

# Mehmet Arif Demirtas

📍 Champaign, IL, USA    ✉ mehmetarifdemirtas@gmail.com    ☎ +1 217 841 2175    🌐 marifdemirtas.github.io  
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## Summary

I'm **Arif** (he/him)! In my research, I explore how students learn programming and design tools to support flexible instruction and evaluation by using human-computer interaction and educational data mining methods.

## Education

### University of Illinois Urbana-Champaign

Aug 2023 – (Exp.) May 2028

Ph.D., Computer Science

- **Thesis Advisor:** Dr Katie Cunningham
- **Research Interests:** Computer Science Education, Human-Computer Interaction

### Istanbul Technical University

Sep 2018 – Jan 2023

BSc., Computer Engineering

- **Thesis Project:** *Automated Realistic Lip Sync Generation for Unconstrained Videos*, advised by Dr Hazim Kemal Ekenel

## Experience

### Research Engineer

London, UK (Remote)

Vitamu

April 2022 – June 2023

- Trained breast cancer detection and localization algorithms using **PyTorch** in a startup environment
- Trained and deployed deep learning models with **FastAPI** on **Google Cloud** for inference
- Migrated development architecture from **AWS** to **Google Cloud** and refactored development environments

### R&D Engineer

Istanbul, Turkey

Yapi Kredi Teknoloji

Aug 2021 – April 2022

- Worked in the **NLP** team of the R&D department of Turkey's third largest bank
- Contributed to a ML pipeline written with **PyTorch** that processes more than 10k documents per day
- Integrated new classifiers into the existing microservice architecture with **Java**
- Designed a novel approach for parsing multi-page documents with multimodal embeddings, presented at **ICPR 2022**

## Selected Publications

### PLAID: Supporting Computing Instructors to Identify Domain-Specific Programming Plans at Scale

2025 ACM Conference on Human Factors in Computing Systems (CHI 2025)

Yoshee Jain\*, **Mehmet Arif Demirtas\***, Kathryn Cunningham

### Validating, Refining, and Identifying Programming Plans Using Learning Curve Analysis on Code Writing Data

2024 ACM Conference on International Computing Education Research (ICER 2024)

**Mehmet Arif Demirtas**, Max Fowler, Nicole Hu, Kathryn Cunningham

### Reexamining Learning Curve Analysis in Programming Education: The Value of Many Small Problems

17th International Conference on Educational Data Mining (EDM 2024)

Mehmet Arif Demirtaş, Max Fowler, Kathryn Cunningham

### Semantic Parsing of Interpage Relations

26th International Conference on Pattern Recognition (ICPR 2022)

Mehmet Arif Demirtaş, Berke Oral, Mehmet Yasin Akpınar, Onur Deniz

### Predicting cognitive scores with graph neural networks through sample selection learning

Brain Imaging and Behavior 16, 3 (2021)

Martin Hanik\*, Mehmet Arif Demirtaş\*, Mohammed Amine Gharsallaoui, Islem Rekik

## Skills

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**Code & Technologies:** Python, PyTorch, JavaScript, C++/C, HTML/CSS, Docker, Bashscript, AWS/Cloud Technologies

**Research Methods:** Mixed Methods Research, Semi-structured Interviews, Think-aloud Studies, Educational Data Mining, Student Modeling

## Professional Development

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**Panel,** SIGCSE Virtual 2024

*December 2024*

- Moderated the panel *Challenges and Solutions for Teaching Decomposition and Planning Skills in CS1*, with Dr Eliane S Wiese, James Finnie-Ansley, Dr Rodrigo Duran, Dr Kathryn Cunningham

**Doctoral Consortium,** EDM 2024

*July 2024*

- Attended the doctoral consortium program at EDM 2024, led by Dr Neil Heffernan
- Presented *Identifying and Evaluating Novel Knowledge Component Models for Programming Skills* as a poster

**Doctoral Consortium,** SIGCSE Virtual 2024

*December 2024*

- Attended the doctoral consortium program at SIGCSE Virtual 2024, led by Dr Colleen Lewis and Dr Lauri Malmi

## Teaching & Service

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**Lecturer,** ITU ACM Student Chapter

*Sept 2022 - Dec 2022*

- Held introductory Python lectures and supervised hands-on tutorial sessions for more than 100 students.

**Guide & Mentor,** [inzva.com](https://inzva.com) 

*Oct 2021 - Nov 2022*

- Contributed to Google Developers Machine Learning Bootcamp and deep learning study groups at inzva hackerspace in Istanbul
- Gave lectures on object detection, face recognition, and neural style transfer to more than 100 students as part of the bootcamp
- Mentored more than 30 students in 4-week periods over a year