

Isil Ozgu

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Education

University of California, Los Angeles (UCLA)

M.S. [June 2027]/ Ph.D. in Computer Science, Advisor: Prof. Dr. Miryung Kim

Los Angeles, CA, USA
September 2025 - June 2030

BILKENT UNIVERSITY

B.Sc. in Computer Science, Summa Cum Laude
CGPA: **3.83/4.00**

Ankara, Turkey
September 2021- June 2025

Awards

CS Summer Research Award, UCLA June 2026
Bilkent University 100% Merit Scholarship (2024–25), 60% (2022–23), 40% (2023–24)
Bilkent 2024 [Outstanding Responsible Artificial Intelligence Award](#)

Publications

The Parser Already Knows: Lightweight Bias Correction in Constrained Decoding

Isil Ozgu, Yaoxuan Wu, Guy Van den Broeck, Miryung Kim
([arXiv preprint](#))

Accurate and Low-Cost Residual Risk Assessment via Sampled Profiling and Structure-Aware Coverage Amplification

Seongmin Lee, Isil Ozgu, Marcel Böhme, Miryung Kim
([ASE '26](#)) Proceedings of the 41st IEEE/ACM International Conference on Automated Software Engineering,

Assessing Software Evolution with the Stickiness Score
Isil Ozgu, Selen Uysal, Eray Tüzün
(EMSE) Empirical Software Engineering, under revision, 2026

Technical Skills

- **Languages:** Python, SQL, Rust, Java, TypeScript, JavaScript, C++
- **Data Science & Machine Learning:** PyTorch, scikit-learn, pandas, NumPy, HuggingFace, Transformers, LLM APIs (OpenAI), Matplotlib, Seaborn
- **Methodologies & Techniques:** Exploratory Data Analysis (EDA), Statistical Modeling, LLM Architectures, Synthetic Data Generation, Prompt Engineering, Named Entity Recognition (NER)
- **Tools & Infrastructure:** Git, GitHub, Docker, Jupyter Notebook, PostgreSQL, Microsoft Azure, Agile Development

Research Experience

SEAL Lab, UCLA

Los Angeles, CA, USA

Graduate Student Researcher, Supervisor: Prof. Dr. Miryung Kim

June 2025 – Present

- Designing a benchmark and repair framework for LLM-generated property-based tests on partially verified Rust programs, combining **Verus** formal proofs with **proptest** suites and repairing tests via mutation testing, differential testing and AST rewriting.
- Conducted systematic survey of **LLM agent security** benchmarks and defense architectures.
- Developing lightweight bias correction methods for **grammar-constrained decoding** using parser/lexer state features, enabling syntactically valid LLM outputs without distribution distortion.
- Contributed to **residual risk** assessment research for black-box fuzzing using hardware-enabled sampled **profiling**.
- Designed and conducted experiments on bottom-up **fuzzing** strategies for improved test input generation and code coverage analysis.

BILSEN

Ankara, Turkey

Undergraduate Researcher, Supervisor: Assoc. Prof. Dr. Eray Tüzün

January 2024 – June 2025

- Designing and implementing novel methodologies for assessing software evolution regarding code persistence.
- Developed **Atommit** to generate high-quality, atomic commits on real-world codebases using Multi Agent Systems.

Select Projects

PII Detection Stress Testing using Fuzzers as Generators - CS263 NLP

Jan 2026 - Mar 2026

Group Project

- Led the development and implemented an adversarial PII fuzzer utilizing 3 obfuscation operators (1-space, 5-space, and textualization) to generate a 6,000-sample synthetic dataset (1,500 samples per setting) for model stress testing.
- Evaluated 6 distinct PII detection systems, discovering that strict matching models suffer drastic performance drops under obfuscation, with Azure AI's F1 score collapsing from a 68.91% baseline to 3.52% and DataFog dropping to 0.00% under 1-space perturbations.
- Engineered the evaluation pipeline for ChatGPT-5.1, demonstrating state-of-the-art zero-shot robustness by maintaining F1 scores of 64.64% on textualization and 64.40% on 1-space obfuscation, significantly outperforming traditional BERT-based NER pipelines.
- Qualities: **Team Lead, LLMs, Named Entity Recognition (NER), Prompt Engineering, Synthetic Data Generation, Data Privacy.**

Atommit - Bachelors Capstone Project

Sept 2024 - Jun 2025

Group Project

- Directed a 5-person development team as Scrum Master through 2-week Agile sprints, successfully securing \$5,000 in Microsoft Azure infrastructure funding and validating research ideas during bi-weekly supervisor reviews.
- Architected a multi-agent LLM framework consisting of 3 specialized conversational agents (Untangling Agent, Quality Control Agent, and Message Generator) that communicate via an iterative feedback loop to semantically categorize code changes, identify missing diffs, and autonomously correct AI hallucinations. Engineered a state rollback mechanism guaranteed to restore repositories in under 10 minutes upon failure.
- Conducted rigorous alpha testing and exploratory data analysis with 5 senior developers, iterating on the models to ultimately achieve a ~75% satisfaction rate across a 14-developer survey.
- Qualities: **Team Lead, Python, OpenAI API, VS Code API, Git, Microsoft Azure, Figma, FigJam**

Industry Experience

TUBITAK BILGEM YTE (The Scientific and Technological Research Council of Turkey)

Ankara, Turkey

Software Engineer Intern

July 2024 – August 2024

- Led a team of 11 interns to implement a full-stack application for an employee information management system. Implemented secure file systems, integrated 3 subsystems, and resolved 20+ issues.
- Technologies: **Team Lead, Jira, Figma, FigJam, React.js, Next.js, Spring, SpringBoot, Java, TypeScript, Material UI, Git, BitBucket, PostgreSQL**

TECHNARTS

Ankara, Turkey

Software Engineer Intern

June 2024 – July 2024

- Designed and implemented a Notion-inspired full-stack web application with a rich text editor, enabling developers to connect and store notes on various internal documents.
- Technologies: **React.js, Next.js, Django REST Framework, Django, Python, JavaScript, TypeScript, Tiptap, ProseMirror, Material UI, Git, GitHub, PostgreSQL**

MOBILE ACTION

Ankara, Turkey

Data Science Intern

August 2023 – September 2023

- Implemented complex queries for summarizing data and discovering insights. Performed exploratory data analysis, data wrangling, and data visualization operations for 2 datasets (1000+ data points) related to the Google Play Store and App Store.
- Technologies: **Python, Pandas, NumPy, Matplotlib, Seaborn, Scikit-learn, Jupyter Notebook, PyCharm, PostgreSQL, Google Colab, Agile Methodology**