

Deniz Bölöni-Turgut

✉ denizbt@umd.edu 🌐 denizbt.github.io 🔗 linkedin.com/in/deniz-bt 🐙 github.com/denizbt

EDUCATION

Ph.D. Computer Science
University of Maryland, College Park

Advisor: Prof. Mohit Iyyer

Aug 2026 – present
College Park, MD

B.S. Computer Science
Cornell University

GPA: 3.95. Magna Cum Laude. Merrill Presidential Scholar. Advised by Prof. Claire Cardie.

Aug 2022 – May 2026
Ithaca, NY

RESEARCH EXPERIENCE

Undergraduate Research Assistant (NLP)
Cornell University, Computer Science Department

Jan 2024 - present
Ithaca, NY

- **Multi-Author Style Analysis (PAN 2025 Shared Task):** Designed and trained an ensemble model from multiple fine-tuned transformer models for multi-author writing style analysis: given pairs of sentences, identify whether the sentences were written by the same author or different authors (binary classification). Submitted system and published paper to PAN Labs 2025 shared task, achieving average macro F1 score of 0.8.
- **Open Ended Question Evaluation:** Evaluated length bias and self bias in open-ended essay responses by GPT and Llama3 LLMs. Utilized prompt engineering techniques to generate concise and verbose responses, while controlling and measuring semantic overlap. Developed a novel rubric for grading open-ended question responses. Applied inter-annotator agreement (Krippendorff's alpha) among human and LLM essay graders. Advised by Dr. Tanya Goyal and Dr. Claire Cardie.
- **commit0:** Researched coding agents' ability to implement Python packages given only textual specifications and a unit test suite, i.e. starting from commit0 of a GitHub repository.

Undergraduate Research Assistant (Parameter Efficient ML)
University of Central Florida, Mathematics Department

Aug 2025 – present
Hybrid (Orlando, FL)

- Developing sparse low-rank adaptation (LoRA) variants for language models. Advised by Prof. Aritra Dutta.

Undergraduate Research Assistant (ML for Software)
Carnegie Mellon University, Software and Societal Systems Department

May 2023 – May 2025
Pittsburgh, PA

- Developing neural (machine learning) models for decompilation of obfuscated binary code. Compiled a 800GB+ dataset of obfuscated C code. Published paper in proceedings of DIMVA 2025. Advised by Dr. Claire Le Goues.

AWARDS & FELLOWSHIPS

NSF Graduate Research Fellowship (GRFP)

2026

Dean's Fellowship, University of Maryland

Aug 2026

Received fellowship supplement of \$2,500 per year for first two years of PhD.

Merrill Presidential Scholar, Cornell University

May 2026

Award given to top 1% of Cornell's graduating seniors. One of 31 students recognized in 2026.

Honorable Mention, CRA Outstanding Undergraduate Researcher Award

Jan 2025

Annual award given to top ~ 200 undergraduate student researchers in North America.

National Merit Scholar

May 2022

PUBLICATIONS

- [1] **D. Bölöni-Turgut**, D. Verma, and C. Cardie, "Team cornell-1 at PAN: Ensembling Fine-Tuned Transformer Models for Writing Style Analysis," in *Experimental IR Meets Multilinguality, Multimodality, and Interaction. Proceedings of the Sixteenth International Conference of the CLEF Association (CLEF 2025)*, 2025.
- [2] L. Dramko, **D. Bölöni-Turgut**, C. Le Goues, and E. Schwartz, "Quantifying and Mitigating the Impact of Obfuscations on Machine-Learning-Based Decompilation Improvement," in *Proceedings of the IEEE Conference on Detection of Intrusions, Malware, and Vulnerability Assessment*, 2025.

TEACHING

Teaching Assistant, Natural Language Processing (CS 4740) *Jan 2026 - May 2026*

Teaching Assistant, Mathematical Foundations of Computing (CS 2800) *Jan 2025 - May 2025*

Education Chair & Course Lecturer, Cornell Data Science *Jan 2024 - Dec 2024*

- Developed course materials and programming assignments for introductory machine learning class of 50-80 students. Delivered 50 minute weekly lectures for two university semesters. Mentored underclassmen and hosted office hours. Managed all administrative tasks and ensured effective communication with faculty advisor Dr. Rene Kizilcec.

SOFTWARE EXPERIENCE

Data Science Subteam Lead & Technical Lead *Feb 2023 - May 2026*
Cornell Data Science (Engineering Project Team) Ithaca, NY

- Collaborated with peers to design, test, and deploy machine learning software projects with real-world applications. Work includes a ML system to predict winners for FormulaOne races, scalable search engine for mathematical equations, and natural language system to filter papers for open-access online research repository, arXiv.
- Led projects and mentored underclassmen. Presented at final showcase and to advisor Dr. Kilian Weinberger.

Software Development Engineer Intern *Jun 2025 - Aug 2025*
Amazon (Live Creator Tools team) New York, NY

- Designed and implemented an automated content moderation system for Amazon Live streams using computer vision models, reducing operational costs by approximately 88%. Built scalable solution leveraging AWS Step Functions, Lambda, and DynamoDB. Presented design document and product demo to stakeholders.

PROJECTS

LoRA Code Reproduction | *Python, PyTorch, HuggingFace Transformers* *Apr 2025 - May 2025*

- Implemented LoRA for BERT and RoBERTa models from scratch, using methodology in seminal paper. Used PyTorch to inject custom written LoRA modules to self-attention layers of transformers. Fine-tuned BERT and RoBERTa with hyperparameters from paper to reproduce results on natural language understanding benchmark GLUE.

MathSearch | *Python, AWS Lambda, AWS Sagemaker, Docker, YoloV8* *Sep 2023 - May 2024*

- Developed a full-stack ML web application, MathSearch, to solve problem of identifying math equations in PDFs. Led an Agile team of 15 developers through design and implementation of product. Implemented a CI/CD ML pipeline with YoloV8, Mathpix API, and Levenshtein String similarity. Designed scalable and low-latency backend using queuing service, AWS SQS. Deployed with Docker and cloud services AWS Lambda and Sagemaker.

OScrabble Command Line Game | *OCaml, Scrum* *Sep 2023 - Dec 2023*

- Created 1200 line game OScrabble in functional OCaml, inspired by the titular board game. Implemented single and multi-player, easy/hard mode, automatic scoring, and board UI. Collaborated with two developers using Scrum methodology and test-driven development. Achieved 95% line coverage with 100 unit test cases for bug-free gameplay.

SKILLS

Programming Languages: Java, Python, OCaml, C/C++, HTML/CSS/Javascript, MySQL, MATLAB, LaTeX

Machine Learning: PyTorch, NumPy, Pandas, HuggingFace Transformers, Sentence Transformers, Scikit-learn, SciPy, Matplotlib, OpenCV, Pillow, OpenAI/GPT API, Beautiful Soup, Selenium, Wandb, Streamlit

Other: AWS (Lambda, Sagemaker, DynamoDB, Step Functions, SQS, S3, EC2), Docker, Git, Slurm, Linux

PERSONAL

(Natural) Languages: English (native), Turkish (intermediate), Hungarian (beginner), French (intermediate reading)

Hobbies & Interests: Reading (SFF, Jane Austen), language learning, stationery, cognitive philosophy, linguistics