Sirisha Rambhatla

Contact Information

Carl Pollock Hall (CPH) 4358,
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Waterloo, ON, Canada

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LinkedIN: www.linkedin.com/in/sirisharambhatla/

Research Focus

Statistical Machine Learning, Spatiotemporal Data Analysis, AI for Surgery and Healthcare, Sparse Signal Processing, Interpretability of Deep Learning Models, Intelligent Automation, and Computer Vision

Education

Doctor of Philosophy (Ph.D.) in Electrical Engineering — Sep. 2014 - Sep. 2019
University of Minnesota – Twin Cities — Minneapolis, MN
Thesis: *Provably Learning from Data: New Algorithms for Matrix/Tensor Decompositions & Factorizations*
Advisor: Prof. Jarvis Haupt
Committee Members: Prof. Georgios B. Giannakis, Prof. Nikos Papanikolopoulos, Prof. Mingyi Hong

Master of Science (M.S.) in Electrical Engineering — Aug. 2010 - Dec. 2012
University of Minnesota – Twin Cities — Minneapolis, MN
Thesis: *Semi-Blind Source Separation via Sparse Approximation & Online Dictionary Learning*
Advisor: Prof. Jarvis Haupt
Committee Members: Prof. Zhi-Quan Luo, Prof. Arindam Banerjee

Bachelor of Technology (B.Tech) Honors in Electronics & Telecom. Eng. — Aug. 2006 - May 2010
College of Engineering Roorkee (COER) — Roorkee, India
University Bronze Medalist

Experience

Tenure-Track Assistant Professor — July. 2021 – Present
University of Waterloo — Waterloo, ON, Canada
Management Sciences Department, Faculty of Engineering (*Primary*)
David R. Cheriton School of Computer Science, Faculty of Mathematics (*Cross-appointment*)
Systems Design Engineering Department, Faculty of Engineering (*Cross-appointment*)

Faculty Affiliate, Waterloo Artificial Intelligence (AI) Institute
Faculty Affiliate, Waterloo Institute for Sustainable Aeronautics (WISA)

Postdoctoral Scholar – Research Associate — Oct. 2019 – July, 2021
Computer Science Department — Los Angeles, CA, USA
University of Southern California
Mentor: Prof. Yan Liu

Graduate Research Assistant — Aug. 2014 – Sept. 2019
Department of Electrical and Computer Engineering — Minneapolis, MN, USA
University of Minnesota – Twin Cities

Explore Computer Science Research (ExplorCSR) Mentor — Oct. 2018 – Feb. 2019
Volunteer Group Leader — Minneapolis, MN, USA
Google Research

Science Advisor — Mar. 2013 – Jun. 2014
Intellectual Property (IP) and Technology Litigation — Minneapolis, MN, USA
Robins Kaplan LLP

Engineering Intern (R&D) — Jun.– Aug. 2011 & Jun.– Oct. 2012
Technology and Engineering Division — St. Paul, MN, USA

Ativa Medical Inc.

Graduate Research Assistant Feb. 2011 – May 2011 & Aug. 2011 – May 2012
Department of Electrical and Computer Engineering Minneapolis, MN, USA
University of Minnesota – Twin Cities

Undergraduate Research Intern May 2009 – Jul. 2009
Networked Control Systems Lab Kanpur, India
Indian Institute of Technology Kanpur (IIT-K)

Awards and Honors

Highlighted Reviewer (8% of reviewers), *International Conference on Learning Representations (ICLR)* 2022
Outstanding Paper Presentation Award, *Plastic Surgery: the Meeting* 2021
Merit Award for Excellence in Postdoctoral Research, *WiSE, University of Southern California* 2020 – 21
ICLR Travel Award, *International Conference on Learning Representations (ICLR)* 2019
Selected Presenter, "Graduation Day" Session, *Information Theory & Applications Workshop* 2019
Finalist, Student Best Paper Award, *Asilomar Conference on Signals, Systems & Computers* 2017
National Science Foundation (NSF) Travel Award, *GlobalSIP* 2016
E. Bruce Lee Memorial Fellowship, *University of Minnesota – Twin Cities* 2014 – 2015
SciTechsperience Fellowship, *Minnesota High Tech Association* 2012
University Merit List, Third Place – ECE (Bronze Medal), *Uttarakhand Technical University, India* 2010
Proficiency Award for Academic Excellence, *COER, India* 2009 – 10
Proficiency Award for Academic Excellence, *COER, India* 2006 – 07

Publications

[1] G. Punchhi*, Y. Sun*, **S. Rambhatla**, M. Bhat. Deep Learning to Predict Trajectories and Identify Features Associated with Death and Transplant in Waitlisted NASH Patients. Canadian Donation and Transplantation Research Program (CDTRP) Annual Scientific Meeting, *Abstract*, 2022. **Selected for Oral Presentation**

[2] G. Punchhi*, Y. Sun*, **S. Rambhatla**, M. Bhat. Deep learning to predict trajectories and identify features associated with death and transplant in waitlisted NASH patients. American Association for the Study of Liver Diseases (AASLD), *Abstract*, 2022. **Selected for Oral Presentation**

[3] G. Punchhi*, Y. Sun*, **S. Rambhatla**, M. Bhat. Predicting Future Trajectories of the Waitlisted NASH patients using Deep Learning. International Liver Transplantation Society (ILTS) Annual Congress, *Abstract*, 2022. **Selected for Oral Presentation**

[4] **S. Rambhatla**, Z. Che, and Y. Liu. I-SEA: Importance Sampling and Expected Alignment-based Deep Distance Metric Learning for Time Series Analysis and Embedding. *36th Association for the Advancement of Artificial Intelligence (AAAI) conference on Artificial Intelligence*, 2022.

[5] A. B. Chen, T. Haque, S. Roberts, **S. Rambhatla**, G. Cacciamani, P. Dasgupta, A. J. Hung. Artificial Intelligence Applications in Urology: Reporting Standards to Achieve Fluency for Urologists. *Urology Clinics North America*, 2022.

[6] **S. Rambhatla***, S. Zeighami*, K. Shahabi, C. Shahabi, and Y. Liu. Towards Accurate Spatiotemporal COVID-19 Risk Scores using High Resolution Real-World Mobility Data. ACM Transactions on Spatial Algorithms and Systems (TSAS) , 2022. [Link]

[7] A. J. Hung, **S. Rambhatla**, D. I. Sanford, N. Pachauri, E. Vanstrum, J. H. Nguyen, and Y. Liu. Road to Automating Robotic Suturing Skills Assessment:Battling Mislabeling of the Ground Truth. *Surgery*, 2021.

[8] **S. Rambhatla***, S. Huang*, L. Trinh, M. Zhang, M. Dong, V. Unadkat, H. A. Yenikomshian, J. Gillenwater, and Y. Liu. `DL4Burn`: Burn surgical candidacy using multimodal deep learning. *American Medical Informatics Association (AMIA) Annual Symposium*, 2021.

[9] S. Huang*, **S. Rambhatla***, L. Trinh, M. Zhang, M. Dong, V. Unadkat, J. Lin, M. K. Sheth, J. Dang,

H. A. Yenikomshian, Y. Liu, and J. Gillenwater. Predicting burn surgical candidacy using deep learning on photographic images. *Plastic Surgery: the Meeting, Abstract*, 2021. **Outstanding Paper Presentation Award**

[10] C. Meng, **S. Rambhatla**, and Y. Liu. Cross-Node Federated Graph Neural Network for Spatio-Temporal Data Modeling. *ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD)*, 2021.

[11] N. Kamra, Y. Zhang, **S. Rambhatla**, C. Meng, and Y. Liu. PolSIRD: Modeling Epidemic Spread Under Intervention Policies: Analyzing the First Wave of COVID-19 in the USA. *Journal of Healthcare Informatics Research*, 2021. [Link]

[12] A. J. Hung, **S. Rambhatla**, N. Pachauri, D. I. Sanford, J. H. Nguyen, and Y. Liu. Automating suturing skills assessment with a limited surgeon dataset: Meta learning. *American Urology Association, Journal of Urology, Abstract*, 2021. **Selected for Podium Talk**

[13] S. Seo*, C. Meng*, **S. Rambhatla**, and Y. Liu. Physics-aware Spatiotemporal Modules with Auxiliary Tasks for Meta-Learning. *International Joint Conferences on Artificial Intelligence (IJCAI)*, 2021. [Link]

[14] L. Trinh, M. Tsang, **S. Rambhatla**, and Y. Liu. Interpretable and Trustworthy Deepfake Detection via Dynamic Prototypes. IEEE Winter Conference on Applications of Computer Vision (WACV), 2021. [Link]

[15] M. Tsang, **S. Rambhatla**, and Y. Liu. How does this interaction affect me? Interpretable attribution for feature interactions. *Advances in Neural Information Processing Systems (NeurIPS)*, 2020. [Link]

[16] **S. Rambhatla**, X. Li, and J. Haupt. Provable Online CP/PARAFAC Decomposition of a Structured Tensor via Dictionary Learning. *Advances in Neural Information Processing Systems (NeurIPS)*, 2020. [Link]

[17] **S. Rambhatla**, X. Li, J. Ren and J. Haupt. A Dictionary-Based Generalization of Robust PCA With Applications to Target Localization in Hyperspectral Imaging. *IEEE Transactions on Signal Processing*, vol. 68, pp. 1760 – 1775, 2020. [Link]

[18] **S. Rambhatla**, X. Li, and J. Haupt. NOODL: Provable Online Learning for Dictionary Learning and Sparse Coding. *International Conference on Learning Representations (ICLR)*, 2019. **Travel Award**. [Link]

[19] **S. Rambhatla**, N. Sidiropoulos, and J. Haupt. TensorMap: Lidar-based Topological Mapping and Localization via Tensor Decompositions. *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, 2018. [Link]

[20] X. Li, J. Ren, **S. Rambhatla**, Y. Xu, and J. Haupt. Robust PCA via Dictionary Based Outlier Pursuit. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2018. [Link]

[21] **S. Rambhatla**, X. Li, and J. Haupt. Target Based Hyperspectral Demixing via Generalized Robust PCA. *Asilomar Conference on Signals, Systems, and Computers (Asilomar)*, 2017. **Student Best Paper Award Finalist**. [Link]

[22] **S. Rambhatla**, X. Li, and J. Haupt. A Dictionary Based Generalization of Robust PCA. *IEEE Global Conference on Signal and Information Processing (GlobalSIP)*, 2016. **National Science Foundation (NSF) Travel Award**. [Link]

[23] **S. Rambhatla** and J. Haupt. Semi-Blind Source Separation via Sparse Representations and Online Dictionary Learning. *Asilomar Conference on Signals, Systems, and Computers (Asilomar)*, 2013. [Link]

Workshop and Demo Papers

[24] J. Park, K. Kaai, S. Hossain, N. Sumi, **S. Rambhatla**, P. Fieguth. Building Spatio-temporal Transformers for Egocentric 3D Pose Estimation. *Joint International Workshop on Egocentric Perception, Interaction and Computing (EPIC) and Ego4D, IEEE/CVF Computer Vision and Pattern Recognition Conference (CVPR)*, 2022. **Oral Presentation**.

[25] N. Xu*, L. Trinh*, **S. Rambhatla**, S. Assefa, J. Chen, Z. Zeng, and Y. Liu. Simulating continuous-time human mobility trajectories. *Deep Learning for Simulation Workshop, International Conference on Learning*

Representations (ICLR), 2021.

[26] S. Seo*, C. Meng*, **S. Rambhatla**, Y. Liu. Physics-aware Spatiotemporal Modules with Auxiliary Tasks for Meta-Learning. *Neural Information Processing Systems (NeurIPS) Workshop on Machine Learning and the Physical Sciences*, 2020. [Link]

Under Review

[27] J. Park, K. Kaai, S. Hossain, N. Sumi, **S. Rambhatla**, P. Fieguth. Spatio-temporal Transformers for Egocentric 3D Pose Estimation. *Under Review*, 2022.

[28] P. Madrigal, L. Trinh, S. Huang, **S. Rambhatla**, R. Bernabe, Y. Liu, H. A. Yenikomshian, J. Gillenwater. Utilizing Deep Learning to Predict Surgical Candidacy on Burn Wound Images: A Prospective Study *Under review*, 2022.

[29] N. Xu*, L. Trinh*, **S. Rambhatla**, S. Assefa, J. Chen, Z. Zeng, and Y. Liu. Transformer-based Spatiotemporal Dependencies Modeling for Synthetic Data Generation. (*Manuscript Under Review*), 2021.

[30] K. Sharma, S. Seo, C. Meng, **S. Rambhatla**, Y. Liu. COVID-19 on Social Media: Analyzing Misinformation in Twitter Conversations. (*Under review*), 2020. [Link]

Thesis

[31] **S. Rambhatla**. Provably Learning from Data: New Algorithms for Matrix/Tensor Decompositions & Factorizations. (Doctoral Thesis), *Department of Electrical and Computer Engineering, University of Minnesota – Twin Cities, Minneapolis, MN*, 2019.

[32] **S. Rambhatla**. Semi-Blind Source Separation via Sparse Approximation & Online Dictionary Learning. (Masters Thesis), *Department of Electrical and Computer Engineering, University of Minnesota – Twin Cities, Minneapolis, MN*, 2012.

* Equal contribution. Preprints/reprints available on `arxiv` and at `https://sirisharambhatla.com/publications/`.

Research Grants

- Start-up Grant ($45,000 CAD) — July 2021
  — *University of Waterloo, Waterloo, ON* — Awarded
- *Novel Video Analytics Through Advanced Deep Learning* ($11,230 CAD) — Apr. 2022 – Mar. 2023
  — *Compute Canada Resource Allocation (RAC)* — Awarded
  — P. Fieguth (PI), **S. Rambhatla** (Co-PI)
  — *University of Waterloo, Waterloo, ON*
- *Deep Learning for Human Pose Estimation* ($50,000 CAD) — Mar. 2022
  — Sponsored Research Agreement with Nissan AI and Mobility Lab, Japan — Awarded
  — **S. Rambhatla** (PI), P. Fieguth (Co-PI), J. Zelek (Co-PI), D. Clausi (Co-PI), and A. Wong (Co-PI)
  — *University of Waterloo, Waterloo, ON*
- *Automatic Tracking, Localization and Orientation of Hockey Players Using Broadcast Videos* ($180,000CAD)
  — Sponsored Research Agreement with Stathletes Inc. — Jan. 2022 – 2026, Awarded
  — D. Clausi (PI), J. Zelek (Co-PI), **S. Rambhatla** (Co-PI), A. Wong (Co-PI), and M. J. Shafiee (Co-PI)
  — *University of Waterloo, Waterloo, ON*
- *Interpretable Time Series Representation Learning via Disentanglement and Domain Priors*
  — Discovery Grant ($157,000 CAD) — Apr. 2022 – Mar. 2027
  — *Natural Sciences and Engineering Research Council of Canada (NSERC)* — Awarded
- *Interpretable Time Series Representation Learning via Disentanglement and Domain Priors*
  — Discovery Launch Supplement ($12,500 CAD) — Apr. 2022 – Mar. 2023
  — *Natural Sciences and Engineering Research Council of Canada (NSERC)* — Awarded
- *Data Collection and Market Study of Women-Identifying Car Owners*
  —Mitacs Business Strategy Internship (BSI) ($30,000 CAD) — Jul. 2022 – Nov. 2022
  — Partner organization: AutoCate/Miss Mechanic Inc. — Awarded
  — *Mathematics of Information Technology and Complex Systems (MITACS)*

- *Data Analytics for Robust Crew Pairing* ($50,000 CAD) Aug. 2022
  — Sponsored Research Agreement with Navblue Inc., ON, Canada Awarded
  — F. Gzara (PI), and **S. Rambhatla** (Co-PI)
  — *University of Waterloo, Waterloo, ON*

- *Improving Explainability of Deep Survival Analysis Models for Healthcare Applications* 2023 – 29
  — Discovery Horizons (Successful Letter of Interest Stage) Selected to Submit Full Application
  — **S. Rambhatla** (PI), Mamatha Bhat (Co-PI)
  — *Natural Sciences and Engineering Research Council of Canada (NSERC)*

- *Automated Full-Game Ice Hockey Analytics* ($540,000 CAD)
  — Alliance Grants - Mitacs Accelerate Mar. 2022
  — Partner organization: Stathletes Inc. Under Review
  — D. Clausi (PI), J. Zelek (Co-PI), **S. Rambhatla** (Co-PI), A. Wong (Co-PI), and M. J. Shafiee (Co-PI)
  — *University of Waterloo, Waterloo, ON*

Supervision & Mentoring

- *Graduate Supervision*
  - Kimathi Kaai, *MASc Student, Systems Design Engineering* Sept. '22 – *Present*
    — Co-supervised with Prof. A. Wong
  - Ahmed Shahriar Sakib, *MASc Student, Management Sciences* Sept. '22 – *Present*
    — Co-supervised with Prof. F. Gzara
  - Aniket Biswal, *MASc Student, Management Sciences* Sept. '22 – *Present*
    — Co-supervised with Prof. F. Gzara

- *Graduate Mentoring*
  - Jinman Park, *Ph.D. Student, Systems Design Engineering* Nov. '21 – *Present*
    — Supervisors: Prof. P. Fieguth & Prof. J. Zelek

- *Undergraduate Supervision*
  - Sheila Afros, *NSERC USRA, Management Sciences* Fall '22 –
  - Chang Liu, *URA, Statistics and Computational Mathematics* Fall '22 –
  - Madison Mussari, *URA, Software Engineering* Fall '22 –
  - Joshua Kurien, *URA, Mechanical and Mechatronics Engineering* Fall '22 –
  - Francois Barnard, *URA, Management Sciences* Fall '22 –
  - Vivek Alamuri, *URA, Electrical and Computer Engineering* Fall '22 –
  - Yipeng Du, *URA, Statistics and Computational Mathematics* Spring '22 –
  - Kimathi Kaai, *URA, Mechanical and Mechatronics Engineering* Winter '22

- *Undergraduate Mentoring*
  - Saad Hossain, *URA, Biomedical Engineering* Winter '22 – *Present*
    — Supervisors: Prof. P. Fieguth

- *Other Supervision, Mentoring, and Collaborations*
  - Yingji Sun, *Machine Learning Analyst with the Bhat Lab* Dec. '22 – *Present*
    — *Ajmera Transplant Center, University Health Network, Toronto, ON, Canada* Research Mentor
  - María Belén Guaranda Cabezas, *Master's Student* Mar. '22 – *Present*
    — *Université Paris-Saclay, Paris, France* WiML Mentor
  - Pratik Bhowal, *Undergraduate Research Intern* Mar. '22 – *Present*
    — *National Institute of Technology, Jadhavpur, India and NVIDIA*

- *Final Year Design Team Supervision*

- "Collaborative Selection Systems in Recruiting" May '22 – *Present*
  — Justine Archer, Francois Barnard, Arden Song, Christiana Wu, and Charles Yu MSCI 401
- "AI-based Non-expert Assistive System" May '22 – *Present*
  — Gunchica Bhalla, Laurie Gao, Soohyun Kim, Ashwuni Kumar,and Olivia You MSCI 401
  — Industry partner: AutoCate Inc.
- "Vysio: AI for improving Physiotherapy Adherence and Outcomes" Sept. '21 – *Apr. '22*
  — Kimathi Kaai (MME), Peter Marshall (SyDE), Nathan Rowe (MME), and James Serez (SyDE)
  — I-Beam Award for being voted best by peers Interdisciplinary Group (GENE404)

Service on Committees

- Ph.D. Background Comprehensive Committee
  — Shayan Shirahmad Gale Bagi, *ECE*, Supervisors: Prof. M. Crowley & Prof. K. Czarnecki Aug. '22
- Masters Thesis Committee
  — Marawan Abdel Hameed *SyDE*, Supervisors: Prof. D. Clausi & Prof. J. Zelek Aug. '22
  — Mohammad Parsa, *MSCI*, Supervisor: Prof. L. Golub Jul. '22

Teaching Experience

- Instructor, MSCI - 436 Decision Support Systems (Class size: 76) Spring 2022
  — *University of Waterloo, Waterloo, ON, Canada*
- Instructor, CSCI 567 - Machine Learning (Class size: 85) Spring 2021
  — *University of Southern California, Los Angeles, CA, U.S.A.*
- Guest Lecturer, CSCI 699 - Advanced Topics in Deep Learning (Class size: 40) Fall 2020
  — *University of Southern California, Los Angeles, CA, U.S.A.*
- Guest Lecturer, EE 3025 - Statistical Methods in Elec. and Comp. Eng. (Class size: 150) Fall 2017
  — *University of Minnesota – Twin Cities, Minneapolis, MN, U.S.A.*

Technical Service

- WiML Mentor, *Women in Machine Learning Workshop and Dreami* 2022–
  — *Women in Machine Learning (WiML)*
- Workshop Co-chair, *International Conference on COMmunication Systems & NETworkS (COMSNETS)*
  — *Chancery Pavilion Hotel, Bangalore, India* Jan. 2023
- Senior Program and Mentorship Co-chair, *Women in Machine Learning Workshop* 2021 – 22
  — *Women in Machine Learning (WiML) at Neural Information Processing Systems (NeurIPS) 2021*
- Workshop Co-chair, *International Conference on COMmunication Systems & NETworkS (COMSNETS)*
  — *Chancery Pavilion Hotel, Bangalore, India* Jan. 2022
- Organizer & Host, Computer Science Colloquium on "Algorithmic Fairness and the Law" Apr. 2021
  — *University of Southern California, Los Angeles, CA*
- Organizer, AI for COVID-19 in LA Virtual Symposium (attended by over 350 participants) 2020
  — *University of Southern California, Los Angeles, CA*
- Ambassador, Women in Data Science (WiDS) 2020
  — *University of Southern California, Los Angeles, CA*
- Organizer, "Patent basics for Engineers and Researchers" 2019
  — *Digital Technology Center, University of Minnesota–Twin Cities, Minneapolis, MN*
- Session Co-Chair, Reinforcement Learning, and High-dimensional Statistics 2019
  — *Information Theory and Applications (ITA) Workshop 2019, San Diego, CA*
- Session Chair, Deep Learning-based Signal Processing for Wireless Communication 2018
  — *GlobalSIP 2018, Anaheim, CA*
- Reviewer, ACM Transactions on Spatial Algorithms and Systems (TSAS), 2022.
- Program Committee, Association for the Advancement of Artificial Intelligence (AAAI) 2023, 2022, 2021
- Reviewer, International Conference on Learning Representations (ICLR) 2022, 2021
- Reviewer, Neural Information Processing Systems (NeurIPS) 2022, 2021, 2020
- Reviewer, International Conference on Machine Learning (ICML) 2022, 2021, 2020
- Reviewer, Journal of Selected Topics in Signal Processing (JSTSP) 2020

- Reviewer, IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI) 2021, 2020
- Reviewer, ACM Transactions on Computing for Healthcare 2021, 2020
- Reviewer, International Conference on Artificial Intelligence & Statistics (AISTATS) 2018, 2016
- Reviewer, International Conference on Acoustics, Speech & Signal Processing (ICASSP) 2016, 2015
- Reviewer, Transactions on Signal Processing (T-SP) 2021, 2020, 2019, 2018, 2016, 2015, 2014
- Reviewer, Signal Processing Letters (SPL) 2017
- Reviewer, SIAM Journal of Imaging Sciences 2017
- Reviewer, Transactions on Industrial Informatics (T-II) 2017

Talks/ Posters

- "Theory Guided Machine Learning for the Real World" Nov. 2021
  — *Vision and Image Processing lab, Systems Design Engineering Department, University of Waterloo.*
- "Cross-Node Federated Graph Neural Network for Spatio-Temporal Data Modeling" Aug. 2021
  — *ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD)*
- "Physics-aware Spatiotemporal Modules with Auxiliary Tasks for Meta-Learning" Aug. 2021
  — *International Joint Conferences on Artificial Intelligence (IJCAI).*
- "Provable Online CP/PARAFAC Decomposition via Dictionary Learning" Apr. 2021
  — *Women in Theoretical Machine Learning Symposium, Virtual Symposium.*
- "Provable Online CP/PARAFAC Decomposition via Dictionary Learning" Dec. 2020
  — *Neural Information Processing Systems (NeurIPS), Virtual Conference.*
- "How does this interaction affect me? Interpretable attribution for feature interactions." Dec. 2020
  — *Neural Information Processing Systems (NeurIPS), Virtual Conference.*
- "Provable Online Dictionary Learning and Sparse Coding" Jun. 2019
  — *CyberOptics Corporation, Minneapolis, MN.*
- "NOODL: Provable Online Dictionary Learning and Sparse Coding" May 2019
  — *International Conference on Learning Representations, New Orleans, LA.*
- "Provable Online Dictionary Learning and Sparse Coding" May 2019
  — *Department of Electrical and Computer Engineering, Georgia Tech., Atlanta, GA.*
- "Provable Online Dictionary Learning and Sparse Coding" Feb. 2019
  — *Information Theory and Applications (ITA) Workshop, San Diego, CA.*
- "Lidar-based Topological Mapping & Localization via Tensor Decompositions." Nov. 2018
  — *GlobalSIP 2018, Anaheim, CA.*
- "Provable Online Dictionary Learning and Matrix Factorization" Sept. 2018
  — *Digital Technology Center, Minneapolis, MN.*
- "Target-Based Hyper Spectral Demixing via Generalized Robust PCA." Mar. 2018
  — ECE Seminar on Signal Processing, Information Theory, and Communication,
  University of Minnesota – Twin Cities, Minneapolis, MN.
- "Provably Recovering Patterns from Data: Matrix to Tensors." Nov. 2017
  — *Yahoo! Research, San Jose, CA.*
- "Dictionary-based Generalization of Robust PCA." Dec. 2016
  — *GlobalSIP 2016, Washington D.C.*
- "Semi-Blind Source Separation via Sparse Approximation & Online Dictionary Learning."
  — *Asilomar Conference on Signals, Systems & Computers, Pacific Grove, CA.* Nov. 2013

Workshops

- "Frontiers in Machine Learning" 2020
  — *Microsoft Research*
- "IEEE Data Science Workshop (DSW)" 2019
  — *University of Minnesota Twin-Cities, Minneapolis, MN*

- "Information Theory & Applications Workshop (ITA)" 2019
  — *San Diego, CA*
- "Resource Trade-offs: Computation, Communication, and Information" 2016
  — *Institute of Mathematics and its Applications (IMA), Minneapolis, MN*
- "Sparsity and Computation" 2011
  — *Institute for Advanced Study, Princeton, NJ*

Software Packages

TensorNOODL:	Provable Online CP/PARAFAC Decomposition via Dictionary Learning (MATLAB).
NOODL:	Provable Online Learning Algorithm for Dictionary Learning and Sparse Coding. • Distributed implementations via MATLAB and TensorFlow.
D-RPCA:	Dictionary-Based Generalization of Robust PCA. (MATLAB) • Analysis of Theoretical Properties, and Target Localization in Hyperspectral Images.
TensorMap:	Lidar-based Mapping and Localization via Tensor Decompositions. (MATLAB)

Professional Memberships

Collegiate Member, *Society of Women Engineers (SWE)*, since 2018
Student Member, *IEEE Signal Processing Society (SPS)*, since 2018
Student Member, *IEEE*, since 2013
Member, *Eta Kappa Nu (HKN)*, since 2011