# Rakan Al Masri (US Citizen)

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## Education

- **Karlsruhe Institute of Technology** — Karlsruhe, Germany
  *B.Sc. Computer Science* — *October 2018 - Present*
  - **Relevant Coursework:** Software Engineering I & II, Financial Data Science, Data Science I, Algorithms and Data Structures, Web Applications and Service-oriented Architectures, Databases, Computer Networks, Programming Paradigms.

## Experience

- **FZI Research Center for Information Technology** — Karlsruhe, Germany
  *Data Science Researcher* — *October 2021 - Present*
  - Extended existing Generative Adversarial Network PyTorch models, doubling the number of available performance metrics for further analysis.
  - Developed an algorithm for transforming semantically segmented images into a graph representation, improving ease of future semantic image analysis.
  - Designed and implemented quantitative analytics of semantically segmented images using Python3, enabling further autonomous vehicle research.
  - Packaged the quantitative analytics generation infrastructure into a Python library, allowing for faster implementation of future analyses on top of the existing models.

## Skills

**Programming Languages:** Python, Java, C++, C, SQL
**Tools:** Git, Docker, PyTorch, Tensorflow, MySQL, NumPy, Pandas, Seaborn, Matplotlib, Qt
**Languages:** English (native), German (C1), Arabic (native)

## Projects

- **Balanced Banana:**
  - Collaborated with a team of five to develop a platform-independent task scheduling and distribution system, focusing on user configurability.
  - Designed the MySQL database layout for storing system- and user-level metadata with considerations for ease of integration with the rest of the system.
  - Leveraged the repository, strategy, gateway, observer and factory design patterns to simplify programmatic database access.
- **Financial Data Science Scripts:**
  - Created a repository of Python scripts using Pandas and NumPy for analysis and forecasting of financial data.
  - Implemented the ARMA, ARCH-GARCH, Ordinary Least Squares and Maximum Likelihood Estimator models.
- **MDP Dashboard Extension:**
  - Worked in a team of five to extend the MicroserviceDeveloperPortal dashboard with logging via Elasticsearch and GitLab CI/CD support.
  - Designed and implemented the CI/CD pipeline used to register new microservices to the MDP.
  - Wrote configuration software for microservices deployed via Docker images in a Kubernetes cluster.

## Research

- **Applications of Dynamic Heterogeneous Information Networks for AIOps:**
  - Researched how complex information networks and their respective ML algorithms can be used for automating DevOps operations efficiently.
  - Wrote a summary paper detailing the above coupled with real-world examples for Dr. Böhm's research seminar.

## Extracurriculars

- **linkit:** Member of the University Data Science and Industry 4.0 group from 2020 to 2021.