Ozan Baris Mulayim

Ph.D. Student at CMU

Pittsburgh, USA   ozanbarismulayim@gmail.com   +14129293382

linkedin.com/in/ozanbarismulayim   09/08/1998

Education

Ph.D. in Engineering, *Carnegie Mellon University*
08/2022 – present | Pittsburgh, USA
CGPA: 4.00/4.00
Selected Coursework: Introduction to Machine Learning, Deep Reinforcement Learning & Control, User-defined Sensing Systems, Signals & Systems.

B.Sc. in Engineering,
Middle East Technical University
08/2016 – 07/2021 | Ankara, Turkey
CGPA: 3.89/4.00
Rank: 1/337
Selected Coursework: Uncertainty and Data Analysis, Evolutionary Optimization, Programming For Engineers, Computer Applications in Eng.

Professional Experience

Politecnico Di Milano, *Visiting Researcher*
04/2022 – 07/2022 | Milan, Italy
- Non-Dominated Sorting Genetic Algorithm-II (NSGI-II) guided preliminary design of bridges with environmental, economical and aesthetic objectives.

BOLINA Ingegneria S.R.L., *ERASMUS Intern*
08/2021 – 11/2021 | Venice, Italy
- Seismic risk analysis
- Building Information Modeling
- Data-driven cost estimation of seismic renovation

BridgeWIZ Engineering, *Engineer*
07/2020 – 10/2020 | Ankara, Turkey
- A Camera and laser based CNN application to measure the diameters of the tree trunks
- Physics-based ML approach for analyzing a new seismic isolation bearing
- Drone-based site inspections of bridges and highways
- Analysis of acceleration data collected from multiple bridges for damage detection

Publications

Unmasking the Thermal Behavior of Single-Zone Multi-Room Houses: An Empirical Study 🔗
BuildSys '23: ACM International Conference on Systems for Energy-Efficient Buildings

Skills

Programming *(Python, MATLAB, C++, SPARQL)*

Deep RL *(PPO, MuZero, DDPG, A3C)*

Data Science *(Scikit-learn, Pandas, PyTorch, TensorFlow, Ray, PySpark)*

Computer Vision *(CNNs, Contrastive Learning)*

Semantic Ontologies *(Brick, Haystack, 223p)*

Signal Processing *(Fourier Transforms, Filter Design, Convolution)*

Evolutionary Optimization

System Identification *(SciPy, SysIdentPy)*

Hardware *(Particle Argon, Raspberry Pi)*

PhD Research

Representation of Energy Flexibility with a semantic ontology,
funded by PITA and Johnson Controls
05/2023 – present
- Aim: Facilitating application portability across building automation systems through machine-readable descriptions of physical environments.

Leveraging sensor networks for flexibility and comfort
08/2022 – 08/2023
- Data Scale: Handled extensive datasets involving 5-minute resolution data from 1000 houses, equipped with multiple sensors, for the entire year of 2017.
- ML-Driven Analysis: Employed ML techniques for enhancing comfort in multi-room single zone houses using smart thermostats and sensor data.
- Physics-Based Modeling: Applied physics-based ML algorithms to analyze and model energy dynamics in 100 residential units, each equipped with sensor networks comprising 6 nodes.

Awards

Fulbright, *Principal Nominee, 2022-2023, ($100K)*

Stanford University CEE Fellowship

UC Berkeley CEE fellowship