Samet Oymak
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PROFESSIONAL EXPERIENCE

- **University of Michigan**
  Associate Professor of Electrical Engineering and Computer Science (Aug 2025-)
  Assistant Professor of Electrical Engineering and Computer Science (Aug 2023-Aug 2025)
  Director of SOTA Lab
- **Google Research** (Aug 2025-)
  Visiting Faculty Researcher
- **University of California, Riverside** (Feb 2018–June 2023)
  Assistant Professor of Electrical and Computer Engineering
  Cooperating Faculty of Computer Science and Engineering
- **The Voleon Group** (Jan 2017–Feb 2018)
  Member of Research Staff
- **Google Inc.** (June 2015–Jan 2017)
  Software Engineer
- **University of California, Berkeley** (Sept 2014–June 2015)
  Postdoctoral Scholar at Simons Institute and AMPLab
  Sponsor: Benjamin Recht

EDUCATION

- **California Institute of Technology**
  MS in Electrical Engineering (Sept. 2009–June 2011)
  PhD in Electrical Engineering (June 2011–June 2015)
  Advisor: Babak Hassibi
  Thesis: *Convex relaxation for low-dimensional representation: Phase transitions and limitations*
- **Bilkent University** (Sept. 2005–June 2009)
  BS in Electrical Engineering

RESEARCH INTERESTS

My group develops innovative theories and robust algorithms to solve pressing challenges in AI, machine learning, and data science by harnessing mathematical optimization and statistics.

Current directions: foundations of language models, transformers, reasoning capabilities; dynamics and control; statistical learning; optimization theory; high-dimensional probability

Google Scholar profile: https://scholar.google.com/citations?user=AY6InkoAAAAJ
Citation: 6300+
h-index: 44

RECOGNITIONS & AWARDS

- **EECS Outstanding Achievement** Award, University of Michigan, 2025.
- **Amazon Research Award** on Foundation Model Development, 2024.
- **Adobe Data Science Research** award, 2023.
- **Notable Area Chair** recognition at NeurIPS 2023 (academic service).

- **Google Research Scholar** award, 2022.
- **NSF CAREER** award, 2021.
- **UCR Regents** Faculty Fellowship and Faculty Development Awards, 2020 & 2021.
- **Wilts Prize** for Best Thesis in Electrical Engineering Caltech, June 2015.
- **Simons–Berkeley Research Fellowship** on Information Theory, Spring 2015.
- **Ranked 1**st in Electrical Engineering Qualifying Exam, Caltech, 2010.
- Recipient of **Caltech's Division Fellowship**, 2009-2010.
- Bilkent University **Undergraduate Fellowship**, 2005-2009.
- **Presidential Fellowship** awarded to **Top 100** students, 2005-2009, Turkey.
- **Top 50** in nationwide University Entrance Exam, 2005, Turkey.
- **Silver Medalist** in International Mathematical Olympiad (**IMO**), Mexico, 2005.

PROFESSIONAL ACTIVITIES & SERVICE

- **Courses thought:**
  - "EECS 598 - Foundations of Large Language Models", University of Michigan.
    - New course with enrollment 100+. Offerings: Winter 2024, Fall 2024, Fall 2025.
  - "EECS 553 - Machine Learning", University of Michigan
    - Offerings: Fall 2023, Winter 2025, Fall 2025.
  - "EE/CS 248 - Optimization for Machine Learning", UC Riverside, 2021-2023.
  - "EE/CS 228 - Introduction to Deep Learning", UC Riverside, 2021-2023.
  - "EE 260 - Seminar on Deep Learning", University of California, Riverside, 2020.
  - "EE 215 - Stochastic Processes", University of California, Riverside, 2018 & 2019.
  - "EE 114 - Probability, Random Variables, and Random Processes", UCR, 2018-2021.
  - Coached Turkish Math Olympiad Team for IMO, 2008.
- **Student and Postdoc advising**
  - PhD students
    - Yingcong Li (2020-present)
    - Xuechen Zhang (2020-present, co-advised with Jiasi Chen)
    - Emrullah Ildiz (2022-present)
    - Ege Onur Taga (2023-present)
    - Halil Alperen Gözeten (2024-Present)
    - Kai Yang (2025-Present)
  - Postdocs:
    - Xiaofeng Liu
    - Karthik Elamvazhuthi
  - Undergraduate:
    - Rahul Dalvi
    - Qilong Wang
    - Yufan Zhang
- **Alumni:**

  - PhD alumni:
    * Xiangyu Chang, PhD 2025 from UCR, will be a Research Scientist at Huawei.
    * Mingchen Li, PhD 2024 from U-M, Research Scientist at Meta.
    * Yahya Sattar, PhD 2023 from UCR, Postdoc Researcher at Cornell CS department.
  - Undergraduate alumni: 12 student researchers including
    * Kutay Tire: admitted to PhD at UT Austin
    * Jinzhi Yang: admitted to PhD at Purdue University
    * Ziyang Xiong: admitted to Masters at UC Berkeley
    * Ahmet Demirkaya: admitted to PhD at Northeastern University
    * Ridvan Yesiloglu: currently PhD student at Stanford
    * Halil Ibrahim Gulluk: currently PhD student at Stanford
    * Chloe Au: currently UCR student
    * Antonio Duran-Ramos: currently Mt. San Antonio College student
    * Yixiao Huang: admitted to PhD at UC Berkeley
    * Muti Kara: pursuing master's at Bilkent University
    * Kutay Tire: admitted at UT Austin CSE
  - Master's alumni: 8 students including
    * Yingcong Li, Xuechen Zhang, Xiangyu Chang: pursuing PhD degree in my lab.
    * Yao-Chun Chan: currently at Google.
    * Yinglun Li: currently PhD students at UCR.

- **Associate Editor:** Transactions on Signal Processing.

- **Conference (Senior) Area Chair:**
  - Senior Area Chair for NeurIPS 2024, 2025
  - International Conference on Learning Representations (ICLR), 2024
  - Conference on Neural Information Processing Systems (NeurIPS), 2023
  - Artificial Intelligence and Statistics (AISTATS), 2021-22
  - AAAI Conference on Artificial Intelligence, 2023-24
- **Proposal Panelist:**
  - Division of Mathematical Sciences (MPS/DMS)
  - Division of Computer and Network Systems (CISE/CNS)
  - Division of Computing and Communication Foundations (CISE/CCF)
  - Army Research Office for MURI award

- **Program Committee:** Conference on Learning for Dynamics and Control (L4DC) 2025, ACM Knowledge Discovery and Data Mining (SIGKDD), 2021-22, Conference on Learning Theory (COLT) 2021.

- **Review service**

  (a) Journals: Nature, Annals of Statistics, SIAM Mathematics of Data Science (SIMODS), IEEE Trans. Information Theory, Journal of Machine Learning Research (JMLR), Nature Machine Intelligence, IEEE Access, IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI), IEEE Trans. Signal Proc. (TSP), IEEE Signal Proc. Letters (SPL), Bernoulli, Information and Inference, Mathematical Programming,

Applied and Comp. Harmonic Analysis (ACHA), SIAM Journal on Matrix Analysis and Applications (SIMAX), SIAM Journal on Imaging Sciences (SIIMS).

(b) Conferences: COLT, NeurIPS, Int. Conf. on Machine Learning (ICML), ICLR, IEEE International Symposium on Information Theory (ISIT), Sampling Theory and Applications (SampTA), IEEE Computer Vision and Pattern Recognition (CVPR), IEEE ICASSP.

- **UCR Data Science Program.** Member of the committee designing the upcoming Master's program in Computational Data Science. Also introduced a new data science specific course for the program titled *Fundamentals of Data Science*.

PUBLICATIONS (my students are underlined)

Conference papers

C1. Yingcong Li, Davoud Tarzanagh, Ankit Singh Rawat, Maryam Fazel, **Samet Oymak**, "Gating is Weighting: Understanding Gated Linear Attention through In-context Learning." **COLM** 2025.

C2. Alperen Gozeten, Emrullah Ildiz, Xuechen Zhang, Mahdi Soltanolkotabi, Marco Mondelli, and **Samet Oymak**. "Test-Time Training Provably Improves Transformers as In-context Learners." **ICML** 2025.

C3. Xiong et al. "Everything Everywhere All at Once: LLMs can In-Context Learn Multiple Tasks in Superposition". **ICML spotlight** 2025.

C4. Xiangyu Chang, Sk Miraj Ahmed, Srikanth V Krishnamurthy, Basak Guler, Ananthram Swami, **Samet Oymak**, Amit Roy-Chowdhury "AdMiT: Adaptive Multi-Source Tuning in Dynamic Environments", **CVPR** 2025.

C5. Emrullah Ildiz, Alperen Gozeten, Ege Onur Taga, Marco Mondelli, **Samet Oymak** "High-dimensional analysis of knowledge distillation: Weak-to-strong generalization and scaling laws", **ICLR spotlight** 2025.

C6. Xiangyu Chang, Yingcong Li, Muti Kara, **Samet Oymak**, Amit Roy-Chowdhury, "Provable Benefits of Task-Specific Prompts for In-context Learning", **AISTATS** 2025.

C7. Mingchen Li, Xuechen Zhang, Yixiao Huang, **Samet Oymak** "On the Power of Convolution Augmented Attention", accepted to **AAAI**, 2025 (acceptance rate %23.4).

C8. Ege Onur Taga, Emrullah Ildiz, **Samet Oymak** "TimePFN: Effective Multivariate Time Series Forecasting with Synthetic Data", accepted to **AAAI**, 2025 (acceptance rate %23.4).

C9. Xuechen Zhang, Xiangyu Chang, Mingchen Li, Amit Roy-Chowdhury, Jiasi Chen, **Samet Oymak** "Selective Attention: Enhancing Transformer through Principled Context Control", **NeurIPS**, 2024 (acceptance rate %25.8).

C10. Xuechen Zhang, Zijian Huang, Ege Onur Taga, Carlee Joe-Wong, **Samet Oymak**, Jiasi Chen "Efficient Contextual LLM Cascades through Budget-Constrained Policy Learning", **NeurIPS**, 2024 (acceptance rate %25.8).

C11. Yingcong Li, Ankit Singh Rawat, **Samet Oymak** "Fine-grained Analysis of In-context Linear Estimation: Data, Architecture, and Beyond", **NeurIPS**, 2024 (acceptance rate %25.8).

C12. Sk Miraj Ahmed, Fahim Faisal Niloy, Dripta S. Raychaudhuri, **Samet Oymak**, Amit Roy-Chowdhury, "*CONTRAST: Continual Multi-source Adaptation to Dynamic Distributions*," **NeurIPS**, 2024 (acceptance rate %25.8).

C13. Yongyi Liu, Nicolas Lee, Yunfan Kang, Mohammad Reza Shahneh, Ahmed Mahmood, Vishal Rohith Chinnam, Aparna Vivek Sarawadekar, **Samet Oymak**, Ibrahim Sabek, and Amr Magdy. "Pyneapple-L: Scalable Expressive Learning-based Spatial Analysis." In Proceedings of the 32nd **ACM SIGSPATIAL (best demo award)** 2024.

C14. Emrullah Ildiz, Yixiao Huang, Yingcong Li, Ankit Rawat, **Samet Oymak**, "From Self-Attention to Markov Models: Unveiling the Dynamics of Generative Transformers", Int. Conf. on Machine Learning (**ICML**) 2024 (acceptance rate %27.5).

C15. Jongho Park, Jaeseung Park, Zheyang Xiong, Nayoung Lee, Jaewoong Cho, **Samet Oymak**, Kangwook Lee, Dimitris Papailiopoulos "Can Mamba Learn How to Learn? A Comparative Study on In-Context Learning Tasks", Int. Conf. on Machine Learning (**ICML**) 2024 (acceptance rate %27.5).

C16. Yingcong Li, Yixiao Huang, Emrullah Ildiz, Ankit Singh Rawat and **Samet Oymak**. "Mechanics of Next-Token Prediction with Self-Attention" Int. Conf. on Artificial Intelligence and Statistics (**AISTATS**) 2024.

C17. Emrullah Ildiz, Zhe Zhao, and **Samet Oymak**. "Understanding Inverse Scaling and Emergence in Multitask Representations" Int. Conf. on Artificial Intelligence and Statistics (**AISTATS**) 2024.

C18. Zhe Du, **Samet Oymak**, Fabio Pasqualetti, "Prediction for Dynamical Systems Via Transfer Learning", IEEE Conference on Decision and Control (CDC) 2024.

C19. Yongyi Liu, Nicolas Lee, Yunfan Kang, Mohammad Reza Shahneh, Ahmed Mahmood, Vishal Rohith Chinnam, Aparna Vivek Sarawadekar, **Samet Oymak**, Ibrahim Sabek, Amr Magdy, "Pyneapple-L: Scalable Expressive Learning-based Spatial Analysis", ACM SIGSPATIAL 2024.

C20. Xuechen Zhang, Mingchen Li, Jiasi Chen, Christos Thrampoulidis, **Samet Oymak**. "Class-attribute Priors: Adapting Optimization to Heterogeneity and Fairness Objective" **AAAI** Conf. on Artificial Intelligence 2024 (acceptance rate %23.7).

C21. Karthik Elamvazhuthi, Xuechen Zhang, **Samet Oymak**, Fabio Pasqualetti. "A Score-based Deterministic Diffusion Algorithm with Smooth Scores for General Distributions" **AAAI** Conf. on Artificial Intelligence 2024 (acceptance rate %23.7).

C22. Fahim Faisal Niloy, Sk Miraj Ahmed, Dripta S Raychaudhuri, **Samet Oymak**, Amit K Roy-Chowdhury. "Effective restoration of source knowledge in continual test time adaptation" IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2024.

C23. Zhe Du, Haldun Balim, **Samet Oymak**, and Necmiye Ozay. "Can Transformers Learn Optimal Filtering for Unknown Systems?." IEEE ACC (also accepted to LCSS) 2023.

C24. Davoud Ataee Tarzanagh, Yingcong Li, Xuechen Zhang, **Samet Oymak**, "Max-margin Token Selection in Attention Mechanism", Conf. on Neural Information Processing Systems (**NeurIPS**) 2023, spotlight paper (top ≈3%).

C25. Yingcong Li, Kartik Sreenivasan, Angeliki Giannou, Dimitris Papailiopoulos, and **Samet Oymak**, "Dissecting chain-of-thought: Compositionality through in-context filtering and learning", Conf. on Neural Information Processing Systems (**NeurIPS**) 2023.

C26. Yingcong Li, Emrullah Ildiz, Dimitris Papailiopoulos, and **Samet Oymak**, "Transformers as Algorithms: Generalization and Stability in In-context Learning", International Conference on Machine Learning (**ICML**), 2023.

C27. **Samet Oymak**, Ankit Singh Rawat, Mahdi Soltanolkotabi, and Christos Thrampoulidis, "On the Role of Attention in Prompt-tuning", Int. Conf. on Machine Learning (**ICML**), 2023.

C28. Karthik Elamvazhuthi, Xuechen Zhang, **Samet Oymak**, and Fabio Pasqualetti, "Learning on Manifolds: Universal Approximations Properties using Geometric Controllability Conditions for Neural ODEs", L4DC (oral presentation) 2023.

C29. Yingcong Li and **Samet Oymak**, "Provable Pathways: Learning Multiple Tasks over Multiple Paths", **AAAI** Conference on Artificial Intelligence, 2023.

C30. Yuzhen Qin, Yingcong Li, Fabio Pasqualetti, Maryam Fazel, **Samet Oymak**, "Stochastic Contextual Bandits with Long Horizon Rewards" **AAAI** Conference on Artificial Intelligence 2023.

C31. Yingcong Li and **Samet Oymak**, "On the Fairness of Multitask Representation Learning", IEEE ICASSP 2023.

C32. Yahya Sattar, **Samet Oymak**, Necmiye Ozay, "Finite Sample Identification of Bilinear Dynamical Systems", IEEE Conference on Decision and Control (CDC) 2022.

C33. Davoud Ataee Tarzanagh, Mingchen Li, Christos Thrampoulidis, **Samet Oymak**, "*FedNest: Federated Bilevel, Minimax, and Compositional Optimization*," Int. Conf. on Machine Learning (**ICML**) 2022, oral paper (top ≈2%).

C34. Zhe Du, Yahya Sattar, Davoud Ataee Tarzanagh, Laura Balzano, Necmiye Ozay, **Samet Oymak**, "*Data-Driven Control of Markov Jump Systems: Sample Complexity and Regret Bounds*," American Control Conference (ACC) 2022.

C35. Yahya Sattar, Zhe Du, Davoud Ataee Tarzanagh, **Samet Oymak**, Laura Balzano, Necmiye Ozay, "*Certainty Equivalent Quadratic Control for Markov Jump Systems*," IEEE ACC 2022.

C36. Yuzhen Qin, Tommaso Menara, **Samet Oymak**, ShiNung Ching, Fabio Pasqualetti, "*Representation Learning for Context-Dependent Decision-Making*," IEEE ACC 2022.

C37. Mingchen Li, Xuechen Zhang, Christos Thrampoulidis, Jiasi Chen, **Samet Oymak**, "*AutoBalance: Optimized Loss Functions for Imbalanced Data*," Thirty-fifth Conference on Neural Information Processing Systems (**NeurIPS**) 2021.

C38. Yue Sun, Adhyyan Narang, Halil Ibrahim Gulluk, **Samet Oymak**, Maryam Fazel, "*Towards Sample-Efficient Overparameterized Meta-Learning*", Conf. on Neural Information Processing Systems (**NeurIPS**) 2021.

C39. Ganesh R. Kini, Orestis Paraskevas, **Samet Oymak**, Christos Thrampoulidis, "*Label-Imbalanced and Group-Sensitive Classification under Overparameterization*," Conf. on Neural Information Processing Systems (**NeurIPS**) 2021.

C40. **Samet Oymak**, Mingchen Li, Mahdi Soltanolkotabi, "*Generalization Guarantees for Neural Architecture Search with Train-Validation Split*," Int. Conf. on Machine Learning **(ICML)** 2021.

C41. Mohammad Reza Zare Shahneh, **Samet Oymak**, Amr Magdy, "*A-GWR: Fast and Accurate Geospatial Inference via Augmented Geographically Weighted Regression*," full paper at ACM SIGSPATIAL, 2021.

C42. Sk Miraj Ahmed, Dripta S. Raychaudhuri, Sujoy Paul, **Samet Oymak**, Amit K. Roy-Chowdhury, "*Unsupervised Multi-source Domain Adaptation Without Access to Source Data*," Conf. on Computer Vision and Pattern Recognition (**CVPR**) 2021, **oral presentation**.

C43. **Samet Oymak** and Talha Cihad Gulcu, "*A Theoretical Characterization of Semi-supervised Learning with Self-training for Gaussian Mixture Models*, The 24th Int. Conf. on Artificial Intelligence and Statistics (**AISTATS**) 2021.

C44. Xiangyu Chang, Yingcong Li, **Samet Oymak**, Christos Thrampoulidis "*Provable Benefits of Overparameterization in Model Compression: From Double Descent to Pruning Neural Networks*", The Thirty-Fifth **AAAI** Conference on Artificial Intelligence 2021.

C45. Yao-Chun Chan, Mingchen Li and **Samet Oymak**, "*On the Marginal Benefit of Active Learning: Does Self-Supervision Eat Its Cake?*", International Conference on Acoustics, Speech, & Signal Processing (IEEE ICASSP) 2021.

C46. Halil Ibrahim Gulluk, Yue Sun, **Samet Oymak**, Maryam Fazel, "*Sample Efficient Subspace-based Representations for Nonlinear Meta-Learning*", International Conference on Acoustics, Speech, & Signal Processing (IEEE ICASSP) 2021.

C47. Nhat Le, A.B. Siddique, Fuad Jamour, **Samet Oymak**, Vagelis Hristidis "*Predictable and Adaptive Goal-oriented Dialog Policy Generation*", IEEE International Conference of Semantic Computing (ICSC) 2021 *(Best Student Paper award).*

C48. Christos Thrampoulidis, **Samet Oymak**, Mahdi Soltanolkotabi, "*Theoretical Insights Into Multiclass Classification: A High-dimensional Asymptotic View*," Conference on Neural Information Processing Systems (**NeurIPS**) 2020.

C49. Abu Bakar Siddique, **Samet Oymak**, Vagelis Hristidis "Unsupervised Paraphrasing via Deep Reinforcement Learning", ACM Special Interest Group on Knowledge Discovery and Data Mining (**SIGKDD**) 2020.

C50. Yue Sun, **Samet Oymak**, and Maryam Fazel "Finite Sample System Identification: Optimal Rates and the Role of Regularization", Learning for Dynamics and Control (L4DC) 2020.

C51. Mingchen Li, Mahdi Soltanolkotabi, **Samet Oymak**, "*Gradient Descent is Provably Robust to Label Noise for Overparameterized Neural Networks*," Int. Conf. on Artificial Intelligence and Statistics (**AISTATS**) 2020.

C52. Ahmet Demirkaya, Jiasi Chen and **Samet Oymak**, "*Exploring the Role of Loss Functions in Multiclass Classification*", Conference on Information Sciences and Systems (CISS) 2020.

C53. Yahya Sattar and **Samet Oymak**, "*A Simple Framework for Learning Stabilizable Systems*", IEEE Int. Workshop on Computational Advances in Multi-Sensor Adaptive Processing (CAMSAP) 2019.

C54. Hisham Alhulayyil, Kittipat Apicharttrisorn, Jiasi Chen, Karthik Sundaresan, **Samet Oymak** and Srikanth Krishnamurthy "WOLT: Auto-Configuration of Integrated Enterprise PLC-WiFi Networks", International Conference on Distributed Computing Systems (ICDCS) 2020.

C55. Zachary Zimmerman, Nader Shakibay Senobari, Gareth Funning, Evangelos Papalexakis, **Samet Oymak**, Philip Brisk, and Eamonn Keogh, "*Matrix Profile XVIII: Time Series Mining in the Face of Fast Moving Streams using a Learned Approximate Matrix Profile*," IEEE International Conference on Data Mining (ICDM), long paper, 2019.

C56. **Samet Oymak**, Zalan Fabian, Mingchen Li, Mahdi Soltanolkotabi, "*Generalization, Adaptation and Low-Rank Representation in Neural Networks" ASILOMAR Conference on Signals, Systems, and Computers, 2019.*

C57. ***Samet Oymak****, Jiasi Chen, and Mehrdad Mahdavi,* "Learning Feature Nonlinearities with Non-Convex Regularized Binned Regression*," IEEE Int. Symp. on Info. Theory (ISIT) 2019.*

C58. ***Samet Oymak*** *and Salman Asif,* "Exactly decoding a vector through ReLU activation*", International Conference on Acoustics, Speech, & Signal Processing (IEEE ICASSP), 2019.*

C59. ***Samet Oymak****,* "Overparameterized Nonlinear Optimization with Applications to Neural Nets*," Sampling Theory and Applications (SampTA) 2019, invited paper.*

C60. ***Samet Oymak*** *and Necmiye Ozay,* "Non-asymptotic Identification of LTI Systems from a Single Trajectory*," Americal Control Conference (ACC) 2019.*

C61. ***Samet Oymak*** *and Mahdi Soltanolkotabi,* "Overparameterized Nonlinear Learning: Gradient Descent Takes the Shortest Path?*," International Conf. on Machine Learning (**ICML**) 2019.*

C62. ***Samet Oymak****,* "Stochastic Gradient Descent Learns State Equations with Nonlinear Activations*," Conference on Learning Theory (**COLT**) 2019.*

C63. ***Samet Oymak****,* "Learning Compact Neural Networks with Regularization*," International Conference on Machine Learning (**ICML**), 2018.*

C64. ***Samet Oymak****, Christos Thrampoulidis and Babak Hassibi,* "Near-Optimal Sample Complexity Bounds for Circulant Binary Embedding*," International Conference on Acoustics, Speech, & Signal Processing (IEEE ICASSP), 2017 Special Session.*

C65. *Christos Thrampoulidis,* ***Samet Oymak****, and Babak Hassibi, "Regularized linear regression: A precise analysis of the estimation error," Proc. of the Conf. on Learning Theory (**COLT**), 2015.*

C66. ***Samet Oymak*** *and Babak Hassibi,* "The proportional mean decomposition: A bridge between the Gaussian and Bernoulli ensembles*," International Conference on Acoustics, Speech, & Signal Processing (IEEE ICASSP), 2015.*

C67. *Xinghao Pan, Dimitris Papailiopoulos,* ***Samet Oymak****, Benjamin Recht, Kannan Ramchandran, Michael I. Jordan, "Parallel Correlation Clustering on Big Graphs", Neural Information Processing Systems (**NeurIPS**) 2015.*

C68. *Ramya Vinayak Korlakai,* ***Samet Oymak****, and Babak Hassibi, "*Graph Clustering With Missing Data: Convex Algorithms and Analysis*," Neural Information Processing Systems (****NeurIPS****) 2014.*

C69. ***Samet Oymak*** *and Babak Hassibi, "*A Case for Orthogonal Measurements in Linear Inverse Problems*," Int. Symp. on Info. Theory (IEEE ISIT) 2014.*

C70. *Christos Thrampoulidis,* ***Samet Oymak****, and Babak Hassibi, "*Simple Error Bounds for Regularized Noisy Linear Inverse Problems*," Int. Symp. on Info. Theory (IEEE ISIT) 2014.*

C71. *Ramya Vinayak Korlakai,* ***Samet Oymak****, and Babak Hassibi, "*Sharp Performance Bounds for Graph Clustering via Convex Optimization*," International Conference on Acoustics, Speech, & Signal Processing (IEEE ICASSP), 2014.*

C72. ***Samet Oymak****, Amin Jalali, Maryam Fazel, and Babak Hassibi, "*Noisy Estimation of Simultaneously Structured Models: Limitations of Convex Relaxation*," 52nd IEEE Conference on Decision and Control (CDC) 2013.*

C73. ***Samet Oymak****, Christos Thrampoulidis, and Babak Hassibi, "*The Squared-Error of Generalized LASSO: A Precise Analysis*," 51st Annual Allerton Conference on Communication, Control and Computing, 2013, extended paper at arXiv:1311.0830.*

C74. *Kishore Jaganathan,* ***Samet Oymak****, and Babak Hassibi, "*Sparse Phase Retrieval: Convex Algorithms and Limitations*," Int. Symp. on Info. Theory (IEEE ISIT) 2013.*

C75. ***Samet Oymak*** *and Babak Hassibi, "*On a Relation between the Minimax Risk and the Phase Transitions of Compressed Recovery*," 50th Annual Allerton Conference on Communication, Control and Computing, 2012.*

C76. *Kishore Jaganathan,* ***Samet Oymak****, and Babak Hassibi, "On Robust Phase Retrieval for Sparse Signals," 50th Annual Allerton Conference on Communication, Control and Computing, 2012.*

C77. ***Samet Oymak****, Amin Khajehnejad and Babak Hassibi, "*Recovery Threshold for Optimal Weight ℓ_1 Minimization*," International Symposium on Information Theory (IEEE ISIT) 2012.*

C78. *Kishore Jaganathan,* ***Samet Oymak****, and Babak Hassibi, "*Recovery of Sparse 1-D Signals from the Magnitudes of their Fourier Transform*," Int. Symposium on Info. Theory (IEEE ISIT) 2012.*

C79. *Kishore Jaganathan,* ***Samet Oymak****, and Babak Hassibi, "*Phase Retrieval for Sparse Signals Using Rank Minimization*," Int. Conf. on Acoustics, Speech, and Signal Proc. (ICASSP), 2012.*

C80. *Cheuk Ting Li,* ***Samet Oymak****, and Babak Hassibi, "*Deterministic Phase Guarantees for Robust Recovery in Incoherent Dictionaries*," International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2012.*

C81. *Anilesh K. Krishnaswamy,* ***Samet Oymak****, and Babak Hassibi, "*A Simpler Approach to Weighted ℓ_1 Minimization*," Int. Conf. on Acoustics, Speech, and Signal Processing (ICASSP), 2012.*

C82. ***Samet Oymak****, Karthik Mohan, Maryam Fazel, and Babak Hassibi, "*A Simplified Approach to Recovery Conditions for Low Rank Matrices*," Int. Symp. on Info. Theory (IEEE ISIT) 2011.*

C83. ***Samet Oymak****, Amin Khajehnejad, and Babak Hassibi, "*Subspace Expanders and Matrix Rank Minimization*," International Symposium on Information Theory (IEEE ISIT) 2011.*

C84. ***Samet Oymak*** *and Babak Hassibi, "*Tight Recovery Thresholds and Robustness Analysis for Nuclear Norm Minimization*," International Symposium on Information Theory (IEEE ISIT) 2011.*

C85. *Amin Khajehnejad,* ***Samet Oymak****, and Babak Hassibi, "*Subspace Expanders and Fast Recovery of Low rank Matrices*," International Conference on Sampling Theory and Applications, 2011.*

C86. ***Samet Oymak****, Amin Khajehnejad, and Babak Hassibi, "*Improved Thresholds for Rank Minimization*," International Conf. on Acoustics, Speech, and Signal Processing (ICASSP) 2011.*

C87. *Mainak Chowdhury,* ***Samet Oymak****, Amin Khajehnejad, and Babak Hassibi, "*Robustness Analysis of A List Decoding Algorithm For Compressed Sensing*," International Conference on Acoustics, Speech, and Signal Processing (ICASSP) 2011.*

C88. ***Samet Oymak****, Amin Khajehnejad, and Babak Hassibi, "*Weighted Compressed Sensing and Rank Minimization*," International Conf. on Acoustics, Speech, and Signal Processing (ICASSP) 2011.*

C89. *Xin Liu,* ***Samet Oymak****, Athina Petropulu, and Kapil R. Dandekar "*Collision Resolution Based on Pulse Shape Diversity*," Signal Processing Advances in Wireless Communications (SPAWC), 2009.*

Journal papers

J1. Zhe Du, Haldun Balim, **Samet Oymak**, and Necmiye Ozay. "Can Transformers Learn Optimal Filtering for Unknown Systems?." IEEE Control Systems Letters 2023.

J2. Yahya Sattar and **Samet Oymak**, "*Non-asymptotic and Accurate Learning of Nonlinear Dynamical Systems*", Journal of Machine Learning Research (**JMLR**), 2022.

J3. Yue Sun, **Samet Oymak**, Maryam Fazel, "*Finite Sample Identification of Low-order LTI Systems via Nuclear Norm Regularization*," IEEE Open Journal of Control Systems, 2022.

J4. Yuzhen Qin, Tommaso Menara, **Samet Oymak**, ShiNung Ching, Fabio Pasqualetti, "*Non-Stationary Representation Learning for Sequential Linear Bandits*," IEEE Open Journal of Control Systems, 2021.

J5. **Samet Oymak**, "*Provable Super-Convergence with a Large Cyclical Learning Rate*," IEEE Signal Processing Letters 2021.

J6. **Samet Oymak** and Necmiye Ozay, "*Revisiting Ho-Kalman based system identification: robustness and finite-sample analysis*", IEEE Trans. on. Automatic Control, 2021.

J7. Nhat Le, A.B. Siddique, Fuad Jamour, **Samet Oymak**, Vagelis Hristidis "*Generating Predictable and Adaptive Dialog Policies in Single- and Multi-domain Goal-oriented Dialog Systems*", IEEE Int. Journal of Semantic Computing (IJSC) 2021.

J8. **Samet Oymak** and Mahdi Soltanolkotabi, "*Learning a deep convolutional neural network via tensor decomposition*," Information & Inference 2021.

J9. Yahya Sattar and **Samet Oymak**, "*Quickly finding the best linear model in high-dimensions*", IEEE Transactions on Signal Processing 2020.

J10. **Samet Oymak** and Mahdi Soltanolkotabi, "*Towards moderate overparameterization: Global convergence guarantees for training neural networks*," IEEE Journal on Selected Areas in Information Theory 2020.

J11. **Samet Oymak**, Mahdi Soltanolkotabi, and Benjamin Recht "*Sharp Time–Data Tradeoffs for Linear Inverse Problems*," IEEE Transactions on Information Theory, June 2018.

J12. **Samet Oymak** and Joel Tropp "*Universality Laws for Randomized Dimension Reduction, with Applications*," Information & Inference, Nov 2017.

J13. **Samet Oymak** and Mahdi Soltanolkotabi "*Fast and Reliable Parameter Estimation from Nonlinear Observations*," SIAM Journal on Optimization, Oct 2017.

J14. **Samet Oymak**, Mahdi Soltanolkotabi, and Benjamin Recht "Isometric sketching of any set via the Restricted Isometry Property," Information & Inference, March 2018.

J15. **Samet Oymak**, Amin Jalali, Maryam Fazel, Yonina Eldar, and Babak Hassibi, "*Simultaneously Structured Models with Application to Sparse and Low-rank Matrices*," IEEE Transactions on Information Theory, 61(5), 2886-2908, 2015.

J16. **Samet Oymak** and Babak Hassibi, "*Sharp MSE Bounds for Proximal Denoising*," Foundations of Computational Mathematics, October 2015.

J17. Kishore Jaganathan, **Samet Oymak**, and Babak Hassibi, "*Sparse Phase Retrieval: Uniqueness Guarantees and Recovery Algorithms*," IEEE Transactions on Signal Processing, May 2017.

Preprint / In-submission

P1. Xuechen Zhang, Zijian Huang, Yingcong Li, Chenshun Ni, Jiasi Chen, **Samet Oymak**, "BREAD: Branched Rollouts from Expert Anchors Bridge SFT & RL for Reasoning", ICML ES-FoMo III Workshop, 2025.

P2. Alperen Gozeten, Emrullah Ildiz, Xuechen Zhang, Hrayr Harutyunyan, Ankit Singh Rawat, **Samet Oymak**, "Continuous Chain-of-Thought Enables Parallel Exploration and Reasoning", preprint at arXiv:2505.23648, 2025.

P3. Xuechen Zhang, Zijian Huang, Ziyang Xiong, Chenshun Ni, Jiasi Chen, **Samet Oymak**, "Making Small Language Models Efficient Reasoners: Intervention, Supervision, Reinforcement", preprint at arXiv:2505.07961, 2025.

P4. Davoud Ataee Tarzanagh*, Yingcong Li*, Christos Thrampoulidis, **Samet Oymak**, "Transformers as Support Vector Machines", preprint at arXiv:2308.16898, 2023. * Equal author. Short version appeared at NeurIPS 2023 Mathematics of Modern Machine Learning Workshop.

P5. Davoud Ataee Tarzanagh, Mingchen Li, Pranay Sharma, and **Samet Oymak**, "Federated Multi-Sequence Stochastic Approximation with Local Hypergradient Estimation", preprint at arXiv:2306.01648, 2023.

P6. Xuechen Zhang, Mingchen Li, Xiangyu Chang, Jiasi Chen, Amit Roy-Chowdhury, Ananda Theertha Suresh, and **Samet Oymak**, "FedYolo: Augmenting Federated Learning with Pretrained Transformers", short version appeared at NeurIPS 2023 FL@FM Workshop, 2023.

P7. Xiangyu Chang, Basak Guler, Srikanth Krishnamurty, Ananthram Swami, **Samet Oymak**, Amit Roy-Chowdhury, "*FLASH: Federated Learning under Diverse Heterogeneities*," in submission, 2023.

P8. Yingcong Li, Mingchen Li, Salman Asif, **Samet Oymak**, "*Provable and Efficient Continual Representation Learning*," preprint at arXiv:2203.02026, 2022.

P9. Yahya Sattar, Zhe Du, Davoud Ataee Tarzanagh, Necmiye Ozay, Laura Balzano, **Samet Oymak**, "*Identification and Adaptive Control of Markov Jump Systems: Sample Complexity and Regret Bounds*," preprint at arXiv:2111.07018, 2022.

Peer-reviewed workshops

1. Davoud Ataee Tarzanagh*, Yingcong Li*, Christos Thrampoulidis, **Samet Oymak**, "Transformers as Support Vector Machines", preprint at arXiv:2308.16898, 2023. NeurIPS 2023 Mathematics of Modern Machine Learning Workshop.
2. Xuechen Zhang, Mingchen Li, Xiangyu Chang, Jiasi Chen, Amit Roy-Chowdhury, Ananda Theertha Suresh, and **Samet Oymak**, "FedYolo: Augmenting Federated Learning with Pretrained Transformers", NeurIPS 2023 FL@FM Workshop, 2023.
3. Xuechen Zhang, Zheng Li, **Samet Oymak**, and Jiasi Chen. "Text-to-3D Generative AI on Mobile Devices: Measurements and Optimizations." In Workshop on Emerging Multimedia Systems (EMS'23), 2023.
4. Xuechen Zhang, Mingchen Li, Vala Vakilian, Jiasi Chen, Christos Thrampoulidis, and **Samet Oymak**. "Class-attribute Priors: Adapting Optimization to Heterogeneity and Fairness Objective." In AutoML Conference 2023.
5. **Samet Oymak**, Ankit Singh Rawat, Mahdi Soltanolkotabi, and Christos Thrampoulidis, "On the Role of Attention in Prompt-tuning", ICLR Workshop on Mathematical and Empirical Understanding of Foundation Models, 2023.
6. Maryam Shahcheraghi, Trevor Cappon, **Samet Oymak**, Evangelos Papalexakis, Eamonn Keogh, Zachary Zimmerman, Philip Brisk, "*Matrix Profile Index Approximation for Streaming Time Series*", IEEE BigData Workshop on Real-time Stream Analytics, 2021.

7. Yahya Sattar, Zhe Du, Davoud Ataee Tarzanagh, Necmiye Ozay, Laura Balzano, **Samet Oymak**, "*Identification and Adaptive Control of Markov Jump Systems: Sample Complexity and Regret Bounds*," ICML Workshop on Reinforcement Learning Theory, 2021.
8. Yuzhen Qin, Tommaso Menara, **Samet Oymak**, ShiNung Ching, Fabio Pasqualetti, "*Non-Stationary Representation Learning in Sequential Multi-Armed Bandits*," ICML Workshop on Reinforcement Learning Theory, 2021.
9. Ganesh R. Kini, Orestis Paraskevas, **Samet Oymak**, Christos Thrampoulidis, "*Label-Imbalanced and Group-Sensitive Classification under Overparameterization*," ICML Workshop on Overparameterization: Pitfalls & Opportunities, 2021.
10. Xiangyu Chang, Yingcong Li, **Samet Oymak**, Christos Thrampoulidis "*Provable Benefits of Overparameterization in Model Compression: From Double Descent to Pruning Neural Networks*", Workshop on the Theory of Overparameterized Machine Learning, **Contributed Talk (longer presentation)**, 2021.
11. Yue Sun, Halil Ibrahim Gulluk, Adhyyan Narang, **Samet Oymak**, Maryam Fazel, "*Towards Sample-Efficient Overparameterized Meta-Learning*", Workshop on the Theory of Overparameterized Machine Learning, 2021.
12. Ganesh R. Kini, Orestis Paraskevas, **Samet Oymak**, Christos Thrampoulidis, "*Label-Imbalanced and Group-Sensitive Classification under Overparameterization*," Workshop on the Theory of Overparameterized Machine Learning, 2021.
13. Yuan Zhao, Jiasi Chen and **Samet Oymak**, "*On the Role of Dataset Quality and Heterogeneity in Model Confidence*", arXiv:2002.09831, ICML 2020 Workshop on Uncertainty and Robustness in Deep Learning, 2020.
14. Maryam Shahcheraghi, Trevor Cappon, **Samet Oymak**, Evangelos Papalexakis, Eamonn Keogh, Zachary Zimmerman, Philip Brisk, "*Matrix Profile Index Prediction for Streaming Time Series*", NeurIPS Workshop on Machine Learning for Systems, 2020.
15. **Samet Oymak**, Zalan Fabian, Mingchen Li, Mahdi Soltanolkotabi, "*Generalization Guarantees for Neural Networks via Harnessing the Low-rank Structure of the Jacobian*," ICML Workshop on Generalization in Deep Networks, **Oral presentation**, 2019.
16. Amir Taheri, **Samet Oymak**, Kevin Coombes, and Arindam Banerjee, "High Dimensional Data Enrichment: Interpretable, Fast, and Data-Efficient", ICML Workshop on Adaptive and Multitask Learning 2019.

Technical reports

1. Xuechen Zhang, **Samet Oymak**, Jiasi Chen, "*Post-hoc Models for Inference Performance Estimation*," arXiv:2110.02459, 2021.
2. Mingchen Li, Yahya Sattar, Christos Thrampoulidis, **Samet Oymak**, "*Exploring Optimization and Generalization in Model Pruning*", arXiv:2006.10903, 2021.
3. **Samet Oymak**, Zalan Fabian, Mingchen Li, Mahdi Soltanolkotabi, "*Generalization Guarantees for Neural Networks via Harnessing the Low-rank Structure of the Jacobian*," short version appeared at ICML Workshop on Generalization in Deep Networks 2019.
4. Amir Taheri, **Samet Oymak**, Kevin Coombes, and Arindam Banerjee, "High Dimensional Data Enrichment: Interpretable, Fast, and Data-Efficient", short version appeared at ICML Workshop on Adaptive and Multitask Learning 2019.

5. **Samet Oymak** "*Near-Optimal Sample Complexity Bounds for Circulant Binary Embedding*," `arXiv:1603.03178`, short version published at IEEE ICASSP 2017.
6. **Samet Oymak** and Benjamin Recht "*Near-Optimal Bounds for Binary Embeddings of Arbitrary Sets*," `arXiv:1512.04433`, 2017.
7. **Samet Oymak**, Chris Thrampoulidis, and Babak Hassibi, "*Simple Bounds for Noisy Linear Inverse Problems with Exact Side Info.*," arXiv:1312.0641, related work published at IEEE ISIT 2014.
8. **Samet Oymak** and Babak Hassibi, "*Finding Dense Clusters via Low Rank + Sparse Decomposition*," `arXiv:1104.5186`, related work published at IEEE ICASSP 2014.
9. **Samet Oymak** and Babak Hassibi, "*New Null Space Results and Recovery Thresholds for Matrix Rank Minimization*," `arXiv:1011.6326`, short version published at IEEE ISIT 2011.

Book chapters

1. Christos Thrampoulidis, **Samet Oymak**, and Babak Hassibi. "Recovering Structured Signals in Noise: Least-Squares Meets Compressed Sensing." as a part of "Compressed Sensing and its Applications" Springer 2014.

Patents

1. Guosen Yue, Narayan Prasad, Sampath Rangarajan, **Samet Oymak**. "Low-complexity precoder design for large-scale mimo communication systems." US Patent US9450657B2, Sept. 2016.

AWARDED FUNDING

Total share: $3.15M

1. **Samet Oymak** "*Beyond Transformer: Optimal Architectures for Language Model Training and Fine-tuning*", Amazon Research (PI $250k).
2. **Samet Oymak** "*Advancing the Architectures and Theory of Large Language Models*", Google Research (PI $140k).
3. **Samet Oymak** "*Optimization and Learning Foundations of Transformer Models*", Office of Naval Research (PI, $450k). Duration: 2024-2027
4. **Samet Oymak** "*Collaborative Research: CIF: Medium: Theoretical Foundations of Compositional Learning in Transformer Models*", National Science Foundation (U-M PI, share: $400k). Status: Recommended. Duration: 2024-2028
5. **Samet Oymak** "*Monitoring and Oversight of Language Model Agents*", OpenAI Research into Agentic Systems Grant (PI, share: $50k). Status: ORSP is negotiating contract details. Duration: 2024-2025
6. **Samet Oymak** "*Scalable Oversight and AI Control*", Open Philantrophy award (PI, share: $100k). Duration: 2024-2025.
7. **Samet Oymak** and Jiasi Chen "*Cheaper and Query-aware Inference for Language Models: Optimal LM Cascades by Modeling Future Rewards*", Adobe Data Science Research award (PI, share: $25k). Duration: 2024-2025
8. **Samet Oymak** and Necmiye Ozay "*Foundations of Sequence Models for Learning, Estimation, and Control of Dynamical Systems*", MIDAS Propelling Original Data Science (PI, share: $35k). Duration: 2023-2024
9. Nael Abu-Ghazaleh, **Samet Oymak**, Khaled Khasawneh "*Collaborative Research: SHF: Medium: Approximate Computing for Machine Learning Security: Foundations and Accelerator Design*", NSF Software & Hardware Foundation (Co-PI, share: $400k). Duration: 2022-2026.

10. **Samet Oymak** "*Personalized Training Strategies for Heterogeneous Data*", Google Research Scholar (single PI: $60k). Duration: 2022-2024
11. **Samet Oymak** "*CAREER: Foundations of Resource Efficient Machine Learning*", NSF Comm & Information Foundations (PI: $559k). Duration: 2021-2026
12. ShiNung Ching, Bruno Sinopoli, Ilya Monosov, Thomas Papouin, Fabio Pasqualetti, **Samet Oymak**, *MURI Award* from Army Research Office, "*Understanding and Implementing Multi-Scale Neuro-Glial Dynamics for Robust Non-Markovian Learning and Decision-Making*" (share: $370k). Duration: 2021-2023
13. Necmiye Ozay, Dimitra Panagou, **Samet Oymak**, Sze Zheng Yong "*CPS: Medium: Collaborative Research: Data-Driven Modeling and Preview-Based Control for Cyber-Physical System Safety*", NSF Cyber Physical Systems (share: $290,000). Duration: 2020-2023
14. **Samet Oymak** "*Semi-supervised Federated Learning*," UCR Regents' Faculty Fellowship ($6k).
15. **Samet Oymak** "*Efficient Subnets: Algorithmic Foundations and Applications to Multitask Learning*," UCR Regents Faculty Development Award ($5k).
16. **Samet Oymak**, Jiasi Chen, KK Ramakrishnan "*Augmented Reality for the Infrared Spectrum*," UCR Collaborative Seed Grant ($10k).

INVITED TALKS

1. "Reasoning with Language Models: Efficiency and Latent Space", Institute of Science and Technology of Austria (ISTA), May 2025.
2. "Reasoning with Language Models: Efficiency and Latent Space", Bilkent University, May 2025.
3. "Understanding and Improving Language Model Architectures", MIDAS GenAI Symposium, September 2024.
4. "How can theory guide language model architectures?", Midwest Machine Learning Symposium, Minnesota, May 2024.
5. "Understanding Self-Attention as a Context-Conditioned Markov Chain", Information Theory and Applications, UCSD, Feb 2024.
6. "Understanding Optimization Geometry of Transformer Models", USC SEEDS Conference, Jan 2024.
7. "Transformers as Support Vector Machines", Google Research New York, 2023.
8. "Understanding Optimization Geometry of Transformer Models", Harvard Applied Math, Dec. 2023.
9. "Transformers as Support Vector Machines", CSP Seminar, University of Michigan, 2023.
10. "Transformers as Support Vector Machines", Yale/Google Workshop: Theory and Practice of Foundation Models, 2023.
11. "Transformers as Support Vector Machines", INFORMS Annual Meeting, 2023.
12. "Transformers as Support Vector Machines", Bogazici University, 2023.
13. "Benefits of Attention Mechanism for Context-aware Learning", SIAM Conference on Optimization, 2023.
14. "Learning Multiple Tasks over Multiple Paths", UCR Statistics Seminar, Nov 2022.
15. "Learning Multiple Tasks over Multiple Paths", Google Research New York, Nov 2022.

16. "Learning Multiple Tasks over Multiple Paths", KTH Decision and Control Systems Seminar, Nov 2022.
17. "Understanding Overparameterization through Feature Covariance and High-dimensional Analysis", University of California, Riverside, Data Science Seminar, May 2022.
18. "Understanding Overparameterization through Feature Covariance and High-dimensional Analysis", University of Michigan, ECE Seminar, April 2022.
19. "Towards Fair and Generalizable Machine Learning with Large Models", Harvard University, EE Seminar, March 2022.
20. "Towards Fair and Efficient Machine Learning with Large Models", University of Washington, ECE Seminar, February 2022.
21. "Towards Fair and Efficient Machine Learning with Large Models", University of Pennsylvania, ESE Seminar, February 2022.
22. "Towards Fair and Efficient Machine Learning with Large Models", University of California, Santa Barbara, ECE Seminar, February 2022.
23. "Towards Fair and Efficient Machine Learning with Large Models", Pennsylvania State University, CSE Seminar, February 2022.
24. "Principles of Efficient & Fair Learning with Overparameterization", University of Southern California, ML Symposium, December 2021.
25. Christos Thrampoulidis and Yue Lu: "Exploring and Exploiting High-Dimensional Phenomena in Estimation and Learning: A Friendly Tour for Signal-Processing Researchers", ICASSP 2022 Tutorial.
26. "Architecture and Loss Function Design for Optimized Accuracy and Fairness", Statistics Seminar, Stanford University, August 2021.
27. "Architecture and Loss Function Design for Optimized Accuracy and Fairness", Alibaba Research, August 2021.
28. "Provable Benefits of Overparameterization in Model Compression", University of Iowa, May 2021.
29. "Provable Benefits of Overparameterization in Model Compression", Ecole polytechnique federale de Lausanne (EPFL), March 2021.
30. "Provable Benefits of Overparameterization in Model Compression", Uppsala University, Feb. 2021.
31. "Overparameterized Nonlinear Optimization with Applications to Neural Nets", Sampling Theory and Applications (SampTa) 2019.
32. "Overparameterization without Overfitting: From Compressed Sensing to Deep Learning", UC San Diego HDSI Seminar, April 2019.
33. "Overparameterization without Overfitting: From Compressed Sensing to Deep Learning", UC Riverside, Economics Seminar, April 2019.
34. "Overparameterization without Overfitting: From Compressed Sensing to Deep Learning", California Institute of Technology, March 2019.
35. "Overparameterization without Overfitting: From Compressed Sensing to Deep Learning", UC Riverside Data Science Seminar, March 2019.

36. "Learning from Big but Finite Data: Algorithms and Insights for Neural Networks," University of Michigan, Sept 2018.
37. "Learning from Big but Finite Data: From Neural Networks to Linear Dynamical Systems," Bilkent University, June 2018.
38. "Learning from Big but Finite Data: From Neural Networks to Linear Dynamical Systems," Data Science Seminar, UC Riverside, May 2018.
39. "Sharp tradeoffs for high-dimensional estimation: Overcoming nonconvex and nonlinear constraints," University of Colorado Boulder, 2017.
40. "Sharp tradeoffs for high-dimensional estimation: Overcoming nonconvex and nonlinear constraints," Bilkent University, Turkey, 2017.
41. "Sharp tradeoffs for high-dimensional estimation: Overcoming nonconvex and nonlinear constraints," University of California, Riverside, 2017.
42. "Universality laws for randomized dimension reduction," World Congress of Probability and Statistics, July 2016.
43. "Universality of Compressed Sensing Phase Transitions," Simons Institute, May 2015.
44. "A General Theory of Noisy Linear Inverse Problems," Renaissance Technologies, Feb 2014.
45. "A General Theory of Noisy Linear Inverse Problems," University of Washington, Jan 2014.

Citizenship: USA and Turkey