Mehmet Arif Demirtas

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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

AI/ML Research Intern *Iowa City, IA, USA (Remote)*
ACT Inc. *June 2025 – Aug 2025*

- Carried out a human-centered design project for identifying design opportunities for question authoring tools for subject matter experts.
- Implemented a prototype for supporting question ideation through LLM-generated suggestions in a visual interface.

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

Generating Planning Feedback for Open-Ended Programming Exercises with LLMs
International Conference on Artificial Intelligence in Education (AIED 2025)
Mehmet Arif Demirtas, Claire Zheng, Max Fowler, Kathryn Cunningham

Integrating Expert Knowledge With Automated Knowledge Component Extraction for Student Modeling
33rd ACM Conference on User Modeling, Adaptation and Personalization (UMAP 2025)

Rafaella Sampaio de Alencar, **Mehmet Arif Demirtas**, Adittya Soukarjya Saha, Yang Shi, Peter Brusilovsky

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 Demirtaş, 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

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

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

Course Support, Breakthrough Tech *May 2025 - Aug 2025*

- Supported the small group discussions in the lectures for the 9-week ML Foundations course with 52 students.
- Provided feedback on the weekly assignments.

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 *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

U of Illinois Urbana-Champaign

Unofficial Academic Transcript

This is not an official transcript. Courses which are in progress may also be included on this transcript.

Transcript Data

STUDENT INFORMATION

Name
Arif Demirtas

Birth Date
08-MAY

Most Recent Primary Program

Doctor of Philosophy

College
Graduate College

Major and Department
Computer Science, Siebel School Comp & Data Sci

INSTITUTION CREDIT

Term: Fall 2023 - Urbana-Champaign

College: Graduate College
Major: Computer Science
Academic Standing: ***

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
CS	591	Urbana-Champaign	1G	PHD Orientation Seminar	S	1.000	0.00	
CS	597	Urbana-Champaign	1G	Individual Study	A	4.000	16.00	
CS	598	Urbana-Champaign	1G	Research Methods in HCI	A+	4.000	16.00	
CS	598	Urbana-Champaign	1G	Foundations for Comp. Ed Res.	A	4.000	16.00	

Term Totals (Graduate - Urbana-Champaign)	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term	13.000	13.000	13.000	12.000	48.00	4.00
Cumulative	13.000	13.000	13.000	12.000	48.00	4.00

Term: Spring 2024 - Urbana-Champaign

College: Graduate College
Major: Computer Science
Academic Standing: ***

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
CS	491	Urbana-Champaign	1G	Intro to Inclusive Terminology	S	1.000	0.00	
CS	500	Urbana-Champaign	1G	Topics in Comp Ed Rsrch	A+	4.000	16.00	
CS	597	Urbana-Champaign	1G	Individual Study	A	4.000	16.00	
CS	597	Urbana-Champaign	1G	Individual Study	A	4.000	16.00	

Term Totals (Graduate - Urbana-Champaign)	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term	13.000	13.000	13.000	12.000	48.00	4.00
Cumulative	26.000	26.000	26.000	24.000	96.00	4.00

Term: Fall 2024 - Urbana-Champaign

College: Graduate College
Major: Computer Science
Academic Standing: ***

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
CS	597	Urbana-Champaign	1G	Individual Study	A	2.000	8.00	
EPSY	580	Urbana-Champaign	1G	Statistical Inference in Educ	A-	4.000	14.68	
EPSY	590	Urbana-Champaign	1G	Generative AI in Education	A	4.000	16.00	

Term Totals (Graduate - Urbana-Champaign)	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term	10.000	10.000	10.000	10.000	38.68	3.86
Cumulative	36.000	36.000	36.000	34.000	134.68	3.96

Term: Spring 2025 - Urbana-Champaign

College	Major	Academic Standing
Graduate College	Computer Science	***

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
CS	500	Urbana-Champaign	1G	Broadening Particip in CS Ed	A-	4.000	14.68	
CS	568	Urbana-Champaign	1G	User-Centered Machine Learning	A	4.000	16.00	
CS	597	Urbana-Champaign	1G	Individual Study	A	2.000	8.00	

Term Totals (Graduate - Urbana-Champaign)	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term	10.000	10.000	10.000	10.000	38.68	3.86
Cumulative	46.000	46.000	46.000	44.000	173.36	3.94

Term: Summer 2025 - Urbana-Champaign

College	Major
Graduate College	Computer Science

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
CS	599	Urbana-Champaign	1G	Thesis Research	DFR	2.000	0.00	

Term Totals (Graduate - Urbana-Champaign)	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term	2.000	0.000	0.000	0.000	0.00	
Cumulative	48.000	46.000	46.000	44.000	173.36	3.94

TRANSCRIPT TOTALS

Transcript Totals (Graduate - Urbana-Champaign)	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Total Institution	48.000	46.000	46.000	44.000	173.36	3.94
Total Transfer	0.000	0.000	0.000	0.000	0.00	0.00
Overall	48.000	46.000	46.000	44.00	173.36	3.94

COURSE(S) IN PROGRESS

Term: Summer 2025 - Urbana-Champaign

College	Major
Graduate College	Computer Science

Subject	Course	Campus	Level	Title	Credit Hours
ESL	504	Urbana-Champaign	1G	English Pronunciation for ITAs	0.000

Term: Fall 2025 - Urbana-Champaign

College	Major
Graduate College	Computer Science

Subject	Course	Campus	Level	Title	Credit Hours
CS	441	Urbana-Champaign	1G	Applied Machine Learning	4.000
CS	447	Urbana-Champaign	1G	Natural Language Processing	3.000
CS	591	Urbana-Champaign	1G	Teaching Assistant Training	1.000
EPSY	575	Urbana-Champaign	1G	Mixed Method Inquiry	4.000
ERAM	552	Urbana-Champaign	1G	Role of Theory in Ed Research	4.000