ZEYNEP TUGCE SAHAN

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EDUCATION

Doctor of Philosophy (PhD) May 2021
Purdue University / West Lafayette, IN
Major: Industrial Engineering | CGPA: 3.76

Bachelor of Science (BS) June 2017
Antalya International University / Antalya, Turkey
Major: Computer Engineering - magna cum laude
Major: Industrial Engineering - summa cum laude

TECHNICAL SKILLS

Programming Languages, Frameworks, and Databases: Python, R, Tableau, MATLAB, VBA, C, Java, MS SQL Server, JavaScript, HTML, CSS, Jupyter, Git, Gurobi
Software and Operating Systems: Arena Simulation, RStudio, MS Office, MS Visual Studio, SQL Server Management Studio, ArcGIS, Adobe Photoshop, Windows, Ubuntu
Relevant Coursework: Algorithms, Using R for Analytics, Industrial Applications of Statistics, Data Engineering, Linear Algebra, Statistical Models, Stochastic Models, Data Structures, Database Systems, Decision Support Systems, Cognitive Engineering, Numerical Analysis, Simulation, Object-Oriented Software Development, Operations Research, Optimization

RESEARCH EXPERIENCE

Graduate Research Assistant August 2017 - May 2019
Purdue University / West Lafayette, IN
Homeowner-Level Decision Support System for Mitigating Coastal Flood Risk in Louisiana

- Developed a decision support web application to help homeowners make better decisions about managing flood risks to their properties using JavaScript, HTML, CSS, and Google Maps API.
- Manipulated a large-scale data set to integrate it with the web application by utilizing Python and SQL.
- Presented complex risk and risk mitigation information in a clear and understandable manner using data visualization tools such as ArcGIS and Google Charts.
- Collaborated with CPRA and USGS to make the product accessible to Louisiana residents.

Undergraduate Research Assistant October 2015 - March 2016
Antalya International University / Antalya, Turkey

- Conducted data pre-processing for analysis of the remaining useful life of the rechargeable batteries, funded by TUBITAK (The Scientific and Technological Research Council of Turkey).
- Leveraged tools and analysis to build insights into the project's outcomes.

PROFESSIONAL EXPERIENCE

Data Analyst Intern June 2019 - August 2019
Purdue University Data Analytics and Information Office / West Lafayette, IN

- Designed an ER diagram to process unstructured data and migrate into MS Access database.
- Wrote queries for identifying missing information and data extraction.
- Created a user interface for searching, filtering, and updating data using forms, VBA, and reports in MS Access.

Engineering Intern August 2016 - September 2016
EnerjiSA / Istanbul, Turkey

- Designed travel forms on eBA Document Record and Workflow Management System.
- Cleaned, filtered, and manipulated data to export useful information.
- Worked cross-functionally across many departments within the organization.

IT Intern June 2015 - September 2015
Interact.io Cloud Solutions GmbH / Berlin, Germany

- Coordinated and scheduled API tests for a CRM platform using Runscope API Monitoring tool.
- Prepared API documentation of the CRM platform with examples of HTTP requests and JSON-format data.
- Demonstrated strong organizational skills with attention to detail in a fast-paced work environment.

PROJECTS

HR Analytics - Employee Turnover Prediction August 2018 - October 2018

- Used data mining techniques on a data set shared by IBM to predict turnover probability of an employee based on his/her characteristics.
- Analyzed data using descriptive, predictive and prescriptive analytics methods in R programming language.
- Compared the performances of logistic regression, decision tree, SVM and XGBoost models under different measures.
- Developed a dashboard to present exploratory data analysis and prediction results using packages like shiny, ggplot2, caret, tidyr, and dplyr in R. (Available at https://tugcesahan.shinyapps.io/HR-Analytics/)

Heuristics to Solve Multiple Objective NP-Hard Aircraft Gate Scheduling Problem March 2018 - May 2018

- Evaluated various scheduling methods for assigning flights to airport gates to minimize walking distance for the passengers while maintaining minimum tardiness of the flights.
- Modeled heuristic algorithms to do trade-off analysis of scheduling methods using MATLAB.
- Provided separate solutions for the problem by giving different priorities to each objective.

Airlines Revenue Management Decision Support Tool April 2017 - May 2017

- Created a mathematical model to maximize profit by finding number of seats to be allocated for cabin classes in each flight.
- Performed a sensitivity analysis under different scenarios using MS Excel What-If Analysis tool.
- Utilized advanced level abilities including vlookups and Macros in MS Excel to provide an interactive user interface.

HONORS & AWARDS

- Erasmus+ Traineeship Grant — June 2017 - August 2017
- Erasmus+ Traineeship Grant — June 2015 - September 2015
- Erasmus+ Lifelong Learning Leonardo da Vinci Program Grant — July 2014 - August 2014
- High Honor List - Antalya International University — 2013 - 2017
- Full Undergraduate Scholarship covering tuition and accommodation — 2012 - 2017
- Bronze Medal - EBIKO International ICT Olympiad Animation Design Category — May 2012

LEADERSHIP & INVOLVEMENT

- The Society for Risk Analysis (SRA) — November 2018 - Present
- INFORMS Purdue Chapter Vice President — January 2018 - Present

PRESENTATIONS

- **Sahan, T.,** "Homeowner-Level Decision Support System for Mitigating Coastal Flood Risk in Louisiana," Oral Presentation at The Society for Risk Analysis (SRA) Annual Meeting, New Orleans, LA, December 2018.
- **Sahan, T.,** "Digital Tools to Promote Nonstructural Mitigation," Oral Presentation at State of the Coast Conference 2018 with Registration Scholarship, New Orleans, LA, May 2018.