

NOORISH HASSAN

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Research Experience

Causal Pattern Mining in Large-Scale Health Insurance Survey Data – for Prof Wolfgang Maaß, Universität des Saarlandes

Goal: Explainable AI for Understanding Switching Behavior in Statutory Health Insurance

- Implemented a multi-stage analysis pipeline combining causal inference and pattern mining techniques.
- Minimum Description Length (MDL) based pattern extraction to identify behavioral drivers for switching.
- Advanced data preprocessing, statistical validation, and robustness checks on large-scale survey datasets.
- Produced visual summaries and interpretable insights supporting research conclusions.

Github Repository: https://github.com/Farhanmq/DS_Project.

Skills: Exploratory Data Analysis and visualization in Python (Numpy, Pandas, ScikitLearn, PyTorch), Results visualization & prototyping, Machine learning modeling

Human Learning System Prototype – for Prof. Jürgen Steimle, Universität des Saarlandes

- Survey studies and structured observation sessions to derive design principles for educational technology.
- Evaluated prototype performance through user studies and structured field observations.
- Documented experimental findings and proposed improvements based on behavioral analysis.

Project Demo: <https://astrolearn-proto.netlify.app>

Bachelor's Thesis (Publication) – Advisor Dr. Aamir Wali, National University of Computer and Emerging Sciences

Title: *Brain Hemorrhage Detection and Segmentation using Deep Learning*

- Developed deep learning models for detecting and localizing intracranial hemorrhages in CT scans.
- Implemented CNN-based architectures, including Faster R-CNN and U-Net.
- Performed medical imaging preprocessing, model training, and evaluation using clinically relevant metrics.
- Contributed to dataset preparation and experimental evaluation pipelines.
- Resulted in a peer-reviewed publication.

Peer-reviewed Publication: Hassan, N. et al., International Journal of Computer Science and Engineering, "Brain Hemorrhage Detection using ML/DL" <https://iksp.org/journals/index.php/ijcse/article/view/105>.

Skills: Visualization in Python (Numpy, Pandas, ScikitLearn, PyTorch), Results visualization & prototyping, Machine learning modeling, Deep Learning, Digital Health

Full Thesis PDF Available on request.

Education

M.Sc. Informatics

Universität des Saarlandes, Germany

Apr 2024 – Present

B.Sc. Computer Science

National University of Computer and Emerging Sciences, Pakistan
GPA: 3.44 / 4.00 (1.8 German Grade Equivalent)

Sep 2017 – Sep 2021

Industry Experience

Software Engineer – Backend Web Developer (Werkstudent)

Ehrhardt + Partner GmbH & Co. KG, Germany

Apr 2024 – Present

Senior Software Engineer – Backend Web Developer

Strategic Systems International, Pakistan (Remote collaboration with Germany)

Aug 2021 – Jan 2024

Research Skills: Python (NumPy, Pandas), R, data analysis, scientific reporting, Git-based version control