Ismail Uluturk

https://uluturki.github.io/ • https://github.com/uluturki • uluturki@gmail.com • +1 (352) 222-6146

SUMMARY

PhD on engineering applications of **Machine Learning** and **Data Science** with a firm grasp of the entire stack from hardware and embedded software to web, with 9 years of R&D experience over 2 **start-ups**.

EDUCATION

University of South Florida, Tampa, Florida, USA

- PhD in Electrical Engineering — Jan 2013 – May 2020
  - Research Focus: Machine Learning applications for wireless and techno-social networks.
  - Teaching: **Deep Learning**, Signals & Systems. Handled all projects and programming assignments.

Istanbul Technical University, Istanbul, Turkey

- B.S. in Electrical Engineering. — Sep 2008 – Jun 2012

INDUSTRY EXPERIENCE

Algorithm Engineer at **Skylo**, Palo Alto, California, USA — Jan 2021 – Present

- Designed and implemented an adaptive concave hull algorithm to calculate the mobile equipment coverage area; ~10x reduction of error against baseline over a representative test set. *Python* and *Java*.
- Designed and implemented an online algorithm to run on a resource constrained *embedded platform* to improve GNSS performance; ~4x average improvement in CEP on real hardware. *Python* and *C*.
- Implemented an algorithm for compensating Doppler shift resulting from orbital mechanics of geostationary satellites; ~7x average, ~3x worst case margin to maximum tolerable error. *Python*.
- Ownership of 3 modules related to core network (satellite NB-IoT), application, and embedded firmware.
- Supported international development and product teams with specialist expertise, developed PoCs.

R&D Engineer at **Borda Technology**, Istanbul, Turkey & Tampa, Florida, USA — Sep 2010 – Oct 2018

- Solution R&D for an IoT and RTLS product that is currently deployed in multiple hospitals where I worked on virtually every aspect from concept to deployment in a fast-paced start-up environment.
- Developed an indoor localization system with room level resolution for healthcare settings.
  - Hybrid solution using Machine Learning and purpose-designed hardware.
- Wrote *Embedded Firmware* in *C* for ARM and MSP430 platforms, both on bare metal and with an RTOS.

TECHNOLOGY SKILLS

- 7+ years Python experience for data ETL, analysis, visualization, and simulations and machine learning.
  - TensorFlow, Keras, pandas, NumPy, scikit-learn, Matplotlib, NetworkX, Plotly, Bokeh, Flask, ...
- 4+ combined years of C and Embedded Software development experience, bare metal and with RTOS.
- Experienced in Data ETL and Scraping, Web (JavaScript, HTML, CSS), R, MATLAB, Git.
- Familiar with SQL, C++, RESTful APIs, GNU/Linux systems, NLP, Heroku, compute clusters.
- Working understanding of wireless protocols; NB-IoT(3GPP), ISO18000-6, Bluetooth, ...

SELECT RESEARCH PROJECTS

Collaborative Trajectory Control for Aerial Networks: Decentralized multi-agent trajectory planning of UAV based access points to implement a flexible aerial Radio Access Network (RAN) that can be rapidly deployed in previously unknown environments, utilizing Network Science and Reinforcement Learning.

SANCHO: Data informed model examining staffing strategies to handle healthcare worker absenteeism while accounting for the structured contact-network heterogeneity, with a case study of a COVID-19 Hospital in Central Florida using real data. Simulations & Analysis in *Python*.

SELECT OPEN SOURCE

social-annotate: A configurable and extendable data collection tool that simplifies manual annotation of users and content natively on social media platforms. Open-source, main author and maintainer. *JavaScript*.

PUBLICATIONS

- 4 Journal Articles (1 under review), 1 Book Chapter, 5 Refereed Conferences. Click for full list.

GRADUATE CLASSWORK

▪ Deep Learning ▪ Data Mining ▪ Random Processes ▪ Network Science ▪ Mathematical Statistics
▪ Statistical Inference ▪ Statistical Pattern Recognition ▪ Digital Signal Processing I&II ▪ Wireless Networks