Nico Adamo

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EDUCATION

- **California Instititute of Technology** — Pasadena, CA
  B.S. Computer Science   GPA: 4.3 — *September 2020 - Present*
  Courses: *Learning Systems, Machine Learning & Data Mining, Operating Systems, Decidability & Tracability, Algorithms, Discrete Math, Linear Algebra, Probability & Statistics*

SKILLS SUMMARY

- **Languages**: Python, Java, C++, C, Mathematica, Lua, Bash, Java
- **Frameworks**: PyTorch, TensorFlow, NumPy, Keras, Scikit, Pandas, Flask
- **Tools**: AWS, Oracle Cloud, NVIDIA Cloud Services, Anaconda, Git, SQL, Docker
- **Soft Skills**: Scientific Writing, Public Speaking, Presenting, Self-Motivation

EXPERIENCE

- **Anandkumar Machine Learning Lab / NVIDIA AIALGO Team** — Pasadena, CA
  Undergraduate Researcher — *December 2020 - Present*
  - Working under the supervision of Prof. Anima Anandkumar (Caltech) and Yujia Huang, Zhiding Yu, and Jose Alvarez (NVIDIA) working on investigating the role of generative feedback in augmenting computer vision models, specifically in few-shot learning and out-of-distribution inference.
  - Developed and implemented an episodic training model for few-shot and long-tailed learning leveraging memory resampling, recurrent generative feedback, and prototypical training methods to obtain SOTA on many common few-shot and long-tailed benchmarks.
  - First authored a paper exploring the role of resampling, feedback and prototypical training in imbalanced learning settings for CVPR 2022 (see below).

- **Wolfram Research Inc.** — Remote
  Machine Learning Intern — *July 2019 - June 2020*
  - Implemented and trained reversible neural network ("normalizing flow") architectures based on recent machine learning literature (RealNVP, GLOW, and RNADE).
  - Worked directly with the Divison Head of Machine Learning developing a novel method for transfer learning via autoregressive teacher networks, obtaining SOTA performance on few-shot learning tasks.
  - Developed a framework for out-of-the-box few-shot classification based on this work, included in Mathematica 12's official production release.

PUBLICATIONS

- Adamo, N., Huang, Y., Yu, Z., Alvarez, J., Anandkumar, A., "Prototypes, Memories, and Feedback: A Trilogy for Learning to Generalize under Imbalanced Distributions." *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, 2022. Submitted for Review.

- Adamo, N., "The Relationship between Conductor and Discriminant of an Elliptic Curve over $\mathbb{Q}$". South Carolina Academy of Science, 2018. 122.

HONORS AND AWARDS

- Caltech's Perpall SURF Speaking Competition Semifinalist (Generative Feedback and Memory Replay for Few-Shot Learning) - 2021

- First place winner for Computer Science in the South Carolina Academy of Science Competition (Producing and Defending Against Targeted Adversarial Examples) - 2020

- First place winner for Mathematics in the South Carolina Academy of Science Competition (A Geometric Perspective on Zeta Functions under the Function Field Analogy) - 2019