Hasan Alp Boz, PhD

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QUALIFICATIONS SUMMARY

Computer Science PhD graduate with 6+ years of experience, specializing in applying and evaluating statistical methods, including machine learning and network science, to large-scale behavioral data to address complex societal challenges. In addition to collaborating with researchers from diverse backgrounds worldwide, successfully collaborated with industry groups to craft data-driven solutions for real-world business problems, enhancing decision-making processes and driving impactful outcomes.

EXPERIENCE

Visiting Researcher at MIT Media Lab   Cambridge, MA

Massachusetts Institute of Technology   Sep 2022 - Mar 2023

- Developed a decision support system for a regional bank, improving branch opening predictions by 10% (AUC) over the Huff gravity model, by utilizing Graph Neural Networks (SAGE) to optimize decisions based on human mobility data and neighborhood socio-economic dynamics, powered by public datasets.

- Developed a method using customer co-location networks to predict the financial well-being of small businesses, enhancing data privacy by reducing reliance on private financial indicators and increasing protection against network reconstruction attacks.

Postdoctoral Associate   Istanbul, Turkey

Sabanci University   Jan 2024 - Aug 2024

- Mentored a Master's student in developing a conference paper on business site selection using Reinforcement Learning that yields higher generalizability compared to gravity-based models. Supervised an undergraduate student in developing an enhanced surgery risk metric (e.g., euroSCORE) that incorporates patients' mobility, eating habits, and home location, providing a more holistic and personalized risk assessment. Taught an undergraduate-level course to 400 students.

Research Assistant   Istanbul, Turkey

Sabanci University   Sep 2017 - Jan 2024

- Led research projects on human mobility analysis and supervised Master's students at the Behavioral Analytics and Visualization Lab (BAVLAB). Collaborated closely with leading banks and insurance companies to develop advanced computational approaches for customer segmentation and predictive modeling analyses which were designed to integrate socio-demographic and economic dynamics of target areas, enabling a more comprehensive understanding of market behavior and customer needs.

Intern - Data Engineer   Istanbul, Turkey

Visiothink   November 2017 - April 2018

- Maintained a PostGIS database for a large-scale bank in Turkey by ensuring accurate address geocoding for customer transactions, additionally responsible for an ESRI OD matrix routing service for the closest branch suggestion.

Intern - Android Developer   Istanbul, Turkey

Airties   June 2016 - August 2016

- Designed and implemented an Android application for continuous integration, providing developers with real-time notifications of their test results.

EDUCATION

Doctor of Philosophy (PhD) in Computer Science, Sabanci University   Istanbul, Turkey

Dissertation: Analyzing Large-Scale Human Mobility Data to Address Societal Issues   2019-2023

Advisor: Prof. Selim Balcisoy

Master's Degree in Computer Science, Sabanci University   Istanbul, Turkey

Thesis: A Visual Multivariate Dynamic Egocentric Network Exploration Tool   2017-2019

Advisor: Prof. Selim Balcisoy

Bachelor's Degree in Computer Science, Sabanci University   Istanbul, Turkey

Thesis: Determining Negative Keywords for Search Engine Based Advertising Campaigns   2013-2017

Advisor: Assoc. Prof. Kemal Kilic

SKILLS

- **AI/ML & Analytics:** Deep Learning, NLP, Network Science, A/B Testing, Statistical Modeling, and Predictive Analysis.

- **Frameworks:** Pytorch, Pytorch-Geometric, Tensorflow, Keras, Scikit-learn, LightGBM, XGBoost, Flask, OpenCV.

- **Languages:** Python, R, SQL, Javascript, and C++.

- **Big Data:** Spark, Airflow, and Docker.

- **Visualization:** Matplotlib, Altair, ggplot2, D3, Tableau, and Power BI.

SELECTED PUBLICATIONS

♯ Equal Contribution
* Students Mentored

Articles in Peer Reviewed Journals

1. **Hasan Alp Boz**, Mohsen Bahrami, Selim Balcisoy, Burcin Bozkaya, Nina Mazar, Aaron Nichols, Alex Pentland. Investigating Neighborhood Adaptability Using Mobility Networks: A Case Study of the COVID-19 Pandemic. Accepted in **Nature Humanities and Social Sciences Communications**. 11, 397. (2024)

2. Mohsen Bahrami♯, **Hasan Alp Boz**♯, Yoshihiko Suhara, Selim Balcisoy, Burcin Bozkaya, Alex Pentland. Predicting merchant future performance using privacy-safe network-based features. **Nature Scientific Reports**. 13 (1), 10073. (2023)

Articles in Peer Reviewed Conference Proceedings

1. **Hasan Alp Boz**, Mert Gurkan, Berrin Yanikoglu. Keystroke Dynamics Based Biometric Identification. **Signal Processing and Communications Applications Conference (SIU)**. (2020)

2. **Hasan Alp Boz**, Mohsen Bahrami, Yoshihiko Suhara, Burcin Bozkaya, Selim Balcisoy. An exploratory visual analytics tool for multivariate dynamic networks. **International EuroVis Workshop on Visual Analytics (EuroVA)**. (2020)

Conference Presentations (without proceedings)

1. **Hasan Alp Boz**, Mohsen Bahrami, Massimiliano Luca, Selim Balcisoy, Alex Pentland. Foot Traffic Prediction Using Graph Neural Networks. **International Conference of Computational Social Science (IC2S2)**. Poster Presentation. (2023)

2. Mert Gurkan, **Hasan Alp Boz**, Alfredo Morales and Selim Balcisoy. A Visual Exploratory Tool for Migration Analysis. **International Conference on Computational Science (ICCS)**. Oral Presentation (2020)