# Burak Yetistiren

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## Education

**University of California, Los Angeles (UCLA)** — Los Angeles, CA, USA
*Ph.D. in Computer Science (Advisor: Miryung Kim)* — *September 2023 - Present*

**Bilkent University** — Ankara, Turkey
*B.Sc. in Computer Engineering (Advisor: Eray Tüzün)* — *September 2018 - June 2022*

**Waseda University** — Tokyo, Japan
*Exchange Study* — *April 2021 - September 2021*

**Bilkent University** — Ankara, Turkey
*Minor in Philosophy* — *September 2020 - June 2022*

## Research Interests

I study *active sensemaking* for developer tools, by designining AI-based human-in-the-loop systems that align tool outputs with developers' mental models via customized summarization, speculative "what-if" analysis, contrastive grouping, and inquiry-based "why/why-not" debugging. I apply these ideas to code search, bug finding, taint analysis, and API evolution, using interpretable models with lightweight active learning, and evaluate impact on accuracy, time-to-decision, and mental workload.

## Publications

1. **Burak Yetiştiren**, Hong Jin Kang, and Miryung Kim. WhyFlow: Interrogative Debugger for Sensemaking Taint Analysis. In Proceedings of the 48th IEEE/ACM International Conference on Software Engineering (ICSE'26). 2026. https://doi.org/10.48550/arXiv.2508.07198

2. **Burak Yetiştiren**, Hong Jin Kang, and Miryung Kim. From noise to knowledge: Interactive summaries for developer alerts, 2025. arxiv. doi.org/10.48550/arXiv.2508.07169 (Under submission at FSE'26)

3. Mahmut Furkan Gön, **Burak Yetiştiren**, and Eray Tüzün. 2024. Towards Unmasking LGTM Smells in Code Reviews: A Comparative Study of Comment-Free and Commented Reviews. In Proceedings of the 40th International Conference on Software Maintenance and Evolution. doi.org/10.1109/ICSME58944.2024.00025

4. **Burak Yetiştiren**, Işık Özsoy, Miray Ayerdem and Eray Tüzün. 2023. Evaluating the Code Quality of AI-Assisted Code Generation Tools: An Empirical Study on GitHub Copilot, Amazon CodeWhisperer, and ChatGPT. arXiv. doi.org/10.48550/arXiv.2304.10778

5. **Burak Yetistiren**, Isik Ozsoy, and Eray Tuzun. 2022. Assessing the quality of GitHub copilot's code generation. In Proceedings of the 18th International Conference on Predictive Models and Data Analytics in Software Engineering (PROMISE 2022). Association for Computing Machinery, New York, NY, USA, 62–71. doi.org/10.1145/3558489.3559072

## Experience

**Graduate Student Researcher** — September 2023 – Current
*UCLA Samueli School Of Engineering, Department of Computer Science* — *Los Angeles, CA, USA*

- I am a Graduate Student Researcher at the Software Evolution and Analysis Laboratory (SEAL) directed by Prof. Dr. Miryung Kim. My research focuses on creating human-in-the-loop approaches to improve developer productivity. These systems that I design aim to reduce both cognitive load and the time developers would spend on post-processing program analysis results, compared to the baseline tools.

**Teaching Assistant** — September 2025 – Current
*UCLA Samueli School Of Engineering, Department of Computer Science* — *Los Angeles, CA, USA*

- I am working as a Teaching Assistant for the CS188 – Rigorous, Agile, Intelligent Systems Engineering course. The course is mostly taken by senior students who want to experience designing complex engineering systems that have multiple components working together like software, electrical, and mechanical subsystems. I assist in guiding project teams through system design, integration, and verification, helping them apply agile and rigorous engineering practices in realistic, multidisciplinary settings.

- Instructor: Maged Elaasar, NASA JPL

**Applied Scientist Intern** June 2025 – September 2025
*Amazon Web Services* *Santa Clara, CA, USA*

- Mentors: Subarno Banerjee and Michael Emmi
- During my internship, I worked in a team developing a dataflow mapping tool. I extended their diagnostic system, used to triage faulty flows produced by static analyses, by building an agentic MCP server-based framework that automated the entire diagnostics pipeline. The system accepted natural language input, approximated user intent by composing queries dynamically, and integrated seamlessly with the existing analysis framework to help engineers better understand and resolve underlying analysis issues.

**Teaching Assistant** March 2025 – June 2025
*UCLA Samueli School Of Engineering, Department of Computer Science* *Los Angeles, CA, USA*

- I worked as a Teaching Assistant for the CS130 Software Engineering course taken mostly by junior and senior undergraduate students majoring in Computer Science at UCLA.
- Instructors: Michael Burns, Eric Hennigan, and Philo Juang @Google

**Teaching Assistant** September 2024 – December 2024
*UCLA Samueli School Of Engineering, Department of Computer Science* *Los Angeles, CA, USA*

- I worked as a Teaching Assistant for the CS130 Software Engineering course taken mostly by junior and senior undergraduate students majoring in Computer Science at UCLA.
- Instructor: Maged Elaasar, NASA JPL

**Undergraduate Researcher** July 2021 – September 2023
*Bilkent University Software Engineering and Data Analytics Research Group (BILSEN)* *Ankara, Turkey*

- I worked under the supervision of Assoc. Prof. Dr. Eray Tuzun. My research focused on the empirical evaluation of code generation tools like GitHub Copilot, Amazon CodeWhisperer, and ChatGPT, in terms of their code generation accuracies and potential limitations. In that regard, my paper named "Assessing the Quality of GitHub Copilot's Code Generation" was accepted to appear in the "18$^{th}$ International Conference on Predictive Models and Data Analytics in Software Engineering (PROMISE '22)".
- I regularly and systematically reviewed the papers of other members in my lab to find the points to be improved before submission.

**Machine Learning & Computer Vision Intern** July 2021 – September 2021
*ArgosAI Technology* *Ankara, Turkey*

- I trained a generative adversarial network with the images captured in one airport to generate images that can be used as training data for another airport. I utilized the "SPA-GAN: Spatial Attention GAN (Generative Adversarial Networks) for Image-to-Image Translation" architecture in my model.

**Software Development Intern** June 2021 – July 2021
*JotForm Inc.* *Ankara, Turkey*

- I developed two React.js web applications: a to-do list with drag-and-drop and real-time updates, and a form handler that collects and displays submission data. I utilized Redux for state management.

**Machine Learning Intern** July 2020 – August 2020
*Bilkent University* *Ankara, Turkey*

- I implemented a deep learning model, which predicts COVID-19 negative and positive cases with 70% precision using lung CT scans. I worked under the supervision of Prof. Dr. Cigdem Gunduz-Demir.

## Invited Talks

1. "Assessing the Quality of GitHub Copilot's Code Generation", invited talk at Microsoft PROSE Team, January 18, 2023.

## Service

**Junior Program Committee Member** October 2025 – Current
*Mining Software Repositories (MSR) 2026*

- Serving on the Junior Program Committee for the Mining Software Repositories (MSR) 2026. Reviewing research papers, receiving mentorship from senior committee members, and participating in discussions to refine review quality and consensus decisions.

**Student Volunteer** October 2024
*NSF*

- Provided help with tasks like registration and technical support during the sessions, assisting the session chairs during the 40th International Conference on Software Maintenance and Evolution (ICSME '24).

## Conferences/Workshops Attended

1. **OOPSLA '24**: Object-oriented Programming, Systems, Languages, and Applications. Pasadena, CA, USA, October 2024.
2. **ICSME '24**: The 40$^{th}$ International Conference on Software Maintenance and Evolution. Flagstaff, AZ, USA, October 2024. **(paper presentation)**
3. **ESEC/FSE '23**: The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering. San Francisco, CA, USA, December 2023.
4. **MAPS '23**: The 7th Annual Symposium on Machine Programming. San Francisco, CA, USA, December 2023.
5. **PROMISE '22**: 18th International Conference on Predictive Models and Data Analytics in Software Engineering. Singapore, Singapore, November 2022. **(paper presentation)**
6. **ESEC/FSE '22**: The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering. Singapore, Singapore, November 2022.

## Awards

**NSF Student Travel Award** October 2024
*NSF*
- Support to attend ICSME'24 sponsored by NSF.

**NSF Student Travel Award** December 2023
*NSF*
- Support to attend The 7th Annual Symposium on Machine Programming (MAPS) sponsored by NSF.

**SIGSOFT CAPS Award** September 2022
*ACM*
- Support to attend the ESEC/FSE'22 and PROMISE'22 conferences sponsored by ACM SIGSOFT.

**Honor Student (*Cum Laude*)** June 2022
*Bilkent University*
- I earned my B.Sc. in Computer Engineering degree with *Cum Laude* standing.

## Projects

**Rhapso** | *Technologies used: Java, Android Studio* September 2021 – May 2022
- **Capstone Project**
- Online closet service
- Shopping suggestions considering already existing clothes of the user, suggesting environmentally sustainable alternatives.

**Airline Customer Satisfaction Predictor** | *Technologies used: Python* February 2021 – May 2022
- Project for **EEE485, Statistical Learning and Data Analytics** course
- Implemented a system that predicts the customer satisfaction for given parameters like Gender, Customer Type, Age, etc.
- Used and compared ML Techniques: Principal Component Analysis, Naive Bayes, Neural Networks, Random Forests

**Annexation Game** | *Technologies used: Java, JavaFX* September 2020 – December 2020
- Project for **CS319, Object Oriented Software Engineering** course
- Implemented classical RISK board game with new features.

**Turna** | *Technologies used: C* September 2020 – November 2020
- Project for **CS315, Programming Languages** course
- Designed a programming language for drones.
- Implemented lexical analyzer and parser for the language.

**SwapSwop** | *Technologies used: Java* February 2019 – May 2019
- Project for **CS102, Algorithms and Programming** course
- Allowed users to post their items and the tasks they can swap.

## Skills and Abilities

**Natural Languages**: Turkish (Native), English (*CEFR Level:* C1, Full-Professional Proficiency), German (*CEFR Level:* C1, Professional Working Proficiency), Japanese (Elementary)
**Programming Languages**: Python, Java, C++, JavaScript
**Developer Tools**: Git, GitHub, GitHub Copilot, OpenAI API
**Applications**: Visual Studio IDE, Android Studio, IntelliJ IDEA, PyCharm IDE, Microsoft Office, LaTeX

## Certificates

**TOEFL iBT English Proficiency Test** November 2021
*ETS*
- Reading: 28/30, Listening: 29/30, Speaking: 23/30, Writing: 28/30, Total: 108/120

**German Language Proficiency Certificate** May 2018
*Federal Office of Administration*
- Level: C1

## Community & Extracurricular Activities

**Grader** September 2021 – January 2022
*Bilkent University* *Ankara, Turkey*
- Graded quizzes of mostly first-year students for the Introduction to Calculus (MATH101) course, which I have taken in my first year.

**Volunteer** February 2019 – June 2019
*Bilkent Social Awareness Projects (TDP)* *Ankara, Turkey*
- The Sun Rises from the Village Project (GUNKOY): Visited a village primary school in Tasova, Amasya, Turkey, to provide some schools needing a library by building one. Made some fun activities for the kids. Collected donations to be delivered to the village school before the visit.
- Railway Line Support Project (DHDP): Visited a village middle school in Dursunbey, Balıkesir, Turkey, to conduct science, arts, and sports activities. Informed the kids about the education opportunities they have for their future. I was the head of the periodic table team in this project. With my team, we collected supplies for a permanent periodic table construction for the science lab, and we constructed the table.

## Hobbies and Interests

**Travelling**: Visited USA, UK, Canada, Germany, France, Switzerland, Austria, Italy, Hungary, Tanzania, Kyrgyzstan, Thailand, China, Hong Kong, Japan, Malaysia, South Korea, Singapore, and my homeland Turkey.
**Classical Music**: I like to go to live classical music performances. Visit my YouTube channel to see some live performances I recorded.