Multipartite Quantum State Splitting *Ian George, Hao-Chung Cheng*	Data Transmission over a Bosonic Channel under Classical Noise *Janis Nötzel*

TU3.R3: Codes for Storage 3 Chair: Sihem Mesnager — Ypsilon IV-V-VI

14:25	14:45	15:05	15:25
New EVENODD+ Codes with More Flexible Parameters and Lower Complexity *Panyu Zhu, Jingjie Lv, Yunghsiang Sam Han, Linqi Song, Hanxu Hou*	Upper Bound on Coding Rate over Resistive Random-Access Memory Channel under Arbitrary Input Distribution *Guanghui Song, Qi Cao, Ying Li, Xuan He, Kui Cai*	Constructing $(h,k+1)$ cooperative MSR codes with sub-packetization $(h + 1)2^{\lceil n/2 \rceil}$ *Zihao Zhang, Guodong Li, Sihuang Hu*	Error-Resilient Weakly Constrained Coding via Row-by-Row Coding *Prachi Mishra, Navin Kashyap*

TU3.R4: Hypothesis Testing 2 Chair: Yuval Kochman — Omikron II

14:25	14:45	15:05	15:25
Detection of Correlated Random Vectors *Dor Elimelech, Wasim Huleihel*	Testing Dependency of Weighted Random Graphs *Mor Oren-Loberman, Vered Paslev, Wasim Huleihel*	Neyman-Pearson Causal Inference *Joni Shaska, Urbashi Mitra*	Large Deviations for Statistical Sequence Matching *Lin Zhou, Qianyun Wang, Jingjing Wang, Lin Bai, Alfred Hero*

TU3.R5: Error Exponents Chair: Albert Guillén i Fàbregas — Omikron I

14:25	14:45	15:05	15:25
Error Exponents of Discrete Memoryless Channels Under Small Mismatch *Priyanka Patel, Francesc Molina, Albert Guillén i Fàbregas*	The Method of Types for the AWGN Channel: Error Exponent *Sergey Tridenski, Anelia Somekh-Baruch*	On guessing random additive noise decoding *Hamdi Joudeh*	An Achievable Error Exponent for the Information Bottleneck Channel *Han Wu, Hamdi Joudeh*

TU3.R6: Network Coding 1 Chair: Michael Langberg — Sigma/Delta

14:25	14:45	15:05	15:25
Characterizing positive-rate secure multicast network coding with eavesdropping nodes *Michael Langberg, Michelle Effros*	The Langberg-Medard Multiple Unicast Conjecture for Networks with Collapsed Backbone *Kai Cai, Guangyue Han*	Distributionally Robust Degree Optimization for BATS Codes *Hoover H. F. Yin, Jie Wang, Sherman S. M. Chow*	Efficient Binary Batched Network Coding employing Partial Recovery *Licheng Mao, Shenghao Yang*

TU3.R7: Sequences 2 Chair: Lukas Koelsch — VIP

14:25	14:45	15:05	15:25
A new family of binary sequences based on the generalized ERC construction *Francisco Javier Soto, Ana Isabel Gómez, Domingo Gómez-Pérez*	Network Analysis of Baker's Map Implemented in a Fixed-point Arithmetic Domain *Kai Tan, Chengqing Li*	The Unique Form of the Uncorrelated Optimal ZCZ Sequence Families *Gangsan Kim, Hong-Yeop Song*	On de Bruijn Covering Sequences and Arrays *Yeow Meng Chee, Tuvi Etzion, Hoang Ta, Van Khu Vu*

TU3.R8: Distributed Computing Chair: Petros Elia — Omega

14:25	14:45	15:05	15:25
Perfect Multi-User Distributed Computing *Ali Khalesi, Petros Elia*	Multi-access Distributed Computing Models using Map-Reduce Arrays *Shanuja Sasi, Onur Günlü, Sundar Rajan*	Decentralized Uncoded Storage Elastic Computing with Heterogeneous Computation Speeds *Wenbo Huang, Xudong You, Kai Wan, Robert Caiming Qiu, Mingyue Ji*	Sparse Gaussian Gradient Code *Yuxin Jiang, Wenqin Zhang, Yuan Luo, Lele Wang*

TU3.R9: Age of Information 3 Chair: Saad Kriouile — Lamda

14:25	14:45	15:05	15:25
Optimal Denial-of-Service Attacks Against Status Updating *Saad Kriouile, Mohamad Assaad, Deniz Gündüz, Touraj Soleymani*	When to Preempt in a Status Update System? *Subhankar Banerjee, Sennur Ulukus*	Optimal Update Policy for the Monitoring of Distributed Sources *Eric Graves, Jake Perazzone, Kevin Chan*	AoII-Optimum Sampling of CTMC Information Sources Under Sampling Rate Constraints *Ismail Cosandal, Nail Akar, Sennur Ulukus*

TU4.R1: Deep Learning in Coding Chair: Natasha Devroy — Ballroom II & III

16:05	16:25	16:45	17:05
Section-wise Revolving NBP-like Decoders for QC-LDPC Codes	Interpreting Deepcode, a learned feedback code	Nested Construction of Polar Codes via Transformers	Dense KO Codes: Faster Convergence and Reduced Complexity through Dense Connectivity
Qinshan Zhang, Bin Chen, Tianqu Zhuang, Yong Jiang, Shu-Tao Xia	*Yingyao Zhou, Natasha Devroye, Gyorgy Turan, Milos Zefran*	*Sravan Ankireddy, Ashwin Hebbar, Heping Wan, Joonyoung Cho, Charlie Zhang*	*Shubham Srivastava, Adrish Banerjee*

TU4.R2: Quantum Shannon Theory 3 Chair: Mario Berta — Ypsilon I-II-III

16:05	16:25	16:45	17:05
Quantum Channel Simulation in Fidelity is no more difficult than State Splitting	Quantum Soft Covering and Decoupling with Relative Entropy Criterion	Entanglement sharing across a damping-dephasing channel	Simulation of Separable Quantum Measurements on Bipartite States via Likelihood POVMs
Michael Xuan Cao, Rahul Jain, Marco Tomamichel	*Xingyi He, Touheed Atif, S. Sandeep Pradhan*	*Vikesh Siddhu, Dina Abdelhadi, Tomas Jochym-O'Connor, John Smolin*	*Arun Padakandla, Naqueeb Warsi*

TU4.R3: Codes for Storage 4 Chair: P Vijay Kumar — Ypsilon IV-V-VI

16:05	16:25	16:45	17:05
Constructions of Binary MDS Array Codes with Optimal Cooperative Repair Bandwidth	Secure Storage using Maximally Recoverable Locally Repairable Codes	On Low Field Size Constructions of Access-Optimal Convertible Codes	On Existence of Latency Optimal Uncoded Storage Schemes in Geo-Distributed Data Storage Systems
Lei Li, Xinchun Yu, Chenhao Ying, Liang Chen, Yuanyuan Dong, Yuan Luo	*Tim Janz, Hedongliang Liu, Rawad Bitar, Frank R. Kschischang*	*Saransh Chopra, Francisco Maturana, Rashmi Korlakai Vinayak*	*Srivathsa Acharya, Vijay Kumar, Viveck R. Cadambe*

TU4.R4: Sequential Hypothesis Testing and Change Detection Chair: I-Hsiang Wang — Omikron II

16:05	16:25	16:45	17:05
On the Optimal Tradeoffs among Error Exponents in Active Sequential Multiple Hypothesis Testing	Sequential Adversarial Hypothesis Testing	A Unified Study on Sequentiality in Universal Classification with Empirically Observed Statistics	Joint Sequential Detection and Isolation of Anomalies under Composite Hypotheses
Chia-Yu Hsu, I-Hsiang Wang	*Eeshan Modak, Mayank Bakshi, Bikash Kumar Dey, Vinod M. Prabhakaran*	*Ching-Fang Li, I-Hsiang Wang*	*Anamitra Chaudhuri, Georgios Fellouris*

TU4.R5: Mismatched and universal decoding Chair: Francesc Molina — Omikron I

16:05	16:25	16:45	17:05
Pre-Decoder Processing Functions for a DMC with Mismatched Decoding	On Universal Decoding over Memoryless Channels with the Krichevsky–Trofimov Estimator	A Double Maximization Approach for Optimizing the LM Rate of Mismatched Decoding	Nearest Neighbor Decoding for a Class of Compound Channels
Jonathan Solel, Anelia Somekh-Baruch	*Henrique Miyamoto, Sheng Yang*	*Lingyi Chen, Shitong Wu, Xinwei Li, Huihui Wu, Hao Wu, Wenyi Zhang*	*Francesc Molina, Priyanka Patel, Albert Guillén i Fàbregas*

TU4.R6: Network Coding 2 Chair: Lawrence Ong — Sigma/Delta

16:05	16:25	16:45	17:05
Secure Network Function Computation: Function-Security	Group Complete-{s} Pliable Index Coding	GRAND-Assisted Random Linear Network Coding in Wireless Broadcasts	Computing Capacity of Binary Arithmetic Sum over Asymmetric Diamond Network
Yang Bai, Xuan Guang, Raymond W. Yeung	*Sina Eghbal, Badri Vellambi, Lawrence Ong, Parastoo Sadeghi*	*Rina Su, Qifu Tyler Sun, Mingshuo Deng, Zhongshan Zhang, Jinhong Yuan*	*Ruze Zhang, Xuan Guang, Shenghao Yang, Xueyan Niu, Bo Bai*

TU4.R7: Rank Metric Codes Chair: Ferdinando Zullo — VIP

16:05	16:25	16:45	17:05
Two-weight rank-metric codes	New Constructions for Linear Maximum Sum-Rank Distance Codes	Fusion over the Grassmannian for High-Rank Matrix Completion	
Ferdinando Zullo, Olga Polverino, Paolo Santonastaso, John Sheekey	*Huimin Lao, Yeow Meng Chee, Hao Chen, Van Khu Vu*	*Jeremy Johnson, Huanran Li, Daniel Pimentel-Alarcon*	

TU4.R8: Coded Caching Chair: Nikhil Karamchandani — Omega

16:05	16:25	16:45	17:05
New Results on Coded Caching in Partially Cooperative D2D Networks	Two-Dimensional Multi-Access Coded Caching with Multiple Transmit Antennas	Improved Coded Caching from Two New Classes of PDAs from t-Designs	Improved Hotplug Caching Scheme Using PDAs
Wenjie Guan, Kai Huang, Xinyu Xie, Jinbei Zhang, Kechao Cai, Xiaoxia Huang	*K. K. Krishnan Namboodiri, Elizabath Peter, Sundar Rajan*	*Rashid Ummer N T, Sundar Rajan*	*Charul Rajput, B Sundar Rajan*

TU4.R9: Energy and Computational Efficiency Chair: Sidharth Jaggi — Lamda

16:05	16:25	16:45	17:05
Information-Energy Capacity Region for SLIPT Systems over Lognormal-Fading Channels	Computationally Efficient Codes for Strongly Dobrushin-Stambler Nonsymmetrizable Oblivious AVCs	Low-Complexity Pearson-Based Detection for AWGN Channels with Offset	An Efficient Inversion Encoding Scheme with k INV Signals on Bus Transmission
Kapila W. S. Palitharathna, Nizar Khalfet, Constantinos Psomas, George K. Karagiannidis, Ioannis Krikidis	*Bikash Dey, Sidharth Jaggi, Michael Langberg, Anand Sarwate, Yihan Zhang*	*Antonino Favaro, Luca Barletta, Marco Sforzin, Paolo Amato, Marco Ferrari*	*Hongru Cao, Qi Cheng, Sian-Jheng Lin*

09:50	10:10	10:30	10:50

WE1.R1: Symmetric Cryptography Chair: Lukas Koelsch — Ballroom II & III

09:50	10:10	10:30	10:50
New Results on the Imbalance of FCSR Sequences and LFSR Subsequences *Yueying Lou, Qichun Wang*	An Answer to an Open Problem on Balanced Boolean Functions with the Maximum Possible Walsh Supports *Yueying Lou, Qichun Wang*	A Study of APN Functions in Dimension 7 using Antiderivatives *Lukas Kölsch, Alexandr Polujan*	When does a bent concatenation not belong to the completed Maiorana-McFarland class? *Sadmir Kudin, Enes Pasalic, Alexandr Polujan, Fengrong Zhang*

WE1.R2: Federated Learning Chair: Lav Varshney — Ypsilon I-II-III

| Federated Learning via Lattice Joint Source-Channel Coding

Seyed Mohammad Azimi-Abarghouyi, Lav R. Varshney | Hierarchical Federated Learning: The Interplay of User Mobility and Data Heterogeneity

Wei Dong, Chenyuan Feng, Chen Sun, Howard H. Yang | Computation Selection: Scheduling Users to Enable Over-the-Air Federated Learning

Bobak Nazer, Krishna Narayanan | Causal Impact Analysis for Asynchronous Decision Making

Mert Kayaalp, Yunus Inan, Visa Koivunen, Ali H. Sayed |

WE1.R3: Coded Caching: Privacy and Security Chair: Daniela Tuninetti — Ypsilon IV-V-VI

| Optimal Memory-Rate Tradeoff in Secure Coded Caching for Small Buffer or Small Rate

Han Fang, Nan Liu, Wei Kang | On Demand-Private Hotplug Caching Systems

Yinbin Ma, Daniela Tuninetti | Coded Caching with File and Demand Privacy

Chao Qi, Minquan Cheng, Xianhua Niu, Bin Dai | Placement Delivery Arrays for Coded Caching with Shared and Private Caches

K. K. Krishnan Namboodiri, Elizabath Peter, Sundar Rajan |

WE1.R4: Multi Terminal Source Coding Chair: Stark Draper — Omikron II

| Common Function Reconstruction with Information Swapping Terminals

Tharindu Adikari, Stark Draper | Distributed Source Coding Using Constrained-Random-Number Generators

Jun Muramatsu | On Channel Simulation with Causal Rejection Samplers

Daniel Goc, Gergely Flamich | Implicit and Explicit Formulas of the Joint RDF for a Tuple of Multivariate Gaussian Sources with Individual Square-Error Distortions

Evagoras Stylianou, Charalambos D. Charalambous, Themistoklis Charalambous |

WE1.R5: Broadcast Channels Chair: Hamdi Joudeh — Omikron I

| Blahut-Arimoto Algorithm for Computing Capacity Region of Gaussian Vector Broadcast Channels

Tian Jiao, Yanlin Geng, Zai Yang | Time-Shifted Alternating Gelfand-Pinsker Coding for Broadcast Channels

Constantin Runge, Gerhard Kramer | Achieving Gaussian Vector Broadcast Channel Capacity with Scalar Lattices

Muhammed Yusuf Şener, Gerhard Kramer, Shlomo Shamai (Shitz), Ronald Böhnke, Wen Xu | Inter-Modal Coding in Broadcast Packet Erasure Channels with Varying Statistics

Alireza Vahid, Shih-Chun Lin |

WE1.R6: Coding in Biology 3 Chair: Emanuele Viterbo — Sigma/Delta

| Efficient Constructions of Non-binary Codes over Absorption Channels

Tuan Thanh Nguyen, Kui Cai, Tony Q. S. Quek, Schouhamer Immink Kees | Code Design for Duplex Read Sequencing

Adrian Vidal, Viduranga Bandara Wijekoon, Emanuele Viterbo | On Achievable Rates for the Shotgun Sequencing Channel with Erasures

Hrishi Narayanan, Prasad Krishnan, Nita Parekh | On the Long-Term Behavior of k-tuples Frequencies in Mutation Systems

Ohad Elishco |

WE1.R7: Combinatorics and Information Theory 1 Chair: Chaoping Xing — VIP

| Pseduo-Random and de Bruijn Array Codes

TUVI ETZION | A New Construction of Optimal Symmetrical ZCCS

Rajen Kumar, Prashant Kumar Srivastava, Sudhan Majhi | Construction of Binary Odd Shift Complementary Pairs of All Lengths

Piyush Priyanshu, Sudhan Majhi, Subhabrata Paul | Improved Upper Bound for the Size of a Trifferent Code

Siddharth Bhandari, Abhishek Khetan |

WE1.R8: Convolutional and Streaming Codes 1 Chair: Vijay Kumar — Omega

| Algorithms for Computing the Free Distance of Convolutional Codes

Zita Abreu, Joachim Rosenthal, Michael Schaller | Linearity-Enhanced Serial List Decoding of Linearly Expurgated Tail-Biting Convolutional Codes

Wenhui Sui, Brendan Towell, Zihan Qu, Eugene Min, Richard Wesel | Complementary Exclusion of Full Polynomials to Enable Dual List Decoding of Convolutional Codes

Zihan Qu, Amaael Antonini, Wenhui Sui, Eugene Min, Arthur Yang, Richard Wesel | On Streaming Codes for Burst and Random Errors

Shobhit Bhatnagar, P Vijay Kumar |

WE1.R9: Wireless 1 Chair: Tara Javidi — Lamda

| Generalized Step-Chirp Sequences With Flexible Bandwidth

Cheng Du, Yi Jiang | Accelerating Quadratic Transform and WMMSE

Kaiming Shen, Ziping Zhao, Yannan Chen, Zepeng Zhang, Hei Victor Cheng | Electromagnetic Information Theory Motivated Near-Field Channel Model

Zhongzhichao Wan, Jieao Zhu, Linglong Dai | Task-Based Quantizer Design for Sensing With Random Signals

Hang Ruan, Fan Liu |

Wednesday, July 10

11:30–12:50

11:30	11:50	12:10	12:30

WE2.R1: Code Based Cryptography Chair: Violetta Weger — Ballroom II & III

| Projective Systematic Authentication via Reed-Muller Codes | A Convolutional Variant of the Niederreiter Cryptosystem with GRS Codes | A Key-recovery Attack on the LCMQ Authentication Protocol | Coding-Based Hybrid Post-Quantum Cryptosystem for Non-Uniform Information |
| *Hsuan-Po Liu, Hessam Mahdavifar* | *Paulo Almeida, Miguel Beltrá, Diego Napp* | *Vu Nguyen, Thomas Johansson, Qian Guo* | *Saar Tarnopolsky, Alejandro Cohen* |

WE2.R2: Semi-supervised and Federated Learning Chair: Gholamali Aminian — Ypsilon I-II-III

| Fast FixMatch: Faster Semi-Supervised Learning with Curriculum Batch Size | Robust Semi-supervised Learning via f-Divergence and α-Rényi Divergence | Fed-IT: Addressing Class Imbalance in Federated Learning through an Information-Theoretic Lens | Efficient Unbiased Sparsification |
| *John Chen, Chen Dun, Anastasios Kyrillidis* | *Gholamali Aminian, Amirhossein Bagheri, Mahyar JafariNodeh, Radmehr Karimian, Mohammad-Hossein Yassaee* | *Shayan Mohajer Hamidi, Renhao Tan, Linfeng Ye, En-Hui Yang* | *Leighton Barnes, Timothy Chow, Emma Cohen, Keith Frankston, Benjamin Howard, Fred Kochman, Daniel Scheinerman, Jeffrey VanderKam* |

WE2.R3: Secure Multiparty Computation Chair: Shun Watanabe — Ypsilon IV-V-VI

| A Multi-Server Publicly Verifiable Computation Scheme with Context-Hiding Property | Unconditional Security using (Random) Anonymous Bulletin Board | An Improved Lower Bound on Oblivious Transfer Capacity via Interactive Erasure Emulation | Towards Optimal Non-interactive Secure Multiparty Computation for Abelian Programs |
| *Hong Chen, Jinyuan Li, Liang Feng Zhang* | *Albert Yu, Hai H. Nguyen, Aniket Kate, Hemanta K. Maji* | *So Suda, Shun Watanabe, Haruya Yamaguchi* | *Maki Yoshida* |

WE2.R4: Entropy coding, compression and quantization Chair: Elza Erkip — Omikron II

| Rejection-Sampled Universal Quantization for Smaller Quantization Errors | Non-Linear Analog Processing Gains in Task-Based Quantization | One-Shot Wyner–Ziv Compression of a Uniform Source | Distributed Local Sketching for ℓ_2 Embeddings |
| *Chih Wei Ling, Cheuk Ting Li* | *Marian Temprana Alonso, Farhad Shirani, Neil Irwin Bernardo, Yonina C. Eldar* | *Oğuzhan Kubilay Ülger, Elza Erkip* | *Neophytos Charalambides, Arya Mazumdar* |

WE2.R5: Channel Synthesis and Coordination Chair: Tobias Oechtering — Omikron I

| Gaussian Channel Simulation with Rotated Dithered Quantization | Optimal Redundancy in Exact Channel Synthesis | Broadcast Channel Synthesis from Shared Randomness | Multi-terminal Strong Coordination over Noisy Channels with Secrecy Constraints |
| *Szymon Kobus, Lucas Theis, Deniz Gündüz* | *Sharang Sriramu, Aaron Wagner* | *Malhar A. Managoli, Vinod M. Prabhakaran* | *Viswanathan Ramachandran, Tobias J. Oechtering, Mikael Skoglund* |

WE2.R6: Information Theory in Biology Chair: Mary Wootters — Sigma/Delta

| Mutual Information of a class of Poisson-type Channels using Markov Renewal Theory | Capacity of Runlength-Limited and GC-Content Constrained Codes for DNA Data Storage | Representing Information on DNA using Patterns Induced by Enzymatic Labeling | Optimizing the Decoding Probability and Coverage Ratio of Composite DNA |
| *Maximilian Gehri, Nicolai Engelmann, Heinz Koeppl* | *Filip Paluncic, Daniella Paluncic, B. T. Maharaj* | *Daniella Bar-Lev, Tuvi Etzion, Eitan Yaakobi, Zohar Yakhini* | *Tomer Cohen, Eitan Yaakobi* |

WE2.R7: Combinatorics and Information Theory 2 Chair: Shu Liu — VIP

| On the Asymptotic Nonnegative Rank of Matrices and its Applications in Information Theory | Group-Sparse Subspace Clustering with Elastic Stars | On Counting Subsequences and Higher-Order Fibonacci Numbers | Directed Redundancy in Time Series |
| *Yeow Meng Chee, Quoc Tung Le, Hoang Ta* | *Huanran Li, Daniel Pimentel-Alarcón* | *Hsin-Po Wang, Chi-Wei Chin* | *Jan Ostergaard* |

WE2.R8: Convolutional and Streaming Codes 2 Chair: Wenhui Sui — Omega

| Streaming Codes for Three-Node Relay Networks With Burst Erasures | An Improved Viterbi Algorithm for a Class of Optimal Binary Convolutional Codes | On Streaming Codes for Simultaneously Correcting Burst and Random Erasures | Subset Adaptive Relaying for Streaming Erasure Codes |
| *Vinayak Ramkumar, Myna Vajha, Nikhil Krishnan Muralee Krishnan* | *Zita Abreu, Julia Lieb, Michael Schaller* | *Shobhit Bhatnagar, Biswadip Chakraborti, P Vijay Kumar* | *Muhammad Ahmad Kaleem, Gustavo Kasper Facenda, Ashish Khisti* |

WE2.R9: Wireless 2 Chair: Tara Javidi — Lamda

| Potential Functions and Percolation Thresholds of Coded Poisson Receivers | A Novel Cross Domain Iterative Detection based on the Interplay between SPA and LMMSE | Multi-User SR-LDPC Codes via Coded Demixing with Applications to Cell-Free Systems | Quality Adaptation for Cache-aided Degraded Broadcast Channels |
| *Cheng-En Lee, Kuo-Yu Liao, Cheng-Shang Chang, Duan-Shin Lee* | *Shuangyang Li, Giuseppe Caire* | *Jamison Ebert, Jean-Francois Chamberland, Krishna Narayanan* | *Eleftherios Lampiris, Giuseppe Caire* |

09:45	10:05	10:25	10:45

TH1.R1: Language Models — Chair: Homa Esfahanizadeh — Ballroom II & III

09:45	10:05	10:25	10:45
Asymptotics of Language Model Alignment — *Joy Yang, Salman Salamatian, Ziteng Sun, Ananda Theertha Suresh, Ahmad Beirami*	Predicting Uncertainty of Generative LLMs with MARS: Meaning-Aware Response Scoring — *Yavuz Faruk Bakman, Duygu Nur Yaldiz, Baturalp Buyukates, Chenyang Tao, Dimitrios Dimitriadis, Salman Avestimehr*	TexShape: Information Theoretic Sentence Embedding for Language Models — *Kaan Kale, Homa Esfahanizadeh, Noel Elias, Oguzhan Baser, Muriel Medard, Sriram Vishwanath*	The Likelihood Gain of a Language Model as a Metric for Text Summarization — *Dana Levin, Alon Kipnis*

TH1.R2: Quantum Data and Computation — Chair: Holger Boche — Ypsilon I-II-III

09:45	10:05	10:25	10:45
Quantum State Compression with Polar Codes — *Jack Weinberg, Avijit Mandal, Henry Pfister*	Amplitude Transformation of Quantum State Based on QSVT — *Lu Hou, Chang Lv*	Feynman Meets Turing: The Uncomputability of Quantum Gate-Circuit Emulation and Concatenation — *Yannik Böck, Holger Boche, Zoe Garcia del Toro, Frank Fitzek*	Rate-Limited Optimal Transport for Quantum Gaussian Observables — *Hafez M. Garmaroudi, S. Sandeep Pradhan, Jun Chen*

TH1.R3: Multi-Armed Bandits 1 — Chair: Ali Tajer — Ypsilon IV-V-VI

09:45	10:05	10:25	10:45
Improved Bound for Robust Causal Bandits with Linear Models — *Zirui Yan, Arpan Mukherjee, Burak Varıcı, Ali Tajer*	Multi-armed Bandits with Probing — *Eray Can Elumar, Cem Tekin, Osman Yagan*	Federated Learning for Heterogeneous Bandits with Unobserved Contexts — *Jiabin Lin, Shana Moothedath*	Explore-then-Commit Algorithms for Decentralized Two-sided Matching Markets — *Tejas Pagare, Avishek Ghosh*

TH1.R4: Information Measures 1 — Chair: Haim Permuter — Omikron II

09:45	10:05	10:25	10:45
InfoMat: A Tool for the Analysis and Visualization Sequential Information Transfer — *Dor Tsur, Haim Permuter*	Symmetric Entropy Regions of Degrees Six and Seven — *Zihan Li, Shaocheng Liu, Qi Chen*	Variational Characterizations of Sibson's α-Mutual Information — *Amedeo Roberto Esposito, Michael Gastpar, Ibrahim Issa*	Neural Estimation of Entropic Optimal Transport — *Tao Wang, Ziv Goldfeld*

TH1.R5: Repair Codes 1 — Chair: Tuvi Etzion — Omikron I

09:45	10:05	10:25	10:45
Repairing a Single Erasure in Reed-Solomon Codes with Side Information — *Thi Xinh Dinh, Ba Thong Le, Son Hoang Dau, Serdar Boztas, Stanislav Kruglik, Han Mao Kiah, Emanuele Viterbo, Tuvi Etzion, Yeow Meng Chee*	A Formula for the I/O Cost of Linear Repair Schemes and Application to Reed-Solomon Codes — *Zhongyan Liu, Zhifang Zhang*	Repairing with Zero Skip Cost — *Yeow Meng Chee, Son Hoang Dau, Tuvi Etzion, Han Mao Kiah, Yuan Luo, Wenqin Zhang*	Repairing Schemes for Tamo-Barg Codes — *Han Cai, Ying Miao, Moshe Schwartz, Xiaohu Tang*

TH1.R6: MIMO 1 — Chair: Dirk Slock — Sigma/Delta

09:45	10:05	10:25	10:45
On the Separability of Beamforming for Reconfigurable Intelligent Surfaces under Statistical CSI — *Maryam Farahnak-Ghazani, Negar Daryanavardan, Aria Nosratinia*	Decentralized Expectation Propagation for Semi-Blind Channel Estimation in Cell-Free Networks — *Zilu Zhao, Dirk Slock*	Novel Bounds for Semi-Blind Multiple-Access in Massive MIMO — *George Vershinin, Asaf Cohen, Omer Gurewitz*	Achievable Rate for RIS-Assisted Sparse Channel with State Training — *Negar Daryanavardan, Aria Nosratinia*

TH1.R7: Lattice Codes — Chair: Brian Kurkoski — VIP

09:45	10:05	10:25	10:45
On the Existence of Cyclic Lattice Codes — *Chengpin Luo, Brian Kurkoski*	On the equivalence between probabilistic shaping and geometric shaping: a polar lattice perspective — *Ling Liu, Shanxiang Lyu, Cong Ling, Baoming Bai*	Voronoi Constellations of Generalized Construction D' Lattices from q-ary Codes — *Ana Paula S. Pierini, Franciele C. Silva, Sueli I. R. Costa*	Construction πA lattices extended to Hurwitz quaternion integers — *Juliana G F Souza, Sueli I R Costa, Cong Ling*

TH1.R8: Polar codes 1 — Chair: Ido Tal — Omega

09:45	10:05	10:25	10:45
New Partial Orders of Polar Codes for BMSC — *Liu-quan Yao, Zhi-chao Liu, Yuan Li, Hua-zi Zhang, Jun Wang, Gui-ying Yan, Zhi-Ming Ma*	Strong Polarization for Shortened and Punctured Polar Codes — *Boaz Shuval, Ido Tal*	PAC Code Rate-Profile Design Using Search-Constrained Optimization Algorithms — *Mohsen Moradi, David Mitchell*	Trellis-Based Construction of Polar Codes for SCL Decoding — *XINYUANMENG YAO, XIANGPING ZHENG, XIAO MA*

TH1.R9: Coding Over Networks — Chair: Parastoo Sadeghi — Lamda

09:45	10:05	10:25	10:45
Throughput and Latency of Network Coding in Line Networks with Outages — *Yanyan Dong, Shenghao Yang, Jie Wang, Fan Cheng*	Coded Caching for Hierarchical Two-Layer Networks with Coded Placement — *Rajlaxmi Pandey, Charul Rajput, B Sundar Rajan*	A Linear Feedback Coding Scheme for Computation Over Gaussian Multiple-Access Channels — *Bin Dai, Fan Cheng, Yuhan Yang, Dengfeng Xia*	Coded Multi-User Information Retrieval with a Multi-Antenna Helper Node — *Milad Abolpour, MohammadJavad Salehi, Soheil Mohajer, Seyed Pooya Shariatpanahi, Antti Tölli*

11:30	11:50	12:10	12:30

TH2.R1: Sampling and Samplers Chair: Stefano Rini   Ballroom II & III

Boundary Multiple Measurement Vectors for Multi-Coset Sampler	On the Generalized Sampling Expansion (GSE) for Graph Signals	Log-Concave Coupling for Sampling Neural Net Posteriors	Towards Optimal Inverse Temperature in the Gibbs Algorithm
Dong Xiao, Yun Lin, Jian Wang	*Reeteswar Rajguru, Balaji Udayagiri, Amitalok J. Budkuley, Stefano Rini*	*Curtis McDonald, Andrew Barron*	*UF ECE*

TH2.R2: Quantum Coding Theory 1 Chair: Hiram Lopez   Ypsilon I-II-III

A Joint Code and Belief Propagation Decoder Design for Quantum LDPC Codes	Upper bounds on the size of entanglement-assisted codeword stabilized codes using semidefinite programming	Quantum Codes Derived from One-Generator Quasi-Twisted Codes	Robust Syndrome Extraction via BCH Encoding
Sisi Miao, Jonathan Mandelbaum, Holger Jäkel, Laurent Schmalen	*Ching-Yi Lai, Pin-Chieh Tseng, Wei-Hsuan Yu*	*Akram Saleh, Mohammad Reza Soleymani*	*Eren Guttentag, Andrew Nemec, Kenneth R. Brown*

TH2.R3: Multi-Armed Bandits 2 Chair: Vincent Tan   Ypsilon IV-V-VI

BAI in Exponential Family: Efficiency and Optimality	Best Arm Identification with Arm Erasures	Optimal Stopping Rules for Best Arm Identification in Stochastic Bandits under Uniform Sampling	Minimax Regret with Unbounded Weights
Arpan Mukherjee, Ali Tajer	*Srinivas Reddy Kota, Karthik Periyapattana Narayana Prasad, Vincent Y. F. Tan*	*Vedang Gupta, Yash Gadhia, Shivaram Kalyanakrishnan, Nikhil Karamchandani*	*Michael Drmota, Philippe Jacquet, Changlong Wu, Wojciech Szpankowski*

TH2.R4: Information Measures and Randomness Chair: Suhas Diggavi   Omikron II

On the Relation Between the Common Information Dimension and Wyner Common Information	Common Randomness Generation from Finite Compound Sources	Shared Information under Simple Markov Independencies	Explicit Formula for Partial Information Decomposition
Osama Hanna, Xinlin Li, Suhas Diggavi, Christina Fragouli	*Rami Ezzine, Moritz Wiese, Christian Deppe, Holger Boche*	*Madhura Pathegama, Sagnik Bhattacharya*	*Aobo Lyu, Andrew Clark, Netanel Raviv*

TH2.R5: Repair Codes 2 Chair: Vitaly Skachek   Omikron I

A Binary Linear Functional-repair Regenerating Code on 72 Coding Spaces Related to PG(2,8)	Construction of Locally Repairable Array Codes with Optimal Repair Bandwidth under the Rack-Aware Storage Model	Set Transformation: Trade-off Between Repair Bandwidth and Sub-packetization	A Family of Access-Friendly MDS Array Codes
Junming Ke, Henk D.L. Hollmann, Ago-Erik Riet	*Yumeng Yang, Han Cai, Xiaohu Tang*	*Hao Shi, Zhengyi Jiang, Zhongyi Huang, Bo Bai, Gong Zhang, Hanxu Hou*	*Zhongyan Liu, Zhifang Zhang*

TH2.R6: MIMO 2 Chair: Uri Erez   Sigma/Delta

Asymptotic Capacity of Non-Coherent One-Bit MIMO Channels with Block Fading	On 2×2 MIMO Gaussian Channels with a Small Discrete-Time Peak-Power Constraint	On the Capacity of Gaussian "Beam-Pointing" Channels with Block Memory and Feedback	Universal Transmission and Combining for Ultra-Reliable MIMO Relaying
Sheng Yang, Richard Combes	*Alex Dytso, Luca Barletta, Gerhard Kramer*	*Siyao Li, Fernando Pedraza, Giuseppe Caire*	*Barak Avraham, Elad Domanovitz, Uri Erez*

TH2.R7: Subspace Codes Chair: Umberto Martinez-Penas   VIP

On one-orbit cyclic subspace codes of $\mathcal{G}_q(n,3)$	Optimal full-length cyclic orbit flag codes	Subspace Coding for Spatial Sensing	Decoding Analog Subspace Codes: Algorithms for Character-Polynomial Codes
Chiara Castello, Olga Polverino, Ferdinando Zullo	*Clementa Alonso-González, Miguel Ángel Navarro-Pérez*	*Hessam Mahdavifar, Robin Rajamäki, Piya Pal*	*Samin Riasat, Hessam Mahdavifar*

TH2.R8: Polar Codes 2 Chair: Henry Pfister   Omega

A Path Metric Based Construction of Polarization-Adjusted Convolutional Codes	Successive Cancellation Sampling Decoder: An Attempt to Analyze List Decoding Theoretically	Outer Code Designs for Augmented and Local-Global Polar Code Architectures	Code Rate Optimization via Neural Polar Decoders
Tyler Kann, Shrinivas Kudekar, Matthieu Bloch	*Hsin-Po Wang, Venkatesan Guruswami*	*Ziyuan Zhu, Paul Siegel*	*Ziv Aharoni, Bashar Huleihel, Henry D. Pfister, Haim H. Permuter*

TH2.R9: Scheduling and Networking Chair: Bobak Nazer   Lamda

A probabilistic analysis on general probabilistic scheduling problems	GRLinQ: A Distributed Link Scheduling Mechanism with Graph Reinforcement Learning	Networked Control with Hybrid Automatic Repeat Request Protocols	Tight Differentiable Relaxation of Sum Ergodic Capacity Maximization for Clustered Cell-Free Networking
Daiki Suruga	*Zhiwei Shan, Xinping Yi, Le Liang, Chung-Shou Liao, Shi Jin*	*Touraj Soleymani, John Baras, Deniz Gunduz*	*Boxiang Ren, Han Hao, Ziyuan Lyu, Jingchen Peng, Junyuan Wang, Hao Wu*

14:35	14:55	15:15	15:35

TH3.R1: Information Bottleneck Chair: Lampros Gavalakis — Ballroom II & III

14:35	14:55	15:15	15:35
QML-IB: Quantized Collaborative Intelligence between Multiple Devices and the Mobile Network *Jingchen Peng, Boxiang Ren, Lu Yang, Chenghui Peng, Panpan Niu, Hao Wu*	An Achievable and Analytic Solution to Information Bottleneck for Gaussian Mixtures *Yi Song, Kai Wan, Zhenyu Liao, Hao Xu, Giuseppe Caire, Shlomo Shamai*	An Expectation-Maximization Relaxed Method for Privacy Funnel *Lingyi Chen, Jiachuan Ye, Shitong Wu, Huihui Wu, Hao Wu, Wenyi Zhang*	The Persuasion Bottleneck *Michael Gastpar, Aayush Rajesh*

TH3.R2: Quantum Coding Theory 2 Chair: Joseph Renes — Ypsilon I-II-III

14:35	14:55	15:15	15:35
Belief Propagation Decoding of Quantum LDPC Codes with Guided Decimation *Hanwen Yao, Waleed Abu Laban, Christian Häger, Alexandre Graell i Amat, Henry D. Pfister*	Entanglement-Assisted Quantum Codes from a Class of Unitary Matrices *Lin Sok, Martianus Frederic Ezerman, San Ling, Mareth Mam*	Decoding Strategies for Generalized Quantum Data-Syndrome Coding Problems *Kao-Yueh Kuo, Ching-Yi Lai*	Improved Logical Error Rate via List Decoding of Quantum Polar Codes *Anqi Gong, Joseph Renes*

TH3.R3: Secure Federated Learning Chair: Namrata Vaswani — Ypsilon IV-V-VI

14:35	14:55	15:15	15:35
VALID: a Validated Algorithm for Learning in Decentralized Networks with Possible Adversarial Presence *Mayank Bakshi, Sara Ghasvarianjahromi, Yauhen Yakimenka, Allison Beemer, Oliver Kosut, Joerg Kliewer*	Secure Inference for Vertically Partitioned Data Using Multiparty Homomorphic Encryption *Shuangyi Chen, Yue Ju, Zhongwen Zhu, Ashish Khisti*	Byzantine-Resilient Federated Principal Subspace Estimation *Ankit Pratap Singh, Namrata Vaswani*	Robust Distributed Gradient Descent to Corruption over Noisy Channels *Shuche Wang, Vincent Y. F. Tan*

TH3.R4: Information Measures II Chair: Marco Dalai — Omikron II

14:35	14:55	15:15	15:35
Several Interpretations of Max-Sliced Mutual Information *Dor Tsur, Haim Permuter, Ziv Goldfeld*	Computing Augustin Information via Hybrid Geodesically Convex Optimization *Guan-Ren Wang, Chung-En Tsai, Hao-Chung Cheng, Yen-Huan Li*	A New Characterization Of Augustin Information And Mean *Hao-Chung Cheng, Barış Nakiboğlu*	On Doeblin Curves and Their Properties *William Lu, Anuran Makur, Japneet Singh*

TH3.R5: Distributed Computing: Matrix Multiplication Chair: Salim El Rouayheb — Omikron I

14:35	14:55	15:15	15:35
Distributed Structured Matrix Multiplication *Derya Malak*	Distributed matrix multiplication with straggler tolerance using algebraic function fields *Adrián Fidalgo-Díaz, Umberto Martínez-Peñas*	Flexible Field Sizes in Secure Distributed Matrix Multiplication via Efficient Interference Cancellation *Okko Makkonen*	Secure Distributed Matrix Multiplication with Precomputation *Ryann Cartor, Rafael D'Oliveira, Salim El Rouayheb, Daniel Heinlein, Dave Karpuk, Alex Sprintson*

TH3.R6: Integrated Sensing and Communication 1 Chair: Tobias Oechtering — Sigma/Delta

14:35	14:55	15:15	15:35
Distribution-Preserving Integrated Sensing and Communication with Secure Reconstruction *Yiqi Chen, Tobias Oechtering, Holger Boche, Mikael Skoglund, Yuan Luo*	Transmitter Actions for Secure Integrated Sensing and Communication *Truman Welling, Onur Günlü, Aylin Yener*	Fundamental Limits of Communication-Assisted Sensing in ISAC Systems *Fuwang Dong, Fan Liu, Shihang Lu, Yifeng Xiong, Weijie Yuan, Yuanhao Cui*	Bistatic Integrated Sensing and Communication over Memoryless Relay Channels *Yao Liu, Min Li, Lawrence Ong, Aylin Yener*

TH3.R7: Algebraic Aspects of Coding Theory 1 Chair: Vitaly Skachek — VIP

14:35	14:55	15:15	15:35
Nested Construction of $\mathbb{Z}_{2^L}$-Linear Codes *Gustavo Terra Bastos, Maiara Francine Bollauf, Agnaldo José Ferrari, Øyvind Ytrehus*	Efficient Root-Finding for Interpolation-Based Decoding of Elliptic and Hyperelliptic Codes *Jianguo Zhao, Jiwei Liang, Li Chen*	Upper bounds on the rate of linear q-ary k-hash codes *Stefano Della Fiore, Marco Dalai*	Weighted-Hamming Metric for Parallel Channels *Sebastian Bitzer, Alberto Ravagnani, Violetta Weger*

TH3.R8: Topics in Modern Coding Theory 2 Chair: David Mitchell — Omega

14:35	14:55	15:15	15:35
Random Staircase Generator Matrix Codes *Qianfan Wang, Yixin Wang, Yiwen Wang, Jifan Liang, Xiao Ma*	Optimal Almost-Balanced Sequences *Daniella Bar-Lev, Adir Kobovich, Orian Leitersdorf, Eitan Yaakobi*	One Code Fits All: Strong Stuck-at Codes for Versatile Memory Encoding *Roni Con, Ryan Gabrys, Eitan Yaakobi*	Private Repair of a Single Erasure in Reed Solomon Codes *Stanislav Kruglik, Han Mao Kiah, Son Hoang Dau, Eitan Yaakobi*

TH3.R9: Private Information Retrieval 1 Chair: Alex Sprintson — Lamda

14:35	14:55	15:15	15:35
A New Approach to Harnessing Side Information in Multi-Server Private Information Retrieval *Ningze Wang, Anoosheh Heidarzadeh, Alex Sprintson*	Achieving Capacity of PIR with Private Side Information with Low Sub-packetization and without MDS Codes *Leila Erhili, Anoosheh Heidarzadeh*	The Capacity of Symmetric Private Information Retrieval with Private Noisy Side Information *Hassan ZivariFard, Rémi A. Chou, Xiaodong Wang*	Dual-Source Symmetric PIR without Data Replication or Shared Randomness *Remi Chou*

16:25	16:45	17:05	17:25

TH4.R1: Generalization Bounds Chair: Abdellatif Zaidi — Ballroom II & III

16:25	16:45	17:05	17:25
An Information-Theoretic Framework for Out-of-Distribution Generalization *Wenliang Liu, Guanding Yu, Lele Wang, Renjie Liao*	A note on generalization bounds for losses with finite moments *Borja Rodríguez-Gálvez, Omar Rivasplata, Ragnar Thobaben, Mikael Skoglund*	Data-Dependent Generalization Bounds via Variable-size Compressibility *Milad Sefidgaran, Abdellatif Zaidi*	Hierarchical Generalization Bounds for Deep Neural Networks *Haiyun He, Christina Lee Yu, Ziv Goldfeld*

TH4.R2: Quantum Coding Theory 3 Chair: Joseph Renes — Ypsilon I-II-III

16:25	16:45	17:05	17:25
Optimal Lower Bound of the Average Indeterminate Length Lossless Quantum Block Encoding *George Androulakis, Rabins Wosti*	Graph Neural Networks for Enhanced Decoding of Quantum LDPC Codes *Anqi Gong, Sebastian Cammerer, Joseph Renes*	A family of permutationally invariant quantum codes *Arda Aydin, Max Alekseyev, Alexander Barg*	Abelian Group Codes for Classical and CQ Channel Coding: One-shot and Asymptotic Rate Bounds *James (Chin-Jen) Pang, S. Sandeep Pradhan, Hessam Mahdavifar*

TH4.R3: Secure Aggregation in Federated Learning Chair: Changho Suh — Ypsilon IV-V-VI

16:25	16:45	17:05	17:25
Sparsity-Based Secure Gradient Aggregation for Resource-Constrained Federated Learning *Hasin Us Sami, Basak Guler*	Secure Submodel Aggregation for Resource-Aware Federated Learning *Hasin Us Sami, Basak Guler*	On the Optimality of Secure Aggregation with Uncoded Groupwise Keys Against User Dropouts and User Collusion *Ziting Zhang, Jiayu Liu, Kai Wan, Hua Sun, Mingyue Ji, Giuseppe Caire*	Optimal Information Theoretic Secure Aggregation with Uncoded Groupwise Keys *Kai Wan, Hua Sun, Mingyue Ji, Tiebin Mi, Giuseppe Caire*

TH4.R4: Maximal Leakage Chair: Parastoo Sadeghi — Omikron II

16:25	16:45	17:05	17:25
Statistic Maximal Leakage *Shuaiqi Wang, Zinan Lin, Giulia Fanti*	Binary Maximal Leakage *Robinson D. H. Cung, Yanina Y. Shkel, Ibrahim Issa*	Maximal Guesswork Leakage *Gowtham R. Kurri, Malhar A. Managoli, Vinod M. Prabhakaran*	A Cross Entropy Interpretation of Rényi Entropy for α-leakage *Ni Ding, Mohammad Amin Zarrabian, Parastoo Sadeghi*

TH4.R5: Coded and Distributed Computing Chair: Sihem Mesnager — Omikron I

16:25	16:45	17:05	17:25
Local Decoding in Distributed Approximate Computing *Deheng Yuan, Tao Guo, Zhongyi Huang, Shi Jin*	Non-Binary Covering Codes for Low-Access Computations *Vinayak Ramkumar, Netanel Raviv, Itzhak Tamo*	Rate-limited Shuffling for Distributed Computing *Shanuja Sasi, Onur Günlü*	On Decentralized Linearly Separable Computation With the Minimum Computation Cost *Haoning Chen, Minquan Cheng, Ziyu Zhang, Kai Liang, Zhenhao Huang, Youlong Wu*

TH4.R6: Integrated Sensing and Communication 2 Chair: Shlomo Shamai (Shitz) — Sigma/Delta

16:25	16:45	17:05	17:25
Integrated Sensing and Communication in the Finite Blocklength Regime *Homa Nikbakht, Michèle Wigger, Shlomo Shamai (Shitz), H. Vincent Poor*	On the Fundamental Tradeoff of Joint Communication and Quickest Change Detection *Daewon Seo, Sung Hoon Lim*	Integrated Sensing and Communication Exploiting Prior Information: How Many Sensing Beams are Needed? *Chan Xu, Shuowen Zhang*	Beamforming Design for Integrated Sensing and Communications Using Uplink-Downlink Duality *Kareem M. Attiah, Wei Yu*

TH4.R7: Algebraic Aspects of Coding Theory 2 Chair: Ago-Erik Riet — VIP

16:25	16:45	17:05	17:25
Error correction from partial information via norm-trace codes *Eduardo Camps-Moreno, Gretchen L. Matthews, Welington Santos*	Asymptotic construction of locally repairable codes with multiple recovering sets *Songsong Li, Shu Liu, Liming Ma, Yunqi Wan, Chaoping Xing*	On ML Decoding of Binary Cyclic-gap Constant Weight Codes *Birenjith Sasidharan, Emanuele Viterbo, Son Hoang Dau*	An Optimal Sequence Reconstruction Algorithm for Reed-Solomon Codes *Shubhransh Singhvi, Roni Con, Han Mao Kiah, Eitan Yaakobi*

TH4.R8: Topics in Modern Coding Theory 3 Chair: David Mitchell — Omega

16:25	16:45	17:05	17:25
Approximate Locally Decodable Codes with Constant Query Complexity and Nearly Optimal Rate *Geoffrey Mon, Dana Moshkovitz, Justin Oh*	Reverse PAC Codes: Look-ahead List Decoding *Xinyi Gu, Mohammad Rowshan, Jinhong Yuan*	Game of Coding: Beyond Trusted Majorities *Hanzaleh Akbari Nodehi, Viveck R. Cadambe, Mohammad Ali Maddah-Ali*	PoW Security-Latency and Transaction Rate *Mustafa Doger, Sennur Ulukus*

TH4.R9: Private Information Retrieval 2 Chair: Viveck Cadambe — Lamda

16:25	16:45	17:05	17:25
Weakly Private Information Retrieval from Heterogeneously Trusted Servers *Yu-Shin Huang, Wenyuan Zhao, Ruida Zhou, Chao Tian*	A Capacity Result on Weakly-Private Information Retrieval *song chen, Haobo Jia, Zhuqing Jia*	Algebraic Geometry Codes for Cross-Subspace Alignment in Private Information Retrieval *Okko Makkonen, David Karpuk, Camilla Hollanti*	Code-Based Single-Server Private Information Retrieval: Circumventing the Sub-Query Attack *Neehar Verma, Camilla Hollanti*

09:45	10:05	10:25	10:45

FR1.R1: Post-quantum Cryptography Chair: Jens Zumbraegel — Ballroom II & III

09:45	10:05	10:25	10:45
CRYSTALS-Kyber With Lattice Quantizer *Shuiyin Liu, Amin Sakzad*	Network Coding-Based Post-Quantum Cryptography for Multi-Users with Different Security Permissions *Alejandro Cohen, Rafael G. L. D'Oliveira*	Optimum Fingerprinting Function for Winternitz One-Time Signature *Motonari Honda, Yuichi Kaji*	Exploiting signature leakages: breaking Enhanced pqsigRM *Thomas Debris-Alazard, Pierre Loisel, Valentin Vasseur*

FR1.R2: Hypothesis Testing 3 Chair: Yuval Kochman — Ypsilon I-II-III

09:45	10:05	10:25	10:45
An Improved Upper Bound for Distributed Hypothesis Testing *Yuval Kochman*	Practical Short-Length Coding Schemes for Binary Distributed Hypothesis Testing *Elsa Dupraz, Ismaila Salihou Adamou, Reza Asvadi, Tad Matsumoto*	Sample Complexity of Locally Differentially Private Quantum Hypothesis Testing *Hao-Chung Cheng, Christoph Hirche, Cambyse Rouzé*	Optimal Distributed Quantizer Design for Binary Classification of Conditionally Independent Vector Sources *Sara Zendehboodi, Sorina Dumitrescu*

FR1.R3: Polar codes 3 Chair: Hsin-Po Wang — Ypsilon IV-V-VI

09:45	10:05	10:25	10:45
Generalized concatenated polarization kernels *Petr Trifonov*	Near-Optimal Generalized Decoding of Polar-like Codes *Peihong Yuan, Ken Duffy, Muriel Médard*	Weight Structure of Low/High-Rate Polar Codes and Its Applications *Mohammad Rowshan, Vlad-Florin Dragoi, Jinhong Yuan*	Finite-Length Analysis of Polar Secrecy Codes for Wiretap Channels *Hessam Mahdavifar, Fariba Abbasi*

FR1.R4: Capacity and Guessing Chair: Charalambos Charalambous — Omikron II

09:45	10:05	10:25	10:45
Soft Guessing Under Log-Loss Distortion Allowing Errors *Shota Saito*	What can Information Guess ? Guessing Advantage vs. Rényi Entropy for Small Leakages *Julien Béguinot, Olivier Rioul*	Feedback Capacity of Nonlinear Decision Models with General Noise: Gaussian Applications with Filtering and Control Riccati Equations *Charalambos Charalambous, Stelios Louka*	Improved bounds on the interactive capacity via error pattern analysis *Mudit Aggarwal, Manuj Mukherjee*

FR1.R5: Multiple Access Chair: Ramji Venkataramanan — Omikron I

09:45	10:05	10:25	10:45
One-shot multiple access channel simulation *Aditya Nema, Sreejith Sreekumar, Mario Berta*	Coded Many-User Multiple Access via Approximate Message Passing *Xiaoqi Liu, Kuan Hsieh, Ramji Venkataramanan*	Many-user multiple access with random user activity *Xiaoqi Liu, Pablo Pascual Cobo, Ramji Venkataramanan*	Compute-Forward Multiple Access for Gaussian Fast Fading Channels *Lanwei Zhang, Jamie Evans, Jingge Zhu*

FR1.R6: Group Testing 1 Chair: Pavlos Nikolopoulos — Sigma/Delta

09:45	10:05	10:25	10:45
Efficient designs for threshold group testing without gap *Thach V. Bui, Yeow Meng Chee, Van Khu Vu*	Threshold Saturation for Quantitative Group Testing with Low-Density Parity-Check Codes *Mgeni Makambi Mashauri, Alexandre Graell I Amat, Michael Lentmaier*	Quantitative Group Testing with Tunable Adaptation *Mahdi Soleymani, Tara Javidi*	Noise-Tolerant Codebooks for Semi-Quantitative Group Testing: Application to Spatial Genomics *Kok Hao Chen, Duc Tu Dao, Han Mao Kiah, Van Long Phuoc Pham, Eitan Yaakobi*

FR1.R7: Information Theory and Computer Science Chair: Prakash Narayan — VIP

09:45	10:05	10:25	10:45
The Bethe Partition Function and the SPA for Factor Graphs based on Homogeneous Real Stable Polynomials *Yuwen Huang, Pascal Vontobel*	Bounding Weakly Correlated Products from Below: Supermodularity is All You Need *Dimitris Achlioptas, Kostas Zampetakis*	A Random CSP with Connections to Discrepancy Theory and Randomized Trials *Eren Kizildag*	An Encoder-Decoder Approach for Packing Circles *Akshay Kiran Jose, Gangadhar Karevvanavar, Rajshekhar V Bhat*

FR1.R8: Differential Privacy Chair: Asaf Cohen — Omega

09:45	10:05	10:25	10:45
Differential-Privacy Capacity *Wael Alghamdi, Shahab Asoodeh, Flavio P. Calmon, Oliver Kosut, Lalitha Sankar*	On the Extreme Points of the (0, δ)-Differential Privacy Polytope *Karan Elangovan, Varun Jog*	Achieving the Exactly Optimal Privacy-Utility Trade-Off with Low Communication Cost via Shared Randomness *Seung-Hyun Nam, Hyun-Young Park, Si-Hyeon Lee*	Quantifying Privacy via Information Density *Leonhard Grosse, Sara Saeidian, Parastoo Sadeghi, Tobias J. Oechtering, Mikael Skoglund*

FR1.R9: Complexity and Computation Theory 1 Chair: Shuki Bruck — Lamda

09:45	10:05	10:25	10:45
Nearest Neighbor Representations of Neural Circuits *Kordag Mehmet Kilic, Jin Sima, Jehoshua Bruck*	On the Non-Computability of Convex Optimization Problems *Holger Boche, Andrea Grigorescu, Rafael F. Schaefer, H. Vincent Poor*	A Mathematical Framework for Computability Aspects of Algorithmic Transparency *Holger Boche, Adalbert Fono, Gitta Kutyniok*	Coded Computing Meets Quantum Circuit Simulation: Coded Parallel Tensor Network Contraction Algorithm *Jin Lee, Zheng Zhang, Haewon Jeong, Sofia Gonzalez-Garcia*

Friday, July 12   11:30–12:50

11:30	11:50	12:10	12:30

FR2.R1: Quantum Cryptography Chair: Matthieu Bloch — Ballroom II & III

11:30	11:50	12:10	12:30
Quantum Wiretap Channel Coding Assisted by Noisy Correlation *Minglai Cai, Andreas Winter*	Resource-Efficient Entanglement-Assisted Covert Communications over Bosonic Channels *Shi-Yuan Wang, Shang-Jen Su, Matthieu Bloch*	Existential Unforgeability in Quantum Authentication From Quantum Physical Unclonable Functions Based on Random von Neumann Measurement *Soham Ghosh, Vladlen Galetsky, Pol Julià Farré, Christian Deppe, Roberto Ferrara, Holger Boche*	New Security Proof of a Restricted High-Dimensional QKD Protocol *Hasan Iqbal, Walter Krawec*

FR2.R2: Network Information Theory 1 Chair: Baris Nakiboglu — Ypsilon I-II-III

11:30	11:50	12:10	12:30
One-Shot Coding over General Noisy Networks *Yanxiao Liu, Cheuk Ting Li*	DoF Analysis for (M, N)-Channels through a Number-Filling Puzzle *Yue Bi, Yue Wu, Cunqing Hua*	On the capacity region of some classes of interference channels *Amin Aminzadeh Gohari, Chandra NAIR, Jinpei Zhao*	On Permutation Capacity Regions of Multiple-Access Channels *William Lu, Anuran Makur*

FR2.R3: Combinatorial Coding Theory 3 Chair: Hiram Lopez — Ypsilon IV-V-VI

11:30	11:50	12:10	12:30
Break-Resilient Codes for Forensic 3D Fingerprinting *Canran Wang, Jin Sima, Netanel Raviv*	Near optimal constructions of frameproof codes *Miao Liu, Zengjiao Ma, Chong Shangguan*	On the affine permutation group of certain decreasing Cartesian codes *Eduardo Camps Moreno, Hiram López, Eliseo Sarmiento, Ivan Soprunov*	Window Weight Limited Gray Codes And Robust Positioning Sequences *Yeow Meng Chee, Huimin Lao, Tien Long Nguyen, Van Khu Vu*

FR2.R4: Information Inequalities 1 Chair: Lampros Gavalakis — Omikron II

11:30	11:50	12:10	12:30
Proving Information Inequalities by Gaussian Elimination *Laigang Guo, Raymond Yeung, Xiao-Shan Gao*	Properties of the Strong Data Processing Constant for Rényi Divergence *Lifu Jin, Amedeo Roberto Esposito, Michael Gastpar*	Self Improvement of the McEliece-Yu Inequality *Andrei Tanasescu, Pantelimon-George Popescu*	A Poisson Decomposition for Information and the Information-Event Diagram *Cheuk Ting Li*

FR2.R5: Unsourced Random Access Chair: Giuseppe Caire — Omikron I

11:30	11:50	12:10	12:30
Enhancing the Maximum Tolerable Number of Active Users for Unsourced Random Access *Shan Lu, Hiroshi Kamabe*	Enhanced ODMA with Channel Code Design and Pattern Collision Resolution for Unsourced Multiple Access *Jianxiang Yan, Guanghui Song, Ying Li, Zhaoji Zhang, Yuhao Chi*	Worst-Case Per-User Error Bound for Asynchronous Unsourced Multiple Access *Jyun-Sian Wu, Pin-Hsun Lin, Marcel Mross, Eduard Jorswieck*	Unsourced Random Access in MIMO Quasi-Static Rayleigh Fading Channels with Finite Blocklength *Junyuan Gao, Yongpeng Wu, Giuseppe Caire, Wei Yang, Wenjun Zhang*

FR2.R6: Group Testing 2 Chair: Soheil Mohajer — Sigma/Delta

11:30	11:50	12:10	12:30
Sparsity-Constrained Community-Based Group Testing *Sarthak Jain, Martina Cardone, Soheil Mohajer*	Group Testing with General Correlation Using Hypergraphs *Hesam Nikpey, Saswati Sarkar, Shirin Saeedi Bidokhti*	Isolate and then Identify: Rethinking Adaptive Group Testing *Hsin-Po Wang, Venkatesan Guruswami*	List-Decoding Separable Matrices for Non-Adaptive Combinatorial Group Testing *Jinping Fan, Yujie Gu, Ying Miao, Zhebin Yu*

FR2.R7: Information-theoretic Control Chair: Michael Lentmaier — VIP

11:30	11:50	12:10	12:30
Less than 1-Bit Control of an Unstable AR Process with 1--Bit Quantizers *Rachel Bonen, Asaf Cohen*	Detection of False Data Injection Attacks in Cyber-Physical Systems *Souvik Das, Avishek Ghosh, Debasish Chatterjee*	Coordination Coding with Causal Encoder for Vector-valued Witsenhausen Counterexample *Mengyuan Zhao, Maël Le Treust, Tobias Oechtering*	Coded Kalman Filtering over MIMO Gaussian Channels with Feedback *Barron Han, Oron Sabag, Victoria Kostina, Babak Hassibi*

FR2.R8: Privacy and Security in Computing Chair: Rawad Bitar — Omega

11:30	11:50	12:10	12:30
HetDAPAC: Distributed Attribute-Based Private Access Control with Heterogeneous Attributes *Shreya Meel, Sennur Ulukus*	Interactive Byzantine-Resilient Gradient Coding for General Data Assignments *Shreyas Jain, Luis Maßny, Christoph Hofmeister, Eitan Yaakobi, Rawad Bitar*	On Securing Analog Lagrange Coded Computing from Colluding Adversaries *Rimpi Borah, Harshan Jagadeesh*	

FR2.R9: Complexity and Computation Theory 2 Chair: Manuj Mukherjee — Lamda

11:30	11:50	12:10	12:30
Information Exchange is Harder with Noise at Source *Manuj Mukherjee, Ran Gelles*	Infodemic Source Detection: Enhanced Formulations with Information Flow *Chao Zhao, Zimeng Wang, Qiaoqiao Zhou, Chee Wei Tan, Chung Chan*	Computation in Server-Assisted Noisy Networks *Manuj Mukherjee, Ran Gelles*	The Benefit of More Bad Choices in Observational Learning *Pawan Poojary, Randall Berry*

14:35　　14:55　　15:15　　15:35

FR3.R1: Quantum Security and Privacy　Chair: Hao-Chung Cheng　Ballroom II & III

Maximal α-Leakage for Quantum Privacy Mechanisms and Operational Meaning of Measured Rényi Capacity *Bo-Yu Yang, Hsuan Yu, Hao-Chung Cheng*	Quantum Private Membership Aggregation *Alptug Aytekin, Mohamed Nomeir, Sennur Ulukus*	Information Theoretic Analysis of a Quantum PUF *Kumar Nilesh, Christian Deppe, Holger Boche*	An Information-Theoretic Approach to Anonymous Access Control *Alfredo De Santis, Anna Lisa Ferrara, Barbara Masucci, Giorgio Venditti*

FR3.R2: Network Information Theory 2　Chair: Michael Gastpar　Ypsilon I-II-III

Nobody Expects a Differential Equation: Minimum Energy-Per-Bit for the Gaussian Relay Channel with Rank-1 Linear Relaying *Oliver Kosut, Michelle Effros, Michael Langberg*	Sliding Secure Symmetric Multilevel Diversity Coding *Tao Guo, Laigang Guo, Yinfei Xu, Congduan Li, Shi Jin, Raymond W. Yeung*	Universal Source Encryption under Side-Channel Attacks *Yasutada Oohama, Bagus Santoso*	Simultaneous Computation and Communication over MAC *Matthias Frey, Igor Bjelaković, Michael Gastpar, Jingge Zhu*

FR3.R3: Iterative Decoding　Chair: Michael Lentmaier　Ypsilon IV-V-VI

Generalized Gradient Flow Decoding and Its Tensor-Computability *Tadashi Wadayama, Lantian Wei*	Performance Analysis of Generalized Product Codes with Irregular Degree Distribution *Sisi Miao, Jonathan Mandelbaum, Lukas Rapp, Holger Jäkel, Laurent Schmalen*	Precoded Polar Product Codes *Mustafa Cemil Coskun*	Bit-flipping Decoder Failure Rate Estimation for (v,w)-regular Codes *Alessandro Annechini, Alessandro Barenghi, Gerardo Pelosi*

FR3.R4: Information Inequalities 2　Chair: Venkat Anantharam　Omikron II

On the Optimality of Dictator functions and Isoperimetric Inequalities on Boolean Hypercubes *Zijie Chen, Chandra NAIR*	Lower Bounds on Mutual Information for Linear Codes Transmitted over Binary Input Channels, and for Information Combining *Uri Erez, Or Ordentlich, Shlomo Shamai (Shitz)*	A Quantitative Version of More Capable Channel Comparison *Donald Kougang-Yombi, Jan Hązła*	An information-theoretic proof of the Shannon-Hagelbarger theorem *Venkat Anantharam*

FR3.R5: Estimation 1　Chair: Shao-Lun Huang　Omikron I

On Semi-supervised Estimation of Discrete Distributions under f-divergences *Hasan Sabri Melihcan Erol, Lizhong Zheng*	Asymptotic Estimates for Spectral Estimators of Rotationally Invariant Matrices *Zhuohang He, Junjie Ma, Xiaojun Yuan*	Guaranteed Robust Large Precision Matrix Estimation Under t-distribution *Fengpei Li, Ziping Zhao*	Second-Order Characterization of Minimax Parameter Estimation in Restricted Parameter Space *Tianren Peng, Xinyi Tong, Shao-Lun Huang*

FR3.R6: Capacity of biological channels　Chair: Tolga Duman　Sigma/Delta

Exact Error Exponents for a Concatenated Coding Based Class of DNA Storage Codes *Yan Hao Ling, Jonathan Scarlett*	Performance Limits in 3D Localization via Molecular Diffusion *Flavio Zabini, Barbara Masini*	On Noisy Duplication Channels with Markov Sources *Brendon McBain, James Saunderson, Emanuele Viterbo*	On the Capacity of Channels with Markov Insertions, Deletions and Substitutions *Ruslan Morozov, Tolga Duman*

FR3.R7: Graph Theory and Analytics　Chair: Violetta Weger　VIP

Exact Graph Matching in Correlated Gaussian-Attributed Erdos-Renyi Model *Joonhyuk Yang, Hye Won Chung*	Subgraph Matching via Partial Optimal Transport *Wen-Xin Pan, Isabel Haasler, Pascal Frossard*	Graph Reconstruction from Noisy Random Subgraphs *Andrew McGregor, Rik Sengupta*	Spectral Convergence of Simplicial Complex Signals *Purui Zhang, Xingchao Jian, Feng Ji, Wee Peng Tay, Bihan Wen*

FR3.R8: Privacy in Communication and Computation　Chair: Shahab Asoodeh　Omega

E_gamma-Mixing Time *Behnoosh Zamanlooy, Shahab Asoodeh, Mario Diaz, Flavio Calmon*	Multi-Task Private Semantic Communication *Amirreza Zamani, Sajad Daei, Tobias Oechtering, Mikael Skoglund*	A New Multi-receiver Authentication Scheme For General Access Structure *Jing Yang, Shu-Tao Xia, Xianfang Wang, Can Xiang, Fang-Wei Fu*	Entropy-Achieving Compression with Private Local Decodability *Venkat Chandar, Aslan Tchamkerten, Shashank Vatedka*

FR3.R9: Signal Processing 1　Chair: Anand Sarwate　Lamda

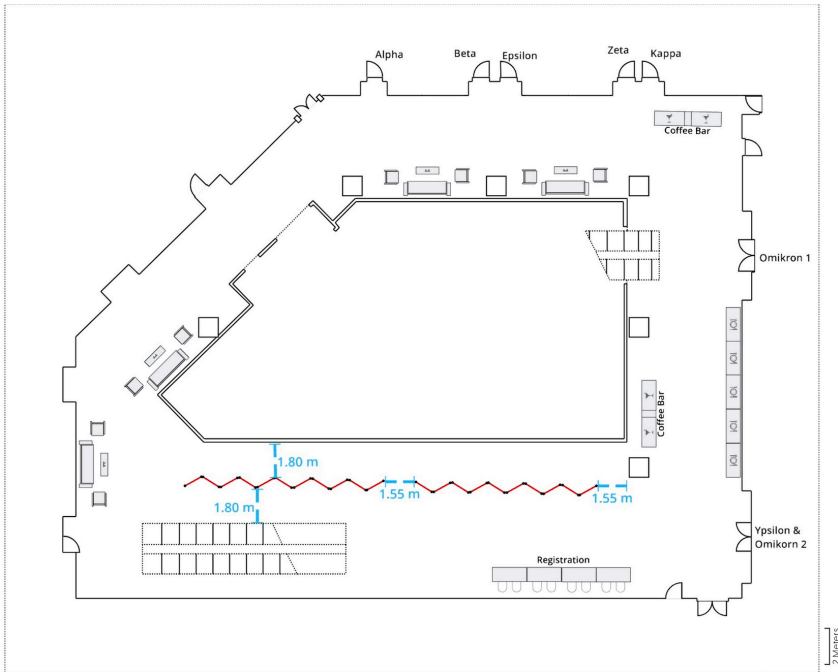|			
Modulo Sampling with 1-bit Side Information: Performance Guarantees in the Presence of Quantization *Neil Irwin Bernardo, Shaik Basheeruddin Shah, Yonina Eldar*	Preconditioned Gradient Descent for Sketched Mixture Learning *Joseph Gabet, Maxime Ferreira Da Costa*	Distributed Sampling for the Detection of Poisson Sources under Observation Erasures *Vanlalruata Ralte, Amitalok J. Budkuley, Stefano Rini*	Overflow-Avoiding Memory AMP *Shunqi Huang, Lei Liu, Brian Kurkoski*

16:25	16:45	17:05	17:25

FR4.R1: Cryptographic Protocols Chair: Jens Zumbraegel — Ballroom II & III

16:25	16:45	17:05	17:25
An Unconditionally Secure Encryption Protocol for Cloud Storage	Wiretapped Commitment over Binary Channels	Error Correction Capabilities of Non-Linear Cryptographic Hash Functions	
Mohammad Moltafet, Hamid R. Sadjadpour, Zouheir Rezki	*Anuj Kumar Yadav, Manideep Mamindlapally, Amitalok Budkuley*	*Alejandro Cohen, Rafael G. L. D'Oliveira*	

FR4.R2: MDL and Prediction Chair: Or Ordentlich — Ypsilon I-II-III

16:25	16:45	17:05	17:25
Generalization of LiNGAM that allows confounding	Prediction with noisy expert advice	Batch Universal Prediction	
Joe Suzuki, Tian-Le Yang	*Alankrita Bhatt, Victoria Kostina*	*Marco Bondaschi, Michael Gastpar*	

FR4.R3: List Decoding Chair: Vinayak Ramkumar — Ypsilon IV-V-VI

16:25	16:45	17:05	17:25
Points-Polynomials Incidence Theorem with an Application to Reed-Solomon Codes	Explicit Subcodes of Reed–Solomon Codes that Efficiently Achieve List Decoding Capacity	Multiplicity assignments for Koetter-Vardy decoding. The case of traceability codes.	Quasi-OSD of Binary Image of RS Codes with Applications to JSCC
Itzhak Tamo	*Amit Berman, Yaron Shany, Itzhak Tamo*	*Marcel Fernandez, Josep Cotrina Navau*	*Xiangping Zheng, Qianfan Wang, Baodian Wei, Xiao Ma*

FR4.R4: Entropy Power Inequalities Chair: Olivier Rioul — Omikron II

16:25	16:45	17:05	17:25
Dimensional discrete entropy power inequalities for log-concave random vectors	An entropic inequality in finite Abelian groups analogous to the unified Brascamp-Lieb and Entropy Power Inequality	Gaussian mixtures: convexity properties and CLT rates for the entropy and Fisher information	McKean's Conjecture Under the Log-Concavity Assumption
Matthieu Fradelizi, Lampros Gavalakis, Martin Rapaport	*Chin Wa (Ken) Lau, Chandra NAIR*	*Alexandros Eskenazis, Lampros Gavalakis*	*Yanlin Geng*

FR4.R5: Estimation 2 Chair: Andrew Thangaraj — Omikron I

16:25	16:45	17:05	17:25
Ziv–Merhav estimation for hidden-Markov processes	Parameter Estimation Based on Noisy Chaotic Signals in the Weak-Noise Regime	Unbiased Estimating Equation on Inverse Divergence and Its Conditions	
Nicholas Barnfield, Raphaël Grondin, Gaia Pozzoli, Renaud Raquépas	*Neri Merhav*	*Masahiro Kobayashi, Kazuho Watanabe*	

FR4.R6: Information and Coding in Biology Chair: Luca Barletta — Sigma/Delta

16:25	16:45	17:05	17:25
The Lattice-Input Discrete-Time Poisson Channel	Improved Bounds on the Number of Support Points of the Capacity-Achieving Input for Amplitude Constrained Poisson Channels	On the Coverage Required for Diploid Genome Assembly	
Federico Bello, Álvaro Martín, Tatiana Rischewski, Gadiel Seroussi	*Luca Barletta, Alex Dytso, Shlomo Shamai (Shitz)*	*Daanish Mahajan, Chirag Jain, Navin Kashyap*	

FR4.R7: Distributed Learning Chair: Randall Berry — VIP

16:25	16:45	17:05	17:25
DIST-CURE: A Robust Distributed Learning Algorithm with Cubic Regularized Newton	SignSGD-FV: Communication-Efficient Distributed Learning through Heterogeneous Edges	Distributed Learning for Dynamic Congestion Games	The Entrapment Problem in Random Walk Decentralized Learning
Avishek Ghosh, Raj Kumar Maity, Arya Mazumdar	*Chanho Park, H. Vincent Poor, Namyoon Lee*	*Hongbo Li, Lingjie Duan*	*Zonghong Liu, Salim El Rouayheb, Matthew Dwyer*

FR4.R8: Private Information Retrieval 3 Chair: Martina Cardone — Omega

16:25	16:45	17:05	17:25
Private Approximate Nearest Neighbor Search for Vector Database Querying	An Efficient, High-Rate Scheme for Private Information Retrieval over the Gaussian MAC	Equal Requests are Asymptotically Hardest for Data Recovery	
Sajani Vithana, Martina Cardone, Flavio Calmon	*Or Elimelech, Asaf Cohen*	*Jüri Lember, Ago-Erik Riet*	

FR4.R9: Signal Processing 2 Chair: Anand Sarwate — Lamda

16:25	16:45	17:05	17:25
Anomaly Search of a Hidden Markov Model	Numerical Stability of DFT Computation for Signals with Structured Support	Optimized Parameter Design for Channel State Information-Free Location Spoofing	Sharp analysis of out-of-distribution error for "importance-weighted" estimators in the overparameterized regime
Levli Citron, Kobi Cohen, Qing Zhao	*Charantej Reddy Pochimireddy, Aditya Siripuram, Osgood Brad*	*Jianxiu Li, Urbashi Mitra*	*Kuo-Wei Lai, Vidya Muthukumar*

Floor Plans

Outdoor Pool

Cafezoe Terrace

Cafezoe

Spa boutique

WC

Business Centre

reception

Lounge

IV

I

III

II

Arcade

main entrance

Main Lobby

escalators leading to -I Level (meeting space)

guestroom lifts

Tobar

Artbistrot

Artbistrot

(open to below)

Artlounge

Artlounge Terrace

WC

Rotunda

Lounge

Board Rm

I

II

III

Athenaeum Conference Centre

Aphrodite Terrace

I

II

III

IV

V

Level -1

Alpha

Beta

Epsilon

Zeta

Kappa

Coffee Bar

Omikron 1

Coffee Bar

1.80 m

1.80 m

1.55 m

1.55 m

Registration

Ypsilon & Omikorn 2

2 Meters

Water station

Photo Booth

Food station

Omega

Food station

Bar 1

Delta

Lamda

Food station

Lamda

Water station

Food station

Sigma

Water station

Bar 2

Water station

Food station

Bar 3

VIP Lounge

Theta

Speakers Assistance

NOW Publishers

Cambridge University Press

Entropy

Ballroom III

Ballroom II

Ballroom II

Ballroom I

Ballroom I

2 Meters
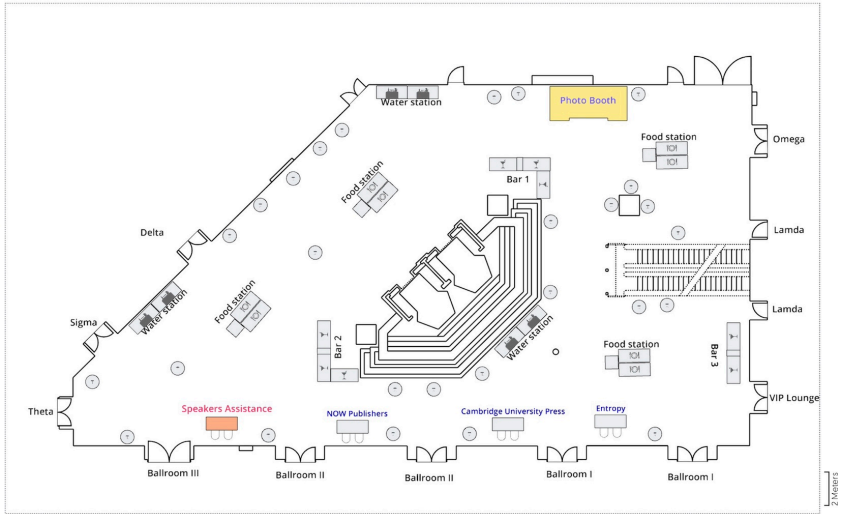
Addresses

Conference Venue

InterContinental Athenaeum
Leof. Andrea Siggrou 89-93
Athina, 11745

Welcome Reception Venue

Stavros Niarchos Foundation Cultural Center
Leof. Andrea Siggrou 364
Kallithea, 17674

Banquet Venue

Ble Azure
Leof. Posidonos 70
Alimos, 17455

ISIT Shuttle Bus Stop

Leof. Amalias 18
Syntagma Square, Athens

Wifi Information

Network Name

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Access Code

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Emergency Contacts

Emergency Registration Desk Number

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Emergency State Number

112