



# ZEYNEP TUGCE SAHAN

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## EDUCATION

<b>Doctor of Philosophy (PhD)</b> <i>Purdue University / West Lafayette, IN</i> Major: Industrial Engineering   CGPA: 3.76	May 2021
<b>Bachelor of Science (BS)</b> <i>Antalya International University / Antalya, Turkey</i> Major: Computer Engineering - magna cum laude Major: Industrial Engineering - summa cum laude	June 2017

## TECHNICAL SKILLS

**Programming Languages, Frameworks, and Databases:** Python, R, MATLAB, VBA, C, Java, MS SQL Server, JavaScript, HTML, CSS, Jupyter, Git, Gurobi  
**Software and Operating Systems:** Tableau, 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

<b>Graduate Research Assistant</b> <i>Purdue University / West Lafayette, IN</i> Homeowner-Level Decision Support System for Mitigating Coastal Flood Risk in Louisiana <ul style="list-style-type: none"><li>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.</li><li>Manipulated a large-scale data set to integrate it with the web application by utilizing Python and SQL.</li><li>Presented complex risk and risk mitigation information in a clear and understandable manner using data visualization tools such as ArcGIS and Google Charts.</li><li>Collaborated with CPRA and USGS to make the product accessible to Louisiana residents.</li></ul>	August 2017 - May 2019
<b>Undergraduate Research Assistant</b> <i>Antalya International University / Antalya, Turkey</i> <ul style="list-style-type: none"><li>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).</li><li>Leveraged tools and analysis to build insights into the project's outcomes.</li></ul>	October 2015 - March 2016

## PROFESSIONAL EXPERIENCE

<b>Data Analyst Intern</b> <i>Purdue University Data Analytics and Information Office / West Lafayette, IN</i> <ul style="list-style-type: none"><li>Designed an ER diagram to process unstructured data and migrate into MS Access database.</li><li>Wrote queries for identifying missing information and data extraction.</li><li>Created a user interface for searching, filtering, and updating data using forms, VBA, and reports in MS Access.</li></ul>	June 2019 - August 2019
<b>Engineering Intern</b> <i>EnerjiSA / Istanbul, Turkey</i> <ul style="list-style-type: none"><li>Designed travel forms on eBA Document Record and Workflow Management System.</li><li>Cleaned, filtered, and manipulated data to export useful information.</li><li>Worked cross-functionally across many departments within the organization.</li></ul>	August 2016 - September 2016
<b>IT Intern</b> <i>Interact.io Cloud Solutions GmbH / Berlin, Germany</i> <ul style="list-style-type: none"><li>Coordinated and scheduled API tests for a CRM platform using Runscope API Monitoring tool.</li><li>Prepared API documentation of the CRM platform with examples of HTTP requests and JSON-format data.</li><li>Demonstrated strong organizational skills with attention to detail in a fast-paced work environment.</li></ul>	June 2015 - September 2015

## PROJECTS

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<b>Adaptable Virtual Reality Office Design for Autonomous Vehicles</b>	November 2019 - December 2019
<ul style="list-style-type: none"><li>Found a potential use for time gained by the future fully autonomous car systems.</li><li>Did user research to understand target users' needs and created user personas.</li><li>Designed a virtual reality office prototype by following UI/UX design processes.</li></ul>	
<b>HR Analytics - Employee Turnover Prediction</b>	August 2018 - October 2018
<ul style="list-style-type: none"><li>Used data mining techniques on a data set shared by IBM to predict turnover probability of an employee based on his/her characteristics.</li><li>Analyzed data using descriptive, predictive and prescriptive analytics methods in R programming language.</li><li>Compared the performances of logistic regression, decision tree, SVM and XGBoost models under different measures.</li><li>Developed a dashboard to present exploratory data analysis and prediction results using packages like shiny, ggplot2, caret, tidyr, and dplyr in R. (Available at <a href="https://tugcesahan.shinyapps.io/HR-Analytics/">https://tugcesahan.shinyapps.io/HR-Analytics/</a>)</li></ul>	
<b>Heuristics to Solve Multiple Objective NP-Hard Aircraft Gate Scheduling Problem</b>	March 2018 - May 2018
<ul style="list-style-type: none"><li>Evaluated various scheduling methods for assigning flights to airport gates to minimize walking distance for the passengers while maintaining minimum tardiness of the flights.</li><li>Modeled heuristic algorithms to do trade-off analysis of scheduling methods using MATLAB.</li><li>Provided separate solutions for the problem by giving different priorities to each objective.</li></ul>	
<b>Airlines Revenue Management Decision Support Tool</b>	April 2017 - May 2017
<ul style="list-style-type: none"><li>Created a mathematical model to maximize profit by finding number of seats to be allocated for cabin classes in each flight.</li><li>Performed a sensitivity analysis under different scenarios using MS Excel What-If Analysis tool.</li><li>Utilized advanced level abilities including vlookups and Macros in MS Excel to provide an interactive user interface.</li></ul>	

## HONORS & AWARDS

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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

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

## PRESENTATIONS

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- 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.