Sebastian Ghafafian

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Experience

Mechanical Design Engineer for Composite Structures
TPI Composites Germany GmbH
01/2021 – 08/2023 📍 Berlin, Germany

- Led a large-scale research project including experiments backed by numerical simulations to resolve a bottleneck in rotor blade design which reduced cost of current and future blade design projects by up to 5%
- Reduced reporting times from hours to minutes by deploying and maintaining (*via* Git) a 3D visualization tool to display analyses results in order to resolve a communication gap between engineering team, managers and stakeholders
- Improvement of physics-informed prediction models by data analysis (using Pandas) of gigabytes of test data queried from data bases using SQL
- Eliminated mistakes in regularly performed calculations by introduction of Python packages leading to a standardized workflow

Research Associate, Hydrogen Storage Reliability Engineer
Federal Institute for Materials Research and Testing (BAM)
11/2019 – 12/2020 📍 Berlin, Germany

- Leveraged Monte-Carlo simulations (MCS) to successfully identify safety gaps in international pressure vessel regulations for hydrogen and fuel cell vehicles within the European research project "TAHYA". Published findings at UNECE international summits for hydrogen safety and a research paper (published under old last name S. Thomas):
  DOI: 10.1016/j.ijhydene.2020.07.268
- Improved computational efficiency of MCS for safety and reliability assessment in Matlab by over 200%

Teaching Assistant
Technical University Berlin
10/2016 – 09/2018 📍 Berlin, Germany

- Presented complex subject matters to 500+ students for five different courses in engineering and economics

Projects

- Built an interactive dashboard using Dash and Plotly to let the user create recipes and analyze their nutritional values promoting a healthier life style and in-depth understanding of our nutritional needs
- Identified key requirements and trends in the data science job market by cleaning and performing exploratory data analysis using Pandas, Seaborn and Folium on 650+ job postings, creating a priority list for personal career advancement
- Performed graph analysis in Python on criminal data to uncover the top three key individuals from a network of 110 members to streamline police efforts
- Replicated findings without using domain knowledge from a research paper uncovering the subgroups of a t-Cells by performing dimensionality reduction (PCA) and feature embedding on a 45000+ feature and 2000+ samples RNA data set clustering the cells in three distinct groups

Education

M.Sc. Mechanical Engineering | GPA 3.8 / 4.0
Technical University Berlin (TUB)
10/2018 – 08/2019

B.Sc. Mechanical Engineering | GPA 3.2 / 4.0
Technical University Berlin (TUB)
10/2013 – 05/2018

MicroMaster in Statistics and Data Science
Massachusetts Institute of Technology (MITx via edX)
05/2022 – 10/2023

Technical Skills

Languages: Python, Matlab

Data Base: SQL, PostgreSQL, MySQL

Version Control: Git, Github

Others: Microsoft Office Suite

Environments: Linux, Windows

Languages

German | Native

English | Professional fluency

Armenian | Beginner

French | Beginner

Involvement & Certifications

🚗 **FaSTUBe (TUB Formula Student Racing Team)**
Head of Fiber Reinforced Plastics Manufacturing Team

🔍 **Quality Engineer – Green Belt**
Applied data science for quality and reliability engineering

🗄 **IBM Data Science Professional Certificate**
Hands-on skills of data science methodology including data wrangling, visualization, machine learning and SQL