

Berat Tuna Karli

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WORK EXPERIENCE

Synnada

Jan 2022 — Present

Lead Machine Learning Engineer - Founding Engineer

Austin, TX, United States - Full Time - Remote

- Building an ML compiler from scratch (open source part: [Mithril](#)) with modular model composition on logical level, model compilation (flattened graph optimizations + language & framework agnostic code generation), and flexible parallelizability and training.
- Implementing e2e compilable SOTA models like Flux and WAN.
- Developing a robust optimizer that eliminates the need for hyper-parameter tuning and post-training quantization.
- Building & deploying e2e agentic workflows.
- Leading a team of 4-5 engineers since September 2023.

METU - Deep Learning & Computer Vision Lab

Sep 2020 — Dec 2021

Graduate Research Assistant

Ankara, Turkey - Full Time - On-site

- Developed novel methods to improve perceptual quality of adversarial examples using perceptual distance minimization and variance-based weighting schemes, achieving quantitative improvements on NIPS2017 datasets.
- Designed training algorithms for universal adversarial perturbations with alternating loss functions, achieving 95% fooling rate.
- Created imperceptible adversarial examples via spatial chroma-shift transformations in color channels.

Monty Labs

Jun 2019 — Jul 2020

Full Stack Developer

Ankara, Turkey - Full Time - On-site

- Developed “Trackr”, an Active Tracking System utilizing Beacon Technology for real-time indoor employee monitoring and analytics where GPS doesn’t work, enabling managers to locate personnel across venues and analyze performance metrics.
- Built web applications providing real-time data visualization and reporting dashboards for decision-making, reducing overtime costs.
- Implemented IoT-based B2B software solutions for businesses, integrating sensor networks with analytics platforms for venue management.

RESEARCH INTERNSHIPS

Bilkent University

Oct 2018 - Aug 2019, Ankara, Turkey

- **Research Assistant:** Conducted research on predictive processing with Dr. Burcu Ürgen.

Universiteit Gent - Verguts Lab

Jul 2018 - Sep 2018, Ghent, Belgium

- **Research Intern:** Conducted multi-step decision-making project (computational modelling, parameter optimization).

Bogazici University - Neuro-signal Lab

Jul 2017 - Sep 2017, Istanbul, Turkey

- **Research Intern:** Conducted research under Prof. Dr. Ahmet Ademoglu’s supervision.

PUBLICATIONS & TALKS

- ACM Hour of AI series (Talk): Explore Agent AI Systems - Bilkent University **2025**
- AAAI-22: [Improving Perceptual Quality of Adversarial Images Using Perceptual Distance Minimization](#) **2022**
- AAAI-22: [Training Universal Adversarial Perturbations with Alternating Loss Functions](#) **2022**
- ACM Multimedia 2021: [Imperceptible Adversarial Examples by Spatial Chroma-Shift](#) **2021**
- [Rapid X-Ray Chest Radiograph and Mortality Rate Evaluation With AI For COVID-19](#) **2020**

SKILLS

- **Programming Languages:** Python, C, C#, Rust, R, Java
- **ML Technologies:** PyTorch, JAX, MLX, GGML, TensorFlow, CUDA, Optuna, Weights & Biases
- **Other Technologies:** LangChain, LangGraph, FastAPI, AWS, GCP, Ray, Docker, Kubernetes, Kafka, Firebase, Git

EDUCATION

Middle East Technical University

Sep 2019 — Dec 2022

Master of Science, Information Systems (Deep Learning)

Ankara, Turkey

- Thesis: [Attack Independent Perceptual Improvement of Adversarial Examples](#)
- TUBITAK 1001 Scholarship

Bilkent University

Sep 2014 — Jun 2019

Bachelor of Science, Computer Science

Ankara, Turkey

- Comprehensive Scholarship