Uyen Le

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EDUCATION

Stony Brook University, Stony Brook, NY — Aug 2024 — Present
Doctor of Philosophy, Computer Science — Cumulative GPA: 3.92/4.00
Research Interests: Optimization Theory for Deep Learning, Adaptive Optimization Methods, Online Learning Theory
Teaching Assistantships: Foundations of CS - CSE 150 (Honors) and CSE 215

Denison University, Granville, OH — Aug 2020 — Dec 2023
Bachelor of Science, Applied Mathematics & Computer Science — Cumulative GPA: 3.98/4.00
Teaching Assistantships: Foundations of CS - CS 234, Computer Systems - CS 281, Differential Equations - MATH 434

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

Stony Brook University, OptiML Group — Stony Brook, NY
Graduate Research Assistant — Sep 2025 — Present

- Investigate first-order optimization algorithms in non-stationary environments through the framework of online convex optimization (OCO), with emphasis on static and dynamic regret guarantees.
- Exploring path-length and variation-based complexity measures to characterize optimizer performance and convergence rate under distribution shift.

Stony Brook University, CEWIT — Stony Brook, NY
Graduate Research Assistant — Feb 2025 — May 2026

- Built hybrid retrieval-augmented generation (RAG) pipelines combining vector databases, knowledge graphs, and LLMs to extract and ground airworthiness requirements for DoD certification and compliance queries.
- Optimized retrieval and graph-based reasoning by refining indexing strategies, ontologies, and GraphRAG methods, achieving 95% output accuracy.
- Researched and implemented Direct Preference Optimization (DPO) algorithms to better align LLM-driven RAG applications with user preferences and domain-specific needs.

National Center for Supercomputing Applications, SciAuth Project — Urbana, IL
Research Fellow — Jun 2023 — Apr 2023

- 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, NLP Lab — Granville, OH
Anderson Summer Research Scholar — Feb 2022 — Aug 2022

- Fine-tuned three variants of BERT large language models 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.

INDUSTRY EXPERIENCES

Eureka Robotics Singapore
Sofware 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.

PROJECTS

spec.boots: Bootstrapping Spectral Density

- 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.

SKILLS

- **Programming:** Python, Go, C++, R, Bash, SQL
- **ML & LLM Tools:** PyTorch, Hugging Face Transformers, PEFT/LoRA, NumPy, SciPy, CuPy, OpenAI API, Anthropic API, Claude Code
- **Frameworks & Infrastructure:** FastAPI, Flask, PostgreSQL, Redis, Docker, Kubernetes, Helm, Argo CD, Git, LaTeX
- **Languages:** English (fluent), Vietnamese (native)

AWARDS & HONORS

- Provost's Academic Excellence Award (2024) Link
- Grace Hopper Scholar by AnitaB.org
- Texas State Summer School in Mathematical Physics (2023) Link
- 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

REFERENCES

Prof. Yifan Sun
Assistant Professor, Computer Science, Stony Brook University, Stony Brook, NY
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Prof. May Mei
Professor, Mathematics, Denison University, Granville, OH
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Zachary Lerman
Senior Software and Data Science Analyst, CEWIT, Stony Brook University, Stony Brook, NY
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