

# RAMTIN PEDARSANI

## *Curriculum Vitae*

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## Education

- **University of California, Berkeley**, Berkeley, USA. (May 2015 – May 2016)  
Postdoctoral Scholar in Electrical Engineering and Computer Sciences.
- **University of California, Berkeley**, Berkeley, USA. (August 2011 – May 2015)  
Ph.D. in Electrical Engineering and Computer Sciences.
- **Swiss Federal Institute of Technology (EPFL)**, Lausanne, Switzerland. (September 2009 – July 2011)  
M.Sc. in Communication Systems and Computer Science.
- **University of Tehran**, Tehran, Iran. (September 2005 – July 2009)  
B.Sc. in Electrical Engineering.

## Appointments

- **University of California, Santa Barbara** (July 2016 – present)  
Assistant Professor in the Department of Electrical and Computer Engineering, UCSB.

## Research Interests

Machine Learning, Information and Coding Theory, Optimization, Human-Cyber-Physical Systems, Game Theory, Intelligent Transportation Systems.

## Honors, Awards and Distinctions

- Awarded the Joint Communications Society/Information Theory Society Paper Award, 2020.
- Awarded NSF CISE Research Initiative (NSF-CRII), 2017.
- Best paper award in IEEE International Conference on Communications (ICC), 2014.
- Finalist for best paper award in ACM International Symposium on Mobile Ad Hoc Networking and Computing (Mobihoc), 2019. (Top 7 papers)
- Bell Labs Prize Finalist for the project on “Coded Computing”, 2017. (Top 10 projects)
- Awarded Rafael Rodriguez and Departmental Fellowship from UC Berkeley, 2011.
- Faculty of Engineering (FOE) Award for the best engineering student, University of Tehran, 2009.

## Ph.D. Students/Postdoc Supervised

- Daniel Lazar, ECE PhD Student (September 2016 – June 2021)
- Amirhossein Reisizadeh, ECE PhD Student (January 2017 – present)
- Hossein Taheri, ECE MS/PhD Student (September 2018 – present)
- Mark Beliaev, ECE MS/PhD Student (December 2019 – present)
- Bhagyashree Puranik, ECE PhD Student (September 2020 – present)

## Research Grants

- PI: Ramtin Pedarsani, “MLWiNS: Optimization and Coding Theory for Fast and Robust Wireless Distributed Learning”, NSF CNS/Intel Partnership on Machine Learning for Wireless Networking Systems, \$300,000. (10/1/2020 – 9/30/2023)
- PI: Ramtin Pedarsani, PI: Dorsa Sadigh (Stanford University), “Collaborative Research: Mixed-Autonomy Traffic Networks: Routing Games and Learning Human Choice Models”, NSF-EPCN, \$360,000, PI Share: \$180,000. (8/15/2020 – 8/1/2023)
- PIs: Ramtin Pedarsani and Mahnoosh Alizadeh, “Distributed and Safe Real-time Control Mechanisms for Community Energy Management”, Research Seed grant from the Institute for Energy Efficiency (IEE), \$50,000. (10/1/2020 – 9/30/2021)
- PI: Ramtin Pedarsani, Co-PI: Umapanyu Madhow, “CIF: Small: A Systematic Approach to Adversarial Machine Learning: Sparsity-based Defenses and Locally Linear Attacks”, NSF-CISE-CCF, \$499,856 (10/1/2019 – 9/30/2022)
- PI: Ramtin Pedarsani, “NSF CRII: CIF: Next-Generation Group Testing for Neighbor Discovery in the IoT via Sparse-Graph Codes”, NSF-CISE-CCF, \$174,937 (4/1/2018 – 3/31/2020)
- PI: Ramtin Pedarsani, “Control and Management of Urban Traffic Networks with Mixed Autonomy”, UC-Connect – Caltrans, \$144,361 (3/1/2017 – 2/28/2018)
- PI: Hamed Mohsenian Rad (UC Riverside), Co-PI: Ramtin Pedarsani, “UC-Lab Center for Electricity Distribution Cybersecurity”, UC Office of President, \$3,800,000, Co-PI Share: \$300,000 (4/1/2018 – 3/31/2021)

## Teaching

- (Winter 2018, Winter 2019, Winter 2020) “ECE 130B: Signal Analysis”. Department of Electrical and Computer Engineering, UC Santa Barbara.
- (Fall 2016, Fall 2017, Fall 2018, Fall 2019, Fall 2020) “ECE 235: Random Processes for Engineers”. Department of Electrical and Computer Engineering, UC Santa Barbara.
- (Spring 2017, Spring 2019) “ECE 594C: Topics in Theoretical Machine Learning and Optimization”. Department of Electrical and Computer Engineering, UC Santa Barbara.
- (Spring 2020, Winter 2021) “ECE 284: Theoretical Machine Learning”. Department of Electrical and Computer Engineering, UC Santa Barbara.
- (Spring 2021) “ECE 194C: Machine Learning: A Probabilistic Perspective”. Department of Electrical and Computer Engineering, UC Santa Barbara.

## Research Publications

- Google scholar link: <https://scholar.google.com/citations?user=gKUEEY4AAAAJ&hl=en&oi=ao>; Number of citations: 2444; h-index: 24; i-10 index: 39 (as of June 2021).
- 67 of the publications are submitted after joining UC Santa Barbara as an assistant professor.
- 52 of the publications are first-authored or co-first-authored by supervised graduate students (shown by a \*). Co-first authors are delineated with a †.

## Submitted Papers

- [1] \*M. Beliaev, P. Delgosha, H. Hassani, R. Pedarsani, *Efficient and Provably Robust Classification Under Sparse Attacks*, Submitted to Neural Information Processing Systems (NeurIPS), 2021.
- [2] \*A. Reiszadeh, I. Tziotis, H. Hassani, A. Mokhtari, R. Pedarsani, *Straggler-Resilient Federated Learning: Leveraging the Interplay Between Statistical Accuracy and System Heterogeneity*, Submitted to Neural Information Processing Systems (NeurIPS), 2021.
- [3] \*H. Taheri, R. Pedarsani, C. Thrampoulidis, *Asymptotic Behavior of Adversarial Training in Binary Classification*, Submitted to Neural Information Processing Systems (NeurIPS), 2021.
- [4] F. Farnia<sup>†</sup>, \*A. Reiszadeh<sup>†</sup>, R. Pedarsani, A. Jadbabaie, *An Optimal Transport Approach to Federated Learning*, Submitted to Neural Information Processing Systems (NeurIPS), 2021.
- [5] \*D. Lazar and R. Pedarsani, *The Role of Differentiation in Tolling of Traffic Networks with Mixed Autonomy*, Submitted to IEEE Transactions on Control of Network Systems (TCNS), 2021.
- [6] P. Delgosha, H. Hassani, R. Pedarsani, *Robust Classification Under  $\ell_0$  Attack for the Gaussian Mixture Model*, Submitted to SIAM Journal on Mathematics of Data Science (SIMODS), 2021.
- [7] \*D. Lazar, R. Pedarsani, *Anonymous Tolling for Traffic Networks with Mixed Autonomy*, Submitted to IEEE Conference on Decision and Control (CDC), 2021.
- [8] \*M. Beliaev, N. Mehr, R. Pedarsani, *Congestion-aware Multi-model Delivery Systems Utilizing Drones*, Submitted to IEEE Conference on Decision and Control (CDC), 2021.
- [9] \*A. Reiszadeh<sup>†</sup>, S. Prakash<sup>†</sup>, R. Pedarsani, S. Avestimehr, *CodedReduce: A Fast and Robust Framework for Gradient Aggregation in Distributed Learning*, Submitted to IEEE Transactions on Networking (ToN), 2020.

## Journal Papers

- [1] \*D. Lazar<sup>†</sup>, E. Biyik<sup>†</sup>, D. Sadigh, and R. Pedarsani, *Learning How to Dynamically Route Autonomous Vehicles on Shared Roads*, Accepted to appear in Transportation Research Part C: Emerging Technologies, 2021.
- [2] E. Biyik<sup>†</sup>, \*D. Lazar<sup>†</sup>, R. Pedarsani, and D. Sadigh, *Incentivizing Efficient Equilibria in Traffic Networks with Mixed Autonomy*, Accepted to appear in IEEE Transactions on Control of Network Systems (TCNS), 2021.
- [3] \*H. Taheri, R. Pedarsani, C. Thrampoulidis, *Sharp Guarantees and Optimal Performance for Inference in Binary and Gaussian-mixture Models*, Entropy: Special issue on the Role of Signal Processing and Information Theory in Modern Machine Learning, Vol. 23, No. 2, 2021.
- [4] \*D. Lazar and R. Pedarsani, *Optimal Tolling for Multitype Mixed Autonomous Traffic Networks*, IEEE Control Systems Letters, Vol. 5, No. 5, 2021.

- [5] C. Yang, R. Pedarsani, S. Avestimehr, *Edge Computing in the Dark: Leveraging Contextual-Combinatorial Bandit and Coded Computing*, Accepted to appear in IEEE/ACM Transactions on Networking (ToN), 2021.
- [6] \*D. Lazar, S. Coogan, and R. Pedarsani, *Routing for Traffic Networks with Mixed Autonomy*, IEEE Transactions on Automatic Control, Vol. 66, No. 6, 2020.
- [7] B. Turan, R. Pedarsani, M. Alizadeh, *Dynamic Pricing and Fleet Management for Electric Autonomous Mobility on Demand Systems*, Journal of Transportation Research Part C, Vol. 121, 2020.
- [8] Q. Wei, J. R. Pedarsani, S. Coogan, *Mixed Autonomy in Ride-Sharing Networks*, Accepted to appear in IEEE Transactions on Control of Network Systems (TCNS), 2020.
- [9] \*A. Reisizadeh, A. Mokhtari, H. Hassani, R. Pedarsani, *An Exact Quantized Decentralized Gradient Descent Algorithm*, IEEE Transactions on Signal Processing (TSP), Vol. 67, No. 19, 2019.
- [10] S. Prakash<sup>†</sup>, \*A. Reisizadeh<sup>†</sup>, R. Pedarsani, S. Avestimehr, *Coded Computing for Distributed Graph Analytics*, in second round of revision in IEEE Transactions in Information Theory (IT), 2019.
- [11] C. Yang, R. Pedarsani, S. Avestimehr, *Communication-Aware Scheduling of Serial Tasks for Dispersed Computing*, IEEE/ACM Transactions on Networking (ToN), Vol. 27, No. 4, 2019.
- [12] \*A. Reisizadeh<sup>†</sup>, S. Prakash<sup>†</sup>, R. Pedarsani, S. Avestimehr, *Coded Computation over Heterogeneous Clusters*, IEEE Transactions on Information Theory (IT), Vol. 65, No. 7, 2019.
- [13] K. Lee, K. Chandrasekher, R. Pedarsani, and K. Ramchandran, *SAFFRON: A Fast, Efficient, and Robust Framework for Group Testing based on Sparse-Graph Codes*, Vol. 67, No. 17, IEEE Transactions on Signal Processing (TSP), 2019.
- [14] X. Li, D. Yin, S. Pawar, R. Pedarsani, and K. Ramchandran, *Sub-linear Time Support Recovery for Compressed Sensing Using Sparse-Graph Codes*, IEEE Transactions on Information Theory (IT), Vol. 65, No. 10, 2019.
- [15] D. Yin, R. Pedarsani, Y. Chen, and K. Ramchandran, *Learning Mixtures of Sparse Linear Regressions Using Sparse Graph Codes*, IEEE Transactions on Information Theory (IT), Vol. 65, No. 3, 2019.
- [16] K. Lee, M. Lam, R. Pedarsani, D. Papailiopoulos, and K. Ramchandran, *Speeding Up Distributed Machine Learning Using Codes*, IEEE Transactions on Information Theory (IT), Vol. 64, No. 3, 2018.
- [17] R. Pedarsani, K. Lee, and K. Ramchandran, *PhaseCode: Fast and Efficient Compressive Phase Retrieval based on Sparse-Graph Codes*, IEEE Transactions on Information Theory (IT), Vol. 63, No. 6, 2017.
- [18] R. Pedarsani, J. Walrand, and Yuan Zhong, *Robust Scheduling for Flexible Processing Networks*, Advances in Applied Probability (AAP), Vol. 49, No. 2, 2017.
- [19] J. Lioris, R. Pedarsani, F. Yildiz, and P. Varaiya, *Platoons of Connected Vehicles Can Double Throughput in Urban Roads*, Journal of Transportation Research Part C, vol. 75, pp. 292-305, 2017.
- [20] K. Lee, R. Pedarsani, and K. Ramchandran, *On Scheduling Redundant Requests with Cancellation Overheads*, IEEE/ACM Transactions on Networking (ToN), Vol. 25, No. 2, pp. 12791290, 2017.
- [21] R. Pedarsani and J. Walrand, *Stability of Open Multiclass Queueing Networks under Longest-Queue and Longest-Dominating-Queue Scheduling*, Journal of Applied Probability (JAP), Vol. 53, No. 2, 2016.
- [22] R. Pedarsani, M. Maddah-Ali, and U. Niesen, *Online Coded Caching*, IEEE/ACM Transactions on Networking (ToN), Vol. 24, No. 2, 2016.
- [23] A. Muralidharan, R. Pedarsani, P. Varaiya., *Analysis of Fixed-Time Control*, Transportation Research Part B, Vol. 73, pp. 81–90, 2015.
- [24] R. Pedarsani, O. Lévêque, S. Yang, *On the DMT Optimality of Time-Varying Distributed Rotation over Slow Fading Relay Channels*, IEEE Transactions on Wireless Communication, Vol. 14, pp. 421–434, 2015.

**CS-Style Conference Papers**

- [1] W. Wang<sup>†</sup>, \*M. Beliaev<sup>†</sup>, E. Biyik, \*D. Lazar, R. Pedarsani, and D. Sadigh, *Emergent Prosociality in Multi-Agent Games Through Gifting*, International Joint Conference on Artificial Intelligence (IJCAI), 2021.
- [2] \*H. Taheri, R. Pedarsani, C. Thrampoulidis, *Fundamental Limits of Ridge-Regularized Empirical Risk Minimization in High Dimensions*, International Conference on Artificial Intelligence and Statistics (AISTATS), 2021.
- [3] \*M. Beliaev, E. Biyik, \*D. Lazar, W. Wang, D. Sadigh, and R. Pedarsani, *Incentivizing Routing Choices for Safe and Efficient Transportation in the Face of the COVID-19 Pandemic*, ACM/IEEE International Conference on Cyber-Physical Systems (ICCCPS), 2021.
- [4] \*A. Reiszadeh, F. Farnia, R. Pedarsani, A. Jadbabaie, *Robust Federated Learning: The Case of Affine Distribution Shifts*, Advances in Neural Information Processing Systems (NeurIPS), 2020.
- [5] \*H. Taheri, A. Mokhtari, H. Hassani, R. Pedarsani, *Quantized Decentralized Stochastic Learning over Directed Graphs*, International Conference on Machine Learning (ICML), 2020.
- [6] \*A. Reiszadeh, A. Mokhtari, H. Hassani, A. Jadbabaie, R. Pedarsani, *FedPAQ: A Communication-Efficient Federated Learning Method with Periodic Averaging and Quantization*, International Conference on Artificial Intelligence and Statistics (AISTATS), 2020.
- [7] \*H. Taheri, R. Pedarsani, C. Thrampoulidis, *Sharp Asymptotics and Optimal Performance for Inference in Binary Models*, International Conference on Artificial Intelligence and Statistics (AISTATS), 2020.
- [8] \*A. Reiszadeh, \*H. Taheri, A. Mokhtari, H. Hassani, R. Pedarsani, *Robust and Communication-Efficient Collaborative Learning*, Advances in Neural Information Processing Systems (NeurIPS), 2019.
- [9] C. Yang, R. Pedarsani, S. Avestimehr, *Timely-Throughput Optimal Coded Computing over Cloud Networks*, ACM International Symposium on Mobile Ad Hoc Networking and Computing (Mobihoc), 2019. **(Best paper award finalist)**
- [10] Erdem Biyik<sup>†</sup>, \*Daniel A. Lazar<sup>†</sup>, Ramtin Pedarsani, Dorsa Sadigh, *Altruistic Autonomy: Beating Congestion on Shared Roads*, 13th International Workshop on Algorithmic Foundations of Robotics (WAFR), 2018.

**Conference Papers**

- [1] \*B. Puranik, U. Madhow, R. Pedarsani, *Adversarially Robust Classification Based on GLRT*, International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2021.
- [2] \*M. Beliaev<sup>†</sup>, W. Wang<sup>†</sup>, \*D. Lazar, E. Biyik, D. Sadigh, and R. Pedarsani, *Emergent Correlated Equilibrium through Synchronized Exploration*, Robotics: Science and Systems (RSS) Workshop on Emergent Behaviors in Human-Robot Systems, 2020.
- [3] \*H. Taheri, R. Pedarsani, C. Thrampoulidis, *Optimality of Least-squares for Classification in Gaussian-Mixture Models*, IEEE International Symposium on Information Theory (ISIT), 2020.
- [4] C. Yang, R. Pedarsani, S. Avestimehr, *Coded Computing in Unknown Environment via Online Learning*, IEEE International Symposium on Information Theory (ISIT), 2020.
- [5] S. Prakash<sup>†</sup>, \*A. Reiszadeh<sup>†</sup>, R. Pedarsani, S. Avestimehr, *Hierarchical Coded Gradient Aggregation for Learning at the Edge*, IEEE International Symposium on Information Theory (ISIT), 2020.
- [6] C. Bakiskan, S. Gopalakrishnan, M. Cecik, U. Madhow, R. Pedarsani, *Polarizing Front Ends For Robust CNNs*, International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2020.
- [7] \*H. Taheri, R. Pedarsani, C. Thrampoulidis, *Sharp Guarantees for Solving Random Equations with One-Bit Information*, Annual Allerton Conference on Communication, Control, and Computing, 2019.

- [8] \*D. Lazar<sup>†</sup>, E. Biyik<sup>†</sup>, D. Sadigh, and R. Pedarsani, *The Green Choice: Learning and Influencing Human Decisions on Shared Roads*, IEEE Conference on Decision and Control (CDC), 2019.
- [9] \*D. Lazar, S. Coogan, and R. Pedarsani, *Optimal Tolling for Heterogeneous Traffic Networks with Mixed Autonomy*, IEEE Conference on Decision and Control (CDC), 2019.
- [10] \*A. Reiszadeh<sup>†</sup>, S. Prakash<sup>†</sup>, R. Pedarsani, S. Avestimehr, *Tree Gradient Coding*, IEEE International Symposium on Information Theory (ISIT), 2019.
- [11] C. Yang, R. Pedarsani, S. Avestimehr, *Timely Coded Computing*, IEEE International Symposium on Information Theory (ISIT), 2019.
- [12] Q. Wei, J. A. Rodriguez, R. Pedarsani, S. Coogan, *Ride-Sharing Networks with Mixed Autonomy*, IEEE American Control Conference (ACC), 2019.
- [13] \*A. Reiszadeh, A. Mokhtari, H. Hassani, R. Pedarsani, *Quantized Decentralized Consensus Optimization*, IEEE Conference on Decision and Control (CDC), 2018.
- [14] \*D. Lazar, K. Chandrasekher, R. Pedarsani, and D. Sadigh, *Maximizing Road Capacity Using Cars that Influence People*, IEEE Conference on Decision and Control (CDC), 2018.
- [15] \*A. Reiszadeh, P. Abdalla, R. Pedarsani, *Sub-linear Time Stochastic Threshold Group Testing via Sparse-Graph Codes*, Information Theory Workshop (ITW), 2018.
- [16] N. Mehr, R. Horowitz, and R. Pedarsani, *Signal Control for Urban Traffic Networks with Unknown System Parameters*, IEEE International Conference on Intelligent Transportation Systems (ITSC), 2018.
- [17] Z. Marzi, S. Gopalakrishnan, U. Madhow, R. Pedarsani, *Sparsity-based Defense against Adversarial Attacks on Linear Classifiers*, IEEE International Symposium on Information Theory (ISIT), 2018.
- [18] C. Yang, R. Pedarsani, S. Avestimehr, *Communication-Aware Scheduling of Serial Tasks for Dispersed Computing*, IEEE International Symposium on Information Theory (ISIT), 2018.
- [19] S. Prakash<sup>†</sup>, \*A. Reiszadeh<sup>†</sup>, R. Pedarsani, S. Avestimehr, *Coded Computing for Distributed Graph Analytics*, IEEE International Symposium on Information Theory (ISIT), 2018.
- [20] S. Gopalakrishnan, Z. Marzi, U. Madhow, and R. Pedarsani, *Combating Adversarial Attacks Using Sparse Representation*, International Conference on Learning Representations (ICLR) Workshop track, 2018.
- [21] \*D. Lazar, S. Coogan, and R. Pedarsani, *The Price of Anarchy for Transportation Networks with Mixed Autonomy*, IEEE American Control Conference (ACC), 2018.
- [22] J. Chung, K. Lee, R. Pedarsani, D. Papailiopoulos, and K. Ramchandran, *UberShuffle: Communication-efficient Data Shuffling for SGD via Coding Theory*, Neural Information Processing Systems (NIPS): Workshop on Machine Learning Systems, 2017.
- [23] \*D. Lazar, S. Coogan, and R. Pedarsani, *Capacity Modeling and Routing for Traffic Networks with Mixed Autonomy*, IEEE Conference on Decision and Control (CDC), 2017.
- [24] N. Mehr, R. Horowitz, and R. Pedarsani, *Low-Complexity Ramp Metering for Freeway Congestion Control via Network Utility Maximization*, IEEE Conference on Decision and Control (CDC), 2017.
- [25] \*P. Abdalla, \*A. Reiszadeh, R. Pedarsani, *Multilevel Group Testing via Sparse-graph Codes*, Asilomar Conference on Signals, Systems, and Computers, 2017.
- [26] \*A. Reiszadeh, R. Pedarsani, *Latency Analysis of Coded Computation Schemes over Wireless Networks*, Allerton Conference on Communication, Control, and Computing, 2017.
- [27] D. Yin, R. Pedarsani, Y. Chen, and K. Ramchandran, *Learning Mixtures of Sparse Linear Regressions Using Sparse Graph Codes*, Allerton Conference on Communication, Control, and Computing, 2017.

- [28] N. Mehr, J. Lioris, R. Horowitz, and R. Pedarsani, *Joint Perimeter and Signal Control of Urban Traffic via Network Utility Maximization*, IEEE International Conference on Intelligent Transportation Systems (ITSC), 2017.
- [29] \*A. Reiszadeh, S. Prakash, R. Pedarsani, S. Avestimehr, *Coded Computation over Heterogeneous Clusters*, IEEE International Symposium on Information Theory (ISIT), 2017.
- [30] K. Lee, R. Pedarsani, D. Papailiopoulos, K. Ramchandran, *Coded Computation for Multicore Setups*, IEEE International Symposium on Information Theory (ISIT), 2017.
- [31] K. Chandrasekher, K. Lee, P. Kairouz, R. Pedarsani, and K. Ramchandran, *Asynchronous and Non-coherent Neighbor Discovery for the IoT Using Sparse-Graph Codes*, IEEE International Conference on Communications (ICC), 2017.
- [32] D. Yin, R. Pedarsani, X. Li, and K. Ramchandran, *Fast and Robust Support Recovery for Compressive Sensing with Continuous Alphabet*, Allerton Conference on Communications, Control and Computing, 2016.
- [33] Z. Amini, R. Pedarsani, A. Skabardonis, and P. Varaiya, *Queue-Length Estimation Using Real-Time Traffic Data*, IEEE International Conference on Intelligent Transportation Systems (ITSC), 2016.
- [34] K. Lee, M. Lam, R. Pedarsani, D. Papailiopoulos, and K. Ramchandran, *Speeding Up Distributed Machine Learning Using Codes*, IEEE International Symposium on Information Theory (ISIT), 2016.
- [35] K. Lee, R. Pedarsani, and K. Ramchandran, *SAFFRON: A Fast, Efficient, and Robust Framework for Group Testing based on Sparse-Graph Codes*, IEEE International Symposium on Information Theory (ISIT), 2016.
- [36] J. Lioris, R. Pedarsani, F. Yildiz, and P. Varaiya, *Doubling Throughput in Urban Roads by Platooning*, IFAC Symposium on Control in Transportation Systems, 2015.
- [37] R. Pedarsani, K. Lee, and K. Ramchandran, *Sparse Covariance Estimation Based on Sparse-Graph Codes*, Allerton Conference on Communication, Control and Computing, 2015.
- [38] K. Lee, R. Pedarsani, and K. Ramchandran, *On Scheduling Redundant Requests with Cancellation Overheads*, Allerton Conference on Communication, Control and Computing, 2015.
- [39] D. Yin, K. Lee, R. Pedarsani, K. Ramchandran, *Fast and Robust Compressive Phase Retrieval with Sparse-Graph Codes*, IEEE International Symposium on Information Theory (ISIT), 2015.
- [40] R. Pedarsani, K. Lee, K. Ramchandran, *Capacity-Approaching PhaseCode for Low-Complexity Compressive Phase Retrieval*, IEEE International Symposium on Information Theory (ISIT), 2015.
- [41] R. Pedarsani, J. Walrand, Y. Zhong, *Robust Scheduling in a Flexible Fork-Join Network*, IEEE Conference on Decision and Control (CDC), 2014.
- [42] R. Pedarsani, J. Walrand, Y. Zhong, *Scheduling Tasks with Precedence Constraints on Multiple Servers*, Annual Allerton Conference on Communication, Control, and Computing, 2014.
- [43] R. Pedarsani, K. Lee, K. Ramchandran, *PhaseCode: Fast and Efficient Compressive Phase Retrieval based on Sparse-Graph Codes*, Annual Allerton Conference on Communication, Control, and Computing, 2014.
- [44] R. Pedarsani, J. Walrand, Y. Zhong, *Robust Scheduling and Congestion Control for Flexible Queueing Networks*, IEEE International Conference on Computing, Networking and Communications (ICNC), 2014.
- [45] R. Pedarsani, M. A. Maddah-ali, U. Niesen, *Online Coded Caching*, IEEE International Conference on Communications (ICC), 2014.
- [46] R. Pedarsani, S. H. Hassani, I. Tal, E. Telatar, *On the Construction of Polar Codes*, IEEE International Symposium on Information Theory (ISIT), 2011.

- [47] R. Pedasani, O. L  v  que, S. Yang, *On the DMT Optimality of the Rotate-and-Forward Scheme in a Two-Hop MIMO Relay Channel*, Annual Allerton Conference on Communication, Control, and Computing, 2010.
- [48] R. Pedarsani, O. L  v  que, S. Yang, *Flip-and-forward Achieves the Optimal Diversity-Multiplexing Tradeoff for the Two-Hop MIMO Relay Channel, with Two Relay Antennas*, International Conference on Cognitive Radio Oriented Wireless Networks and Communications (CROWNCOM), 2010.

### Patents

- [1] M. A. Maddah-ali, U. Niesen, R. Pedarsani. *Decentralized Online Cache Management for Digital Content*. Patent number 9535837, 2017.

### Academic Service

- Member, IEEE, IEEE Information Theory Society
- Technical Program Committee (TPC) Member: IEEE Global Communications Conference: Selected Areas in Communications: Machine Learning for Communications (Globecom2020 SAC MLC), 2020.
- Technical Program Committee (TPC) Member: IEEE Connected and Automated Vehicles Symposium (CAVS), 2020.
- Technical Program Committee (TPC) Member: IEEE International Symposium on Information Theory (ISIT), 2019.
- Technical Program Committee (TPC) Member: International Conference on Game Theory for Networks (GameNets), 2019.
- Technical Program Committee (TPC) Member: IEEE International Conference on Intelligent Transportation Systems (ITSC), 2017.
- Workshop Co-Organizer: The next wave in networking research, Simons Institute, UC Berkeley, 2018.
- Public Service (Outreach): Advising one female undergraduate student, Rucha Kolhatkar, who was supported in Summer 2018 in collaboration with the CSEP/EUREKA! program at UCSB; Conducting a CSEP/SST (school for scientific thought) course in Fall 2018. A female graduate student, Shadi Mohagheghi, taught a course on complex networks to high school students with 60% being under-represented minorities.
- Served as reviewer for many journals including IEEE Transactions on Information Theory, IEEE/ACM Transactions on Networking, IEEE Transactions on Communications, IEEE Transactions on Wireless Communication, IEEE Transactions on Signal Processing, IEEE Transactions on Modeling and Performance Evaluation of Computing Systems, Stochastic Systems, Queueing Systems, and Journal of Transportation Research, as well as many conferences including NeurIPS, ICML, IEEE International Symposium on Information Theory (ISIT), IEEE Conference on Decision and Control (CDC).

### Selected Invited Talks

- “Enabling Fast and Robust Federated Learning”, Information Systems Laboratory (ISL) Colloquium, Electrical Engineering Department, Stanford University (2/2021).
- “Enabling Fast and Robust Federated Learning”, Systems-Information-Learning-Optimization (SILO) Seminar Series of Electrical and Computer Engineering Department, University of Wisconsin, Madison (12/2020).
- “Routing Games in Traffic Networks with Mixed Autonomy”, Seminar Series of Civil Engineering Department, EPFL, Lausanne, Switzerland (03/2019).



- “Quantized Decentralized Consensus Optimization”, Information Theory and Applications (ITA) Workshop, San Diego, CA (02/2019).
- “Communication-Aware Task Scheduling for Dispersed Computing”, Workshop on Resource Slicing for Future Clouds and Networks, IEEE International Conference on Computer Communications (Infocom), Honolulu, Hawaii, (04/2018).
- “Communication-Aware Task Scheduling for Dispersed Computing”, Information Theory and Applications (ITA) Workshop, San Diego, CA (02/2018).
- “Analysis and Control of Stochastic Networks: From Data Centers to Transportation Systems”, Seminar on Systems, Controls, and Networks, USC, EE Department, (9/2017).
- “Fast and Robust Compressive Phase Retrieval Using Sparse-Graph Codes”, Department of Statistics and Applied Probability Seminar, UCSB, (5/2017).
- “Coded Computation over Heterogeneous Clusters”, Information Theory and Applications (ITA) Workshop, San Diego, CA (02/2017).
- “Codes Can Speed up Large-scale Distributed Computing”, Asilomar Conference on Signals, Systems and Computers, (11/2016).
- “Sparse Covariance Estimation Based on Sparse-Graph Codes”, 52nd Allerton Conference on Communication, Control and Computing, Allerton Retreat Center, Monticello, Illinois (09/2015).
- “PhaseCode: Fast and Efficient Compressive Phase Retrieval based on Sparse-Graph Codes”, 51st Allerton Conference on Communication, Control and Computing, Allerton Retreat Center, Monticello, Illinois (09/2014).
- “Online Coded Caching”, Qualcomm Research, San Diego, CA (08/2014).
- “Flexible Fork-Join Networks”, University of California, San Diego, CA (07/2014).
- “Stability of Queueing Networks”, Bell labs, Holmdel, NJ (08/2014).
- “Robust Scheduling and Congestion Control”, Information Theory and Applications (ITA) Workshop, San Diego, CA (02/2013).