UYEN LE

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EDUCATION

Stony Brook University, *Stony Brook, NY* **Aug 2024 – Present**
Doctor of Philosophy, Computer Science
Graduate Teaching Assistantship: Foundations of Computer Science: Honors (CSE150)

Denison University, *Granville, OH* **Aug 2020 – Dec 2023**
Bachelor of Science, Applied Mathematics & Computer Science ***GPA:* 3.98/4.00**
Undergraduate Teaching Assistantships: Mathematical Foundations of Computer Science (CS234)**,** Introduction to Computer Systems (CS281), Advanced Differential Equations (MATH434)

PUBLICATIONS

Son Quoc Tran, Phong Nguyen-Thuan Do, **Uyen Le,** and Matt Kretchmar. 2023. The Impacts of Unanswerable Questions on the Robustness of Machine Reading Comprehension Models. In *Proceedings of the 17th Conference of the European Chapter of the Association for Computational Linguistics*, pages 1543–1557, Dubrovnik, Croatia. Association for Computational Linguistics.

RESEARCH EXPERIENCES

Stanford University – Dubra Lab **Palo Alto, CA**
Part-time Research Intern ***Jul 2023 – Oct 2023***
Supervisor: Dr. Alfredo Dubra

- Conducted research on **Adaptive Optics Systems** for retinal imaging, which involved real-time adjustments of scanners to rectify optical distortions and software solutions to generate high quality retinal images.
- Developed an automated **image registration algorithm** in Python, integrated with Cupy, to align snapshots of the retinas, reducing the need for manual work and accelerating data processing.

National Center for Supercomputing Applications – SciAuth Project **Urbana, IL**
Research Fellow ***Jan 2023 – Apr 2023***
Mentor: Dr. Derek Weitzel

- Collaborated on a student-led research project in **cybersecurity**, built on prior work by the **NSF SciTokens** project.
- Built a new module for the SciTokens library based on Python JSON Web Tokens to allow users to generate sample tokens with custom payloads from the command-line, enabling testing and experimentation in **OAuth2 workflows**.
- Incorporated Flask frameworks to demonstrate web token authorization within the SciTokens library.

Denison University – Natural Language Processing Lab **Granville, OH**
Anderson Summer Research Scholar ***Feb 2022 – Aug 2022***
Supervisor: Dr. Matt Kretchmar

- Fine-tuned three variants of **BERT** on SQuAD (Stanford Question Answering Dataset) and conducted extensive experiments to evaluate the robustness of current **machine reading comprehension models**.
- Identified the advantages of fine-tuning models on additional unanswerable questions in improving robustness against adversarial attacks, compared to those fine-tuned solely on answerable questions.
- Conducted extensive literature reviews, synthesized research findings to support key arguments, and actively participated in manuscript drafting of the publication.

CONFERENCE PRESENTATIONS

Uyen Le. 2023. The Impacts of Unanswerable Questions on the Robustness of Machine Reading Comprehension Models. Poster presented at *Nebraska Conference for Undergraduate Women in Mathematics*. [Poster]

INDUSTRY EXPERIENCES

Eureka Robotics **Singapore**
Software Engineer Intern ***Feb 2024 – Aug 2024***

- Conducted an in-depth literature review on Optical Character Recognition (OCR) models and integrated state-of-the-art algorithms into the company's machine learning ecosystem.
- Collected and preprocessed data to finetune deep learning models for customer-specific tasks and requirements, resulting in improved robotic vision performance and smooth automation processes.
- Developed a user interface with Kivy to monitor visual perception models alongside mechanical components.

NCR Corporation – Payments and Networks **Atlanta, Georgia**
Software Engineer Intern ***May 2023 – Aug 2023***

- Led the migration effort of NCR Payments Solutions built in Go and C++ to Azure Kubernetes Service, increasing the system scalability by 2x and achieving availability rate of 99.95%.
- Incorporated Helm and Argo CD to drive continuous delivery, reducing build time by 45% and errors by 75%.
- Streamlined the development process by creating Bash scripts to automate local dev environment setup.

PERSONAL PROJECTS

spec.boots: Bootstrapping Spectral Density [Link]

- Investigated bootstrap methods to obtain a reliable estimation of time series spectral density without dependence on the sample-level periodograms and assumptions about data distribution.
- Implemented and distributed an R package to bootstrap the spectral density of a time series object by resampling the original periodogram, with enhanced accuracy and visual clarity over R's mvspec spectral estimation method.

AWARDS & HONORS

- Provost's Academic Excellence Award (2024) [Link]
- Grace Hopper Scholar by AnitaB.org
- Texas State Summer School in Mathematical Physics (2023) [Link]
- Sigma Xi, The Scientific Research Honor Society
- Alice Hutchinson Lytle Award (2023), *awarded to the senior female with highest cumulative GPA in Math & CS*
- Daniel Donald Bonar Mathematics and Computer Science Award (2023), *for engagement in department initiatives*
- Chosaburo Kato Memorial Award (2022), *awarded to the most promising junior major in Math & CS*
- Forbes B. Wiley Award (2021 & 2022), *to sophomores and juniors for Excellence in Math & CS*
- 1st Place in Four College Math Contest (2022) [Link]

LEADERSHIP & SERVICE

Denison University – Math & CS Department **Granville, OH**
Department Fellow ***Sep 2023 – Dec 2023***

- Collaborated with fellow department members to organize 2 introductory-level CS boot camps for over 60 freshmen.
- Conducted biweekly office hours to offer academic guidance, mentorship, and career support to students.

Denison University – University Honor Committee **Granville, OH**
Academic Integrity Board Member ***Sep 2022 – Dec 2023***

- Participated in hearings related to academic integrity violations and made recommendations for suitable actions.
- Engaged in the academic integrity code revision project that met biweekly to ensure alignment with university values.
- Facilitated monthly discussions with students and faculty aimed at promoting awareness of academic integrity.

Denison University – Student Alumni Council **Granville, OH**
Fundraising and Stewardship Member ***Jan 2023 – May 2023***

- Coordinated with the Office of Institutional Advancement to plan and execute fundraising campaigns for the university, resulting in a $7.8B donation record and the establishment of 50 new funds to support financial aid.
- Represented the student body at alumni events, including homecoming and reunion weekends, to foster student-alumni relationships, provide campus updates, and solicit donations from over 8,000 total donors.