

NIKOLAOS (NIKOS) KARGAS

Ph.D student, Department of ECE, University of Minnesota, USA

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RESEARCH INTERESTS

- ▷ Areas: Machine Learning, Statistics, Optimization.
- ▷ Topics: Tensor-based Statistical Learning, Density Estimation, Nonlinear System Identification.

EDUCATION

- 2015–2020** | **Ph.D. in Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, USA.**
- ▷ Thesis: “Tensor Modeling of High-Dimensional Distributions and Nonlinear Functions.”
 - ▷ Advisor: Professor Nicholas D. Sidiropoulos.
 - ▷ Thesis Committee: G. B. Giannakis, G. Karypis, M. Hong.
 - ▷ Selected Coursework: Nonlinear Optimization, Introduction to Data Mining, Tensor Decomposition for Signal Processing and Machine Learning, Advanced Algorithms and Data Structures, Probability and Random Processes, Computational Aspects of Matrix Theory.
- 2015** | **Master of Science, Technical University of Crete, Chania, Greece.**
- ▷ Thesis: “SDR Readers for Gen2 RFID and Backscatter Sensor Networks.”
 - ▷ Advisor: Professor Aggelos Bletsas.
 - ▷ Selected Coursework: Machine Learning, Probabilistic Graphical Models, Detection and Estimation Theory.
- 2013** | **Diploma of Engineering, Technical University of Crete, Chania, Greece.**
- ▷ Thesis: “Robust Localization for the RoboCup Standard Platform League.”
 - ▷ Advisor: Professor Michail G. Lagoudakis.

PUBLICATIONS

Conferences

- [C8] **N. Kargas** and N. D. Sidiropoulos, “*Nonlinear System Identification via Tensor Completion*”, AAAI 2020 (to appear), New York City, NY, USA, Feb. 2020.
- [C7] I. Shahana, X. Fu, **N. Kargas** and K. Huang, “*Crowdsourcing via Pairwise Co-occurrences: Identifiability and Algorithms*”, in Proc. NeurIPS, Vancouver, Canada, Dec. 2019.
- [C6] M. Amiridi, **N. Kargas** and N. D. Sidiropoulos, “*Statistical Learning Using Hierarchical Modeling of Probability Tensors*”, in Proc. IEEE DSW, Minneapolis, MN, USA, June 2019. **Best student paper award.** 🏆
- [C5] **N. Kargas** and N. D. Sidiropoulos, “*Learning Mixtures of Smooth Product Distributions: Identifiability and Algorithm*”, in Proc. AISTATS, Naha, Japan, Apr. 2019.
- [C4] B. Yaman, S. Weingartner, **N. Kargas**, N. D. Sidiropoulos and Mehmet Akcakaya, “*Locally Low-Rank Tensor Regularization for High-Resolution Quantitative Dynamic MRI*”, in Proc. IEEE CAMSAP, Curacao, Dutch Antilles, Dec. 2017.
- [C3] **N. Kargas**, S. Weingartner, N. D. Sidiropoulos and M. Akcakaya, “*Low-Rank Tensor Regularization for Improved Dynamic Quantitative Magnetic Resonance Imaging*”, SPARS, Lisbon, Portugal, June 2017.
- [C2] **N. Kargas** and N. D. Sidiropoulos, “*Completing a Joint PMF from Projections: A Low-rank Coupled Tensor Factorization Approach*”, in Proc. IEEE ITA, San Diego, CA, USA, Feb. 2017.
- [C1] P. Alevizos, N. Fasarakis, K. Tountas, N. Agadakis, **N. Kargas** and A. Bletsas, “*Channel Coding for Increased Range Bistatic Backscatter Radio: Experimental Results*”, in Proc. IEEE RFID-TA, Tampere, Finland, Sept. 2014.

Journals

- [J3] B. Yaman, S. Weingartner, **N. Kargas**, N. D. Sidiropoulos and M. Akcakaya, “*Low-Rank Tensor Models for Improved Multi-Dimensional MRI: Application to Dynamic Cardiac T_1 Mapping*”, IEEE Transactions on Computational Imaging, 2019 (to appear).
- [J2] **N. Kargas**, N.D. Sidiropoulos and X. Fu, “*Tensors, Learning, and ‘Kolmogorov Extension’ for Finite-Alphabet Random Vectors*”, IEEE Transactions on Signal Processing, vol. 66, no. 18, pp. 4854–4868, 2018.
- [J1] **N. Kargas**, F. Mavromatis and A. Bletsas, “*Fully-Coherent Reader with Commodity SDR for Gen2 FM0 and Computational RFID*”, IEEE Wireless Communications Letters, vol. 4, no. 6, pp. 617–620, 2015.

RESEARCH EXPERIENCE

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| 2015–2020 | Research Assistant , University of Minnesota, Minneapolis, MN, USA. Main focus is on tensor methods for machine learning with applications in non-parametric density estimation and nonlinear function approximation. |
| 2013–2015 | Research Assistant , Technical University of Crete, Chania, Greece. Backscatter Networks for Large-Scale Environmental Sensing. Development of SDR-based readers for RFID and backscatter sensor networks. |

TECHNICAL SKILLS

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| Programming | C/C++, Python, JAVA, MapReduce (Hadoop). |
| Packages/Libraries | scikit-learn, CVX/CVXOPT, PyTorch. |
| Environments and Tools | MATLAB, Git. |

SERVICE

Teaching Assistance

- › Tensors for Data Science (Spring 2019)
- › Optimization for Machine Learning (Fall 2018)
- › Analysis & Design (Synthesis) of Telecom Modules (Fall 2014)
- › Telecommunication Systems II (Spring 2013)

Mentoring

- › Magda Amiridi, junior Ph.D. student, published in [C6].

REVIEWING ACTIVITIES

- › Conferences: ICML 2019, MLSP 2019, GLOBALSIP 2019, ICASSP 2019, EURFID 2015.
- › Journals: IEEE Transactions on Signal Processing, IEEE Transactions on Medical Imaging, IEEE Transactions on Wireless Communications, IEEE Wireless Communications Letters.

RESEARCH COMPETITIONS

Autonomous robot soccer competition (robocup.org).

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| RoboCup 2013 | Eindhoven, Netherlands, 24–30 June 2013. |
| RoboCup Iran Open 2013 | Teheran, Iran, 3–7 April 2013. |
| RoboCup Autcup 2012 | Teheran, Iran, 20–25 October 2012. |

REFERENCES

Available upon request