

Georgios Smyrnis

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Education

University of Texas at Austin

Austin TX, USA

Ph. D. in Electrical and Computer Engineering

08/2020–current

- Academic Track: Decision, Information and Communications Engineering.
- Part of the Wireless Networking and Communications Group.
- Acquired Master of Science in Engineering in ECE on May 2023, while working towards my final degree.

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”.
- Final Grade: 9.94/10 (1st place during graduation).

Professional and Research Experience

Toyota Research Institute

Los Altos CA, USA

Intern

05/2024–08/2024

- Research internship over the summer.

Google LLC

Mountain View CA, USA

Student Researcher

05/2022–08/2022,

09/2022–10/2022

- Summer student researcher position. Part time student researcher during September & October.

University of Texas at Austin

Austin TX, USA

Graduate Research Assistant

06/2021–05/2022,

09/2022–01/2024

09/2024–current

- Performing research on the fields of contrastive learning and self-supervision.

School of ECE, University of Texas at Austin

Austin TX, USA

Teaching Assistant

09/2020–05/2021

01/2024–05/2024

- Teaching assistant for the course "Data Science Lab".

Computer Vision and Signal Processing Group, NTUA

Athens, Greece

Robot Perception and Interaction Unit, Athena Research Center

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

- J. Li, A. Fang, G. Smyrnis, M. Ivgi, M. Jordan, S. Y. Gadre, et al. "DataComp-LM: In search of the next generation of training sets for language models." in *NeurIPS 2024, Datasets and Benchmarks Track*, 2024.
- S. Y. Gadre, G. Smyrnis, V. Shankar, S. Gururangan, M. Wortsman, R. Shao, J. Mercat et al. "Language models scale reliably with over-training and on downstream tasks." *arXiv:2403.08540*, 2024.
- G. Smyrnis, S. Ravula, S. Sanghavi, and A. Dimakis, "Multimodal Distillation of CLIP Models", in *NeurIPS 2023 Workshop: Self-Supervised Learning - Theory and Practice*, 2023
- E. Tsaprazlis, G. Smyrnis, A. Dimakis, and P. Maragos, "Enhancing CLIP with a Third Modality", in *NeurIPS 2023 Workshop: Self-Supervised Learning - Theory and Practice*, 2023
- S. Y. Gadre, G. Ilharco, A. Fang, J. Hayase, G. Smyrnis, T. Nguyen, R. Marten et al. "DataComp: In search of the next generation of multimodal datasets.", in *NeurIPS 2023 Datasets and Benchmarks Track*, 2023.
- G. Smyrnis, M. Jordan, A. Uppal, G. Daras and A. Dimakis, "Lovasz Theta Contrastive Learning", in *NeurIPS 2022 Workshop: Self-Supervised Learning - Theory and Practice*, 2022
- P. Misiakos, G. Smyrnis, G. Retsinas and P. Maragos, "Neural Network Approximation based on Hausdorff distance of Zonotopes", 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.
- G. Pikramenos, K. Kechagias, T. Psallidas, G. Smyrnis, E. Spyrou and S. Perantonis, "Dimensionality Reduction and Attention Mechanisms for Extracting Affective State from Sound Spectrograms" in *International Conference on Pattern Recognition Applications and Methods 2020 (selected papers)*, 2020.
- 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.
- G. Smyrnis and P. Maragos, "Tropical Polynomial Division and Neural Networks", *arXiv:1911.12922*, 2019.

Volunteering Experience

- Organizer for the Data-centric Machine Learning Research Workshop at ICML 2024.
- Reviewer for ICML 2021 - 2022, NeurIPS 2021 - 2023 and ICLR 2021 - 2024.

Honors & Awards

- **Onassis Scholarship** for doctorate studies.
- "**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.
- Skills: Machine Learning, Computer Vision, Natural Language Processing.
- Languages: English (fluent), French, Greek (native).