Ufuk A.
Senior Python/ML Engineer, Data Scientist

SUMMARY

- Applied data scientist and MLOps engineer with 5+ years in PHY security and ML for wireless systems. - End-to-end ML delivery: data wrangling, feature engineering, model development (scikit-learn, PyTorch), evaluation, and CI-friendly deployment. - Built ML-driven performance measurement and scheduling/optimization services; exposed via REST APIs; productionized on Microsoft Azure (ML Studio, Function Apps). - Strong data engineering foundation: SQL modeling and queries (Azure Data Studio), data pipelines, and reproducible experimentation. - Methods expertise: supervised/unsupervised learning, reinforcement learning, adversarial/robust modeling, optimization techniques. - Practical MLOps: containerized services, API design, monitoring-oriented deployment patterns, version control (Git). - Domain background: physical-layer authentication, anti-jamming/anti-spoofing, and federated/edge learning research. - Track record of translating complex problem statements into scalable, measurable data products with clear product impact.

TECHNICAL SKILLS

Main Technical Skills	Python
Programming Languages	Julia, Python
.NET Platform	Azure
AI & Machine Learning	Machine Learning, NumPy, PyTorch, Scikit-learn
Python Libraries and Tools	Matplotlib, NumPy, Pandas, PyTorch, Scikit-learn
Data Analysis and Visualization Technologies	Data Analysis, ETL, ML, Pandas, Power BI
Databases & Management Systems / ORM	dbt, SQL
Cloud Platforms, Services & Computing	Azure
Azure Cloud Services	Azure Data Studio
Google Cloud Platform	Google Data Studio
SDK / API and Integrations	API
QA, Test Automation, Security	Authentication, Security

Deployment, CI/CD & Administration	CI/CD
Version Control	Git
Third Party Tools / IDEs / SDK / Services	MatLab
Methodologies, Paradigms and Patterns	REST
Other Technical Skills	Data Scientist, Function Apps, MLOps, ML Studio, PHY, Version Control

EXPERIENCE

Data Scientist - Frontliners.ai

October 2022 – Present

- Developed the AI-based Performance Measurement Model using Machine Learning libraries and the Scheduling Model using optimization libraries in Python.
- Created RestAPI's for the models in Microsoft Azure. Managed ML Studio and Function App resources in Microsoft Azure.
- These models made Frontliners application stand out among competitors, increasing the number of users significantly.
- Used Azure Data Studio to run SQL queries to manage user data.

Machine Learning Engineer - TUBITAK

June 2020 – July 2022

- Designed physical layer security models in the "AI-based 6G Next Generation Communication Systems" Project of National Leader Researchers Program of TUBITAK (Project No: 121C254) as a part of the PhD studies.
- Developed ML-based anti-spoofing models and Reinforcement Learning-based anti-jamming models.

R&D Engineer - ASELSAN

May 2019 – June 2020

- Designed Index Modulation-based anti-jamming communication systems.

PERSONAL PROJECTS

Domain Generalization via Gradient Surgery

- Worked on the Domain Generalization problem of Deep Learning applications and investigated the state-of-the-art solutions including gradient surgery, multitask learning, adversarial feature learning and model agnostic learning of semantic features.
- Implemented a gradient surgery method for domain generalization with Python and Julia.
- Conducted experiments on PACS, VLCS and Office-Home image datasets.

Federated Learning via Over-the-Air Computation

- Conducted in-depth research on cutting-edge Machine Learning and Federated Learning models.
- Collaborated on integrating Federated Learning methods into wireless networks and edge computing systems.
- Performed extensive testing of the FedAvg algorithm using the CIFAR-10 dataset in MATLAB.

Highlighted Publications

- U. Altun and E. Basar, "A Reinforcement Learning-Assisted OFDM-IM Communication System against Reactive Jammers," in IEEE Transactions on Cognitive Communications and Networking.
- Altun, U., Basar, E. Machine Learning-Based PHY-Authentication Without Prior Attacker Information for Wireless Multiple Access Channels. Wireless Pers Commun 135, 1383–1396 (2024).
- B. Ozpoyraz, A. T. Dogukan, Y. Gevez, U. Altun and E. Basar, "Deep Learning-Aided 6G Wireless Networks: A Comprehensive Survey of Revolutionary PHY Architectures," in IEEE Open Journal of the Communications Society, vol. 3, pp. 1749–1809, 2022.
- U. Altun, S. T. Basaran, G. K. Kurt and E. Ozdemir, "Scalable Secret Key Generation for Wireless Sensor Networks," in IEEE Systems Journal, vol. 16, no. 4, pp. 6031–6041, Dec. 2022.
- U. Altun, G. Karabulut Kurt and E. Ozdemir, "The Magic of Superposition: A Survey on Simultaneous Transmission Based Wireless Systems," in IEEE Access, vol. 10, pp. 79760–79794, 2022.

EDUCATION

Ph.D. in Electrical and Electronics Engineering

Koc University / Turkey

09.2020–06.2025