SERHAT TADIK

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EDUCATION

Georgia Institute of Technology Aug 2022 - Present
PhD in Applied Machine Learning GPA: 4/4
School of Electrical & Computer Engineering

Bogazici University Sep 2016 - Feb 2022
Department of Electrical & Electronics Engineering, Double Major in Physics Overall GPA: 3.79/4

Washington University in St. Louis Jan - June 2020
Student Exchange Program *SPA: 3.94/4*

Attended the Student Exchange Program in the School of Engineering

TECHNICAL STRENGTHS

Computer Languages Python, MATLAB, Julia, SQL, C, C++
Frameworks & Tools PyTorch, PyG, MongoDB, Git, Streamlit, Tensorflow, GIS, OSM

PUBLICATIONS & REVIEW

Journal

· Augmented RF Propagation Modeling
***S. Tadik**, M. A. Varner, F. Mitchell, G. D. Durgin*

· Digital Spectrum Twins for Enhanced Spectrum Sharing and Other Radio Applications *(To be Published)*
***S. Tadik** et al.*

Conference

· G-HCF: Product Recommendation by GNN Based Hybrid Collaborative Filtering
***S. Tadik**, S. Guzel, K. Cullu, B. Acar*

Reviewer

· IEEE Transactions on Cognitive Communications and Networking

EXPERIENCE

The Propagation Group @ GT Aug 2022 - Present

· Took part in the implementation of an ambient scatter communications system. Worked on a complex-valued neural network demodulation technique in Python using PyTorch that outperforms conventional demodulation techniques such as matched filtering.

· Improving existing electromagnetic wave propagation models by applying regularized regression-based error correction to the models considering channel and propagation characteristics in Python (PyTorch) and MATLAB. Includes feature design & engineering and a multilayer regression model. The proposed model enables a 58% to 87% reduction in loss difference (error) variance.

· Designing digital spectrum twins for tracking historical and current usage of radio spectrum and predicting future patterns and usage. Designing aggregation rules to combine received signal strength, variance, duty cycle, and confidence values for various radio users in a region of interest using georeferenced maps. Utilized GIS, OSM, Python, and MATLAB.

Caretta Software Oct 2021 - Sep 2022

- Worked as a machine learning engineer. The work included feature design & engineering, customer segmentation, and churn prediction analysis. Utilized Tensorflow, Scikit-Learn, and PyTorch frameworks as well as SQL to manipulate the data. The implemented algorithms have resulted in the recovery of 26 % of potentially churned customers.
- Worked on customer classification using graph neural networks.
- Working on customer demand prediction for touristic tour products combining economical and tour-related time-series data, relational (customer) data, and tabular data.

Technical University of Munich July - Sept 2019
Internship

- Worked on Cavity Attenuated Phase Shift Spectroscopy under the Professorship of Environmental Sensing and Modeling

Bogazici University Sept 2018 - Jan 2020
Undergraduate Research

- Undergraduate thesis on "A Comparison Between GNN Architectures and Implementation on Brain Connectomes"

RELEVANT COURSES

Advanced Digital Signal Processing
Probabilistic Graphical Models in ML
Pattern Recognition
Artificial Neural Networks
Convex Optimization
Information Theory
Random Processes and Kalman Filtering

ACHIEVEMENTS

- Ranked 36^{th} among 2,000,000 candidates in the university entrance exam LYS, in 2016, in Turkey

POSITION OF RESPONSIBILITY

Electrical & Electronics Engineering Department Student Council Sept 2018 - 2019
Academics *Bogazici University*

- Maintained and developed Scientific Research Encouragement Programme (BATEP)
- Organized a Resume Preparation Presentation in collaboration with other student council members
- Organized a 'Compulsory Internship' Information Presentation in collaboration with other student council members

IEEE Student Club Sept 2017 - Aug 2018
Member & Executive Board Member and Treasurer *Bogazici University*

- Responsible for developing contacts with corporate recruitment teams of several firms for sponsorships regarding three main activities of the student club