Lillian Huang

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WORK EXPERIENCE

Data Scientist *Ford Motor Credit Company* November 2023 – Present

- Develop statistical models to assess risk of lending money to Ford dealerships.
  - Pull and clean historical dealer data, select model variables based on WOE binning and IV, use logistic regression to fit model
  - Incorporated business considerations, such as model interpretability and changing market conditions, into the model while balancing model performance
  - New model satisfies shifting business conditions while maintaining high predictive performance (comparable concordance to previous model)
  - Supply new benchmarks by incorporating AI methods, which stress-tests the model to see if its performance is up-to-par with more powerful methods
- Lead effort to adopt GitHub as an organization
  - Took initiative to present idea of GitHub adoption to higher-ups, stressing an organizational need to have a centralized, version-controlled, easily-audited, well-documented code repository
  - Worked with IT teams to identify a wide set of needs and to build infrastructure that could be functional org-wide
  - Created a small group within org to write guidelines, provide tutorials, and otherwise plan for GitHub adoption

Graduate Research Assistant (Machine learning) *University of Maryland* January 2019 – May 2023

- Leverage generative models and machine learning to preform AI-aided "in-betweening:" video interpolation for hand-drawn animation.
  - Led project conceptualization, implementation, and experimentation, leveraging interdisciplinary expertise (ML and animation) to guide project
  - Build end-to-end machine learning pipelines and process large datasets in Python and PyTorch
  - Built and maintained the first custom animation interpolation dataset for our domain, optimizing for storage and retrieval efficiency
  - Made qualitative visual improvements over state-of-the-art video interpolation methods
  - Effectively communicated motivations, strategies, and goals of project to reviewers, collaborators, and artists
- Facebook (now Meta) grant-funded project to improve few-shot image classification by leveraging the power of generative models and **language models** to augment training data.
  - Implemented model architectures, integrating knowledge from previous literature and novel insights for improvement
  - Increased classification accuracy against baselines (+1.5%) by "hallucinating" training samples from textually-relevant existing image classes
  - Presented a poster on this work at the Women in Machine Learning workshop at *NeurIPS* (Publications #1).

Teaching Assistant (Undergraduate Discrete Math) *University of Maryland* August 2018 – December 2018

- Led an hour-long discussion section twice a week, held office hours, graded homeworks and exams
- Prioritized student understanding of key concepts and proof techniques (rather than simple solution regurgitation), leading to improved class performance

TECHNICAL SKILLS / WORK STATUS

Fluent: AI, machine learning, computer vision, Python, PyTorch, SAS, sql, Google BigQuery, Google VertexAI
Familiar: LLMs, C++, C, C#, JavaScript, stable diffusion, Git, Docker, Blender
U. S. Citizen

EDUCATION

University of Maryland, College Park August 2018 – May 2023
M.S. in Computer Science (formerly Ph.D. student) GPA: 3.968

University of Michigan, Ann Arbor September 2014 – April 2018
Dual degree: B.S. in Physics, Honors / B.S. in Computer Science GPA: 3.903

LEADERSHIP AND OUTREACH

Graduate Student Council *University of Maryland CS Department* August 2021 – May 2023

- Organize a student-led grad-to-grad peer mentorship program
- Pair mentors and mentees for year-long partnerships
- Coordinate, prepare, and present monthly workshops on topics relevant to graduate student life

AWARDS

National Science Foundation Graduate Research Fellowship (NSF GRFP) 2020 – 2023
National grant awarded to ∼2000 graduate students annually; $37k per year for 3 years

Gloria Wille Bell and Carlos R. Bell Scholarship 2014 – 2018
Scholarship awarded to ∼5 undergraduate STEM students per year at University of Michigan; $10k per year for 4 years

PUBLICATIONS

1. L. Huang, S. N. Lim, and A. Shrivastava, "Knowledge-Driven Hallucination for Low-Shot Classification." *Women in Machine Learning Workshop*, poster. 2019.
2. L. Huang, F. C. Adams, and E. Grohs, "Sensitivity of Carbon and Oxygen Yields to the Triple-Alpha Resonance in Massive Stars," *Astroparticle Physics*, 105 (2019), p. 13, `arXiv:1809.09168 [astro-ph.SR]`
3. J. Searcy, L. Huang, M. A. Pleier, and J. Zhu, "Determination of the WW polarization fractions in $pp \to W^{\pm}W^{\pm}jj$ using a deep machine learning technique," *Phys. Rev.* **D93** (2016) no. 9, 094033, `arXiv:1510.01691 [hep-ph]`