Georgios Smyrnis

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Education

University of Texas at Austin **Austin TX, USA**
Ph. D. in Electrical and Computer Engineering *08/2020–05/2025*
- Academic Track: Decision, Information and Communications Engineering
- Part of the Wireless Networking and Communications Group

National Technical University of Athens (NTUA) **Athens, Greece**
Diploma in Electrical and Computer Engineering *09/2014–07/2020*
(*Joint bachelor's & master's degree*)
- Concentration: Machine Learning, Computer Science.
- Thesis: "*Tropical Polynomial Division and Neural Network Minimization*".

Professional and Research Experience

University of Texas at Austin **Austin TX, USA**
Graduate Research Assistant *06/2021–current*
- Performing research on the fields of contrastive learning and inverse problems.

School of ECE, University of Texas at Austin **Austin TX, USA**
Teaching Assistant *09/2020–05/2021*
- Teaching assistant for the course "Data Science Lab".

Computer Vision and Signal Processing Group, NTUA
Robot Perception and Interaction Unit, Athena Research Center **Athens, Greece**
Undergraduate Research Assistant *04/2019–07/2020*
- Performed research in the fields of tropical geometry and neural networks, while also working on my thesis.
- Affiliated with the Athena Research Center, since 02/2020.
- From 02/2020, collaborated with the Laboratory of Cognitive Neuroscience and Sensorimotor Control at the University Mental Health, Neurosciences and Precision Medicine Research Institute "Costas Stefanis", for studies on the link between learning procedures and the human visual system.

National Center for Scientific Research "Demokritos" **Athens, Greece**
Intern *09/2019–10/2019*
- Interned at the Institute of Informatics and Telecommunications, Computational Intelligence Lab.
- Implemented a system for real-time action classification using data from a Kinect camera.
- Evaluated various methods for segmentation of such data into parts containing human actions.

National Technical University of Athens (NTUA) **Athens, Greece**
Laboratory Teaching Assistant *09/2016–01/2018, 09/2018–05/2019, 03/2020–07/2020*
- Assisted with lab exercises for "Computer Programming" and "Programming Techniques" courses, until 2019.
- During 2020, assisted with lab exercises for the course "Computer Vision".

Publications & Preprints

- P. Misiakos, G. Smyrnis, G. Retsinas and P. Maragos, "Neural Network Approximation based on Hausdorff distance of Zonotopes", to appear in *Proc' ICLR 2022*, 2022
- S. Ravula, G. Smyrnis, M. Jordan and A. Dimakis, "Inverse Problems Leveraging Pre-trained Contrastive Representations", in *Proc' NeurIPS 2021*, 2021
- G. Smyrnis and P. Maragos, "Multiclass Neural Network Minimization via Tropical Newton Polytope Approximation" in *Proc' ICML 2020*, 2020.
- G. Smyrnis, P. Maragos and G. Retsinas, "Maxpolynomial Division with Application To Neural Network Simplification" in *ICASSP 2020 - 2020 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2020, pp. 4192-4196.
- G. Pikramenos, G. Smyrnis, I. Vernikos, T. Konidaris, E. Spyrou and S. Perantonis, "Sentiment Analysis from Sound Spectrograms via Soft BoVW and Temporal Structure Modelling", in *Proceedings of the 9th International Conference on Pattern Recognition Applications and Methods - Volume 1: ICPRAM*, 2020, pp.

361-369.
- G. Smyrnis and P. Maragos, "Tropical Polynomial Division and Neural Networks", *arXiv:1911.12922* [*cs.LG*], 2019.

Volunteering Experience

- Reviewer for ICML 2021, NeurIPS 2021 and ICLR 2022.

Honors & Awards

- **"C. Chrysovergis" & "I. Kondoulis" Prizes**, for 1st place graduation from undergraduate studies (2020).
- **Scholarship**, for undergraduate studies, "Ialemos Kyprianidis" bequest.
- **"Paris Kanellakis" Prize**, for highest grades in Information Technology courses (2016-2017, 2017-2018).
- **"Thomaideion" Award** (1st place) for course grades (2015-2016, 2016-2017, 2017-2018).
- **"KARY" Award** for highest course grades (2015-2016).
- **International Physics Olympiad 2014**, Member of Greek delegation, Honorable Mention.

Skills

- Programming: Python, MATLAB, C/C++.
- Software Tools/Libraries: Pytorch, Keras, ROS.
- Theoretical Knowledge: Machine Learning, Computer Vision, Natural Language Processing, Tropical Algebra, Algorithms.

Languages

- English (fluent), French, Greek (native).