

Panagiotis A. Traganitis

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Education

- **University of Minnesota, Twin Cities** Minneapolis, MN, USA
Ph.D., Electrical & Computer Engineering *Aug. 2013 - May 2019*
 - Thesis topic: *Scalable and Ensemble Learning for Big Data*
 - Advisor:** Prof. Georgios B. Giannakis
- **University of Minnesota, Twin Cities** Minneapolis, MN, USA
M.Sc., Electrical & Computer Engineering *Aug. 2013 - Sep. 2015*
 - Thesis topic: *Large-scale Clustering using Random Sketching and Validation*
 - Advisor:** Prof. Georgios B. Giannakis
- **National Technical University of Athens** Athens, Greece
Diploma (Dipl.-Ing.) Electrical & Computer Engineering *Sep. 2007- Jul. 2013*
 - Thesis topic: *Reinforcement Learning Methods for Channel Selection in Distributed Cognitive Radio Networks*
 - Advisor:** Prof. Panayotis Cottis
 - Electronics & Systems concentration

Professional Employment

- **Michigan State University** East Lansing, MI, USA
Assistant Professor at Electrical & Computer Engineering Department *Aug. 2022 - present*
- **University of Minnesota, Twin Cities** Minneapolis, MN, USA
Post-Doctoral Research associate at SPiNCOM Research group *Sep. 2019 - May 2022*
 - Working on large-scale Machine and Ensemble Learning problems
- **University of Minnesota, Twin Cities** Minneapolis, MN, USA
Research assistant at SPiNCOM Research group *Aug. 2013 - May 2019*
 - Worked on large-scale Machine Learning problems

Current Research interests

Statistical signal processing, Statistical learning, Ensemble learning, Crowdsourcing, Big Data Analytics, Information theory, Big Data security, Wireless communications

Professional Society Activities

Invited talks

- "Learning from Unreliable Labels via Crowdsourcing," - 12 Dec. 2022 - Electrical and Computer Engineering Department, National Technical University of Athens - Athens, Greece.
- "Learning from Unreliable Labels via Crowdsourcing," - 21 Dec. 2022 - Institute of Computer Science - Foundation of Research and Technology, Hellas - Heraklion, Greece.
- "Learning from Unreliable Labels via Crowdsourcing," - 19 Oct. 2022 - IEEE SPS-DSI Webinar Series Data sciEnce on GrAphS (with Prof. Georgios B. Giannakis)

Tutorials delivered

- "Truth inference in Crowdsensing," - June 1st, 2023 - 2023 IEEE International Conference on Communications, Rome, Italy - with G.B. Giannakis
- "Learning from Unreliable Labels via Crowdsourcing," - June 4th, 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing, Rhodes, Greece - with G.B. Giannakis
- "End-to-End Learning from Crowdsourced Labels: A Signal Processing Perspective," - April 7th, 2025 - 2025 IEEE International Conference on Acoustics, Speech and Signal Processing, Hyderabad, India - with S. Ibrahim, X. Fu, and G.B. Giannakis
- "Learning with Noisy Crowdsourced Labels: Insights from Signal Processing," - July 13th, 2026 - 2026 IEEE Sensor Array and Multichannel Signal Processing Workshop, Shenzhen, China - with X. Fu, and G.B. Giannakis

Reviewer activities

- IEEE Transactions on Signal Processing
- IEEE Transactions on Image Processing
- IEEE Transactions on Signal and Information Processing over Networks
- IEEE Transactions on Pattern Analysis and Machine Intelligence
- IEEE Transactions on Artificial Intelligence
- IEEE Transactions on Neural Networks and Learning Systems
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Computational Imaging
- IEEE Transactions in Energy Conversion
- IEEE Transactions on Aerospace and Electronic Systems
- IEEE Transactions in Consumer Electronics
- IEEE Signal Processing Letters
- IEEE Signal Processing Magazine
- IEEE Signal Processing Magazine Columns and Forums
- IEEE International Workshop on Machine Learning for Signal Processing
- IEEE International Conference on Data Science and Advanced Analytics

- IEEE International Conference on Acoustics, Speech, and Signal Processing
- EURASIP Signal Processing Journal
- EURASIP European Signal Processing Conference
- Neural Computing and Applications
- Numerical Linear Algebra with Applications
- Expert Systems with Applications
- Results in Engineering
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases
- International Balkan Conference in Communications and Networking
- AAAI Conference on Artificial Intelligence
- International Conference on Artificial Intelligence and Statistics (AISTATS)

Associate Editor

- IEEE Transactions in Signal Processing, July 2025 - present

Society Memberships

- IEEE Student Member 2013-2019, Member 2019-present
 - Member of the IEEE Signal Processing Society
 - Member of the IEEE Information Theory Society

Special Sessions organized

- “Learning with Few Labels”, July 10, 2024, IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM 2024), Corvallis, OR - Co-organized with C. Kanatsoulis.
- “Advances in Multiview Processing and Learning”, October 30, 2024, 2024 Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA - Co-organized with C. Kanatsoulis.
- “Trustworthy learning from graphs”, October 26, 2025, 2025 Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA - Co-organized with Y. Shen.

Departmental and University Service

- Seminar coordinator for the ECE department at MSU, Aug. 2022 - present
- Member of the MSU College of Engineering safety advisory committee - Aug. 2024 - Aug. 2026

Teaching

Michigan State University

East Lansing, MI, USA
January 2023 - present

- ECE 366 - Introduction to Signal Processing (Undergraduate level)
- ECE 466 - Digital Signal Processing (Undergraduate level)
- ECE 480 - Senior design (Team facilitator, Undergraduate level)
- ECE 863 - Analysis of Stochastic Systems (Graduate level)

University of Minnesota, Twin Cities*Instructor at MCFAM Machine Learning Summer Camp for 12th graders*

Minneapolis, MN, USA

*June 2020***University of Minnesota, Twin Cities***Teaching assistant at ECE Department*

Minneapolis, MN, USA

2017 - 2018

- EE3025 - Statistical Methods in ECE (Undergraduate level)
- EE5239 - Nonlinear Optimization (Graduate level)

Advising**Ph.D. theses in progress**

Michigan State University

- Hongyu Wang, “TBD”, Expected graduation date: May 2028
- Mohammad Eini, “TBD”, Expected graduation date: May 2029

M.S. theses in progress

Michigan State University

- Arshdeep Chudda, “Self-supervised Learning with multiple Auxiliary tasks”, Expected graduation date: May 2026

Postdoctoral researchers supervised

Michigan State University

- Abdullah Karaaslanli, co-supervised with Selin Aviyente, January 2024 - present

Current and pending Research funding**Current**

Michigan State University

- [CU.1] National Science Foundation 2312546 Collaborative Research: CIF: Medium: “Robust Learning over Graphs”, (\$843,059) June 1, 2023 - May 31, 2026 (PI with S. Aviyente and G. B. Giannakis as co-PIs).
- [CU.2] National Science Foundation MRI: “Track 1 Acquisition of a Large-Scale Real-Time Simulator for Modern Power Grids,” (\$762,500), Aug. 1, 2024 - July 31, 2027 (collaborator with PI M. Ben-Idris).

Pending

Michigan State University

- [PE.1] National Science Foundation: “Adversarially Robust Decision Fusion”, (\$547,220) Aug. 1, 2026- Jul. 31, 2029.

Publications**Journals**

- [J.1] A. Karaaslanli, **P. A. Traganitis**, and A. Konar, "Dense Subgraph Detection for Crowdsourcing with Colluding Adversaries," *IEEE Transactions in Signal and Processing* (submitted)
- [J.2] M. Eini, A. Karaaslanli, V. Kalantzis and **P. A. Traganitis**, "Subspace Projection Methods for Fast Spectral Embeddings of Evolving Graphs," *IEEE Transactions in Signal and Information Processing over Networks* (submitted)
- [J.3] S. Ibrahim, **P. A. Traganitis**, X. Fu and G. B. Giannakis, "Learning From Crowdsourced Noisy Labels: A signal processing perspective," in *IEEE Signal Processing Magazine*, vol. 42, no. 3, pp. 84-106, May 2025
- [J.4] **P. A. Traganitis** and G. B. Giannakis, "Unsupervised Ensemble Classification With Sequential and Networked Data," in *IEEE Transactions on Knowledge and Data Engineering*, vol. 34, no. 10, pp. 5009-5022, 1 Oct. 2022
- [J.5] Y. Shen, **P. A. Traganitis** and G. B. Giannakis, "Graph-Adaptive Nonlinear Dimensionality Reduction," *IEEE Transactions on Signal Processing*, (submitted)
- [J.6] **P. A. Traganitis**, A. Pagés-Zamora and G. B. Giannakis, "Blind Multiclass Ensemble Classification," *IEEE Transactions on Signal Processing*, vol. 66, pp.4737-4752, September 2018.
- [J.7] **P. A. Traganitis**, and G. B. Giannakis, "Sketched Subspace Clustering," *IEEE Transactions on Signal Processing*, vol. 66, no. 7, pp. 1663-1675, April 2018.
- [J.8] **P. A. Traganitis**, K. Slavakis, and G. B. Giannakis, "Sketch and Validate for Big Data Clustering," *IEEE Journal on Special Topics in Signal Processing*, vol. 9, no. 4, pp. 678-690, June 2015.

Conferences/Workshops

- [C.1] M. Eini, A. Karaaslanli, V. Kalantzis and **P. A. Traganitis**, "Efficient Estimation of Time-varying Signals over Evolving Graphs", *Proc. of Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Oct. 25 - Oct. 28, 2026.
- [C.2] A. Chudda and **P. A. Traganitis**, "Aggregating Multiple Self-Supervised Tasks for Robust Semi-Supervised Learning", *Proc. of Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Oct. 25 - Oct. 28, 2026.
- [C.3] A. Karaaslanli, M. Eini, **P. A. Traganitis**, and V. Kalantzis, "Efficient Spectral Embeddings of Graph Edges", *Proc. of European Signal Processing Conf.*, Brugge, Belgium, Aug. 31- Sep. 4, 2026.
- [C.4] Y. Zhang, Q. Lu, **P. A. Traganitis**, and Georgios B. Giannakis, "Meta-learning Gaussian Process Priors Using Non-stationary Spectral Features", *Proc. of Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Oct. 26 - Oct. 29, 2025.
- [C.5] A. Karaaslanli, Selin Aviyente, and **P. A. Traganitis**, "Simultaneous Detection of Anomalous Nodes and Edges in Graphs", *Proc. of Asilomar Conf. on Signals, Systems, and Computers*, Pacific Grove, CA, Oct. 26 - Oct. 29, 2025.
- [C.6] H. Wang, **P. A. Traganitis**, "Learning from Multiple Noisily Optimal Demonstrators in Stochastic Multi Armed Bandits", *Proc. of 35th IEEE Intl. Workshop on Machine Learning for Signal Processing (IEEE MLSP 2025)*, Istanbul, Turkey, Aug. 31 - Sep. 3, 2025.
- [C.7] A. Karaaslanli, **P. A. Traganitis**, and A. Konar, "Identifying Adversarial Attacks in Crowdsourcing via Dense Subgraph Detection", *Proc. of Intl. Conf. on Acoustics, Speech, and Signal Processing*, Hyderabad, India, Apr. 6-11, 2025.

- [C.8] V. Kalantzis, **P. A. Traganitis**, and Charilaos I. Kanatsoulis, "Online Canonical Correlation Analysis via Rayleigh-Ritz Projection", Proc. of Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, Oct. 27 - Oct. 30, 2024.
- [C.9] A. Karaaslanli, **P. A. Traganitis**, and S. Aviyente, "Identifying Anomalous Edges with Link Sampling and Consensus", Proc. of Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, Oct. 27 - Oct. 30, 2024.
- [C.10] K. D. Polyzos, **P. A. Traganitis**, M. K. Singh, and G. B. Giannakis, "Ensembles of Informative Representations for Self-Supervised Learning", Proc. of the IEEE Machine Learning for Signal Processing Workshop, London, UK, Sept. 22-25, 2024. **Best paper award - second place.**
- [C.11] G. Kollias, V. Kalantzis, L. Horesh, S. Ubaru and **P. A. Traganitis**, "Counting Triangles of Graphs via Matrix Partitioning", Proc. of the IEEE Machine Learning for Signal Processing Workshop, London, UK, Sept. 22-25, 2024.
- [C.12] **P. A. Traganitis** and Charilaos I. Kanatsoulis, "A Graph Autoencoder Approach to Crowdsourcing," Proc. of the IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM), Corvallis, OR, Jul. 8-11, 2024.
- [C.13] V. Kalantzis and **P. A. Traganitis**, "Rayleigh-Ritz Based Updates of the Multilinear Singular Value Decomposition," Proc. of Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, USA, Oct. 29 - Nov. 1, 2023.
- [C.14] **P. A. Traganitis** and Elias G. Strangas, "Perspectives of Transfer Learning on the Diagnosis of Faults in Electrical Machines, Power Electronics, and Drives," Proc. of the Intl. Symposium on Diagnostics for Electric Machines, Power Electronics and Drives, Chania, Greece, Aug. 28-31, 2023.
- [C.15] M. K. Singh, K. D. Polyzos, **P. A. Traganitis**, S. V. Dhople and G. B. Giannakis, "Physics-Informed Transfer Learning for Voltage Stability Margin Prediction," Proc. of Intl. Conf. on Acoustics, Speech, and Signal Processing, Rhodes, Greece, Jun. 4-9, 2023.
- [C.16] V. Kalantzis and **P. A. Traganitis**, "Matrix Resolvent Eigenembeddings for Dynamic Graphs," Proc. of Intl. Conf. on Acoustics, Speech, and Signal Processing, Rhodes, Greece, Jun. 4-9, 2023.
- [C.17] **P. A. Traganitis**, and G. B. Giannakis, "Identifying Dependent Annotators in Crowdsourcing," Proc. of Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, Oct. 30 - Nov. 2, 2022.
- [C.18] **P. A. Traganitis** and G. B. Giannakis, "Detecting Adversaries in Crowdsourcing," Proc. of ICDM, Auckland, New Zealand, Dec. 7-10, 2021.
- [C.19] **P. A. Traganitis** and G. B. Giannakis, "Bayesian constrained decision fusion," Proc. of SPAWC, Lucca, Italy, Sept. 27-30, 2021.
- [C.20] **P. A. Traganitis** and G. B. Giannakis, "Bayesian Crowdsourcing with Constraints," Proc. of ECML-PKDD, Bilbao, Spain, Sept. 13-17, 2021.
- [C.21] **P. A. Traganitis** and G. B. Giannakis, "Identifying Spammers to Boost Crowdsourced Classification," Proc. of Intl. Conf. on Acoustics, Speech, and Signal Processing, Toronto, Ontario, Canada, Jun. 6-11, 2021.
- [C.22] **P. A. Traganitis** and G. B. Giannakis, "Constrained Clustering using Gaussian Processes," Proc. of European Signal Processing Conf., Amsterdam, Netherlands, Jan. 18-22, 2021.
- [C.23] **P. A. Traganitis**, D. Berberidis and G. B. Giannakis, "Active Learning with Unsupervised Ensembles of Classifiers," Proc. of Intl. Conf. on Acoustics, Speech, and Signal Processing, Barcelona, Spain, May 4-8, 2020.

- [C.24] **P. A. Traganitis**, "Blind Ensemble Classification of Sequential Data," Proc. of Data Science Workshop, Minneapolis, MN, June 2-5, 2019.
- [C.25] **P. A. Traganitis** and G. B. Giannakis, "Blind multi-class Ensemble Learning with Dependent Classifiers," Proc. of EUSIPCO, Rome, Italy, Sep 3-7, 2018.
- [C.26] V. N. Ioannidis, Y. Shen, **P. A. Traganitis**, and G. B. Giannakis, "Kernel-based learning of processes over multi-layer graphs," Proc. of Intl. Workshop on Signal Process. Advances in Wireless Communications, Kalamata, Greece, June 25-28, 2018.
- [C.27] **P. A. Traganitis** and G. B. Giannakis, "Distributed Sketched Subspace Clustering for Large-Scale Data," Proc. of CAMSAP Conf., Curacao, Dutch Antilles, Dec. 10-13, 2017. (Invited)
- [C.28] Y. Shen, **P. A. Traganitis** and G. B. Giannakis, "Nonlinear Dimensionality Reduction on Graphs," Proc. of CAMSAP Conf., Curacao, Dutch Antilles, Dec. 10-13, 2017. (Invited)
- [C.29] **P. A. Traganitis**, Alba Pagès-Zamora, and G. B. Giannakis, "Learning from Unequally Reliable Blind Ensembles of Classifiers" Proc. of Globasip Conf., Montreal, Canada, Nov. 14-16, 2017.
- [C.30] **P. A. Traganitis**, Y. Shen, and G. B. Giannakis, "Network Topology Inference via Elastic Net Structural Equation Models," Proc. of EUSIPCO, Kos Island, Greece, Aug. 28 - Sept. 3, 2017.
- [C.31] **P. A. Traganitis**, Y. Shen, and G. B. Giannakis, "Topology Inference for Multilayer Networks," Proc. of Intl. Workshop on Network Science for Comms, May 2017. (**ARO/ARL Travel grant.**)
- [C.32] **P. A. Traganitis** and G. B. Giannakis, "PARAFAC-based Multilinear Subspace Clustering for Tensor Data," Proc. of GlobalSIP, Washington, DC, Dec. 7-9, 2016. (**NSF Travel grant**).
- [C.33] **P. A. Traganitis** and G. B. Giannakis, "Randomized Approaches to Large-Scale Subspace Clustering," Proc. of Asilomar Conf., Pacific Grove, CA, Nov. 6-9, 2016. (Invited)
- [C.34] **P. A. Traganitis**, G. B. Giannakis, "Efficient Subspace Clustering of Large-scale Data Streams with Misses," Proc. of the 50th Conf. on Info. Sciences and Systems, Princeton Univ., Princeton, NJ, March 16-18, 2016.
- [C.35] **P. A. Traganitis**, K. Slavakis, and G. B. Giannakis, "Large-scale Subspace Clustering using Random Sketching and Validation," Proc. of Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, November 8-11, 2015.
- [C.36] **P. A. Traganitis**, K. Slavakis, and G. B. Giannakis, "Spectral Clustering of Large-scale Communities via Random Sketching and Validation," Proc. of 49th Conf. on Info. Sciences and Systems, Johns Hopkins Univ., Baltimore, MD, March 18-20, 2015.
- [C.37] **P. A. Traganitis**, K. Slavakis, and G. B. Giannakis, "Clustering High-Dimensional Data via Random Sampling and Consensus," Proc. of GlobalSIP, Atlanta, GA, December 3-5, 2014.
- [C.38] **P. A. Traganitis**, K. Slavakis, and G. B. Giannakis, "Big Data Clustering using Random Sampling and Consensus," Proc. of Asilomar Conf. on Signals, Systems, and Computers, Pacific Grove, CA, November 2-5, 2014.

Book chapters

- [B.1] B. Baingana, **P. A. Traganitis**, G. Mateos, and G. B. Giannakis, "Big Data analytics for Social Networks," in Graph Analysis for Social Media, I. Pitas, Editor, CRC Press, 2015.

Awards, Grants & Honors

Gerondelis foundation Graduate Scholarship	2015
D. Sun & H. Hu Electrical and Computer Engineering Fellowship, Univ. of Minnesota	2013
Finalist of the Heraklion mathematical competition (Hellenic Mathematical Society)	2007
Eurobank's Award of Excellence in the Greek Nationwide university entrance examinations	2007

Languages

Greek - native language

English - speak fluently and read/write with high proficiency(Cambridge CPE, Michigan ECPE)

German - speak, read, and write with basic competence(Goethe Institut - Zertifikat Deutsch)