

Karan Malik

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EDUCATION

Master's (M.S.) Computer Science May 2024
Arizona State University, Tempe, AZ 4/4 GPA
Scholarship: Graduate Engineering Fellowship (2022-2024)
Relevant coursework: Software Design, Data Mining, Data Visualization, Semantic Web Mining, Statistical Machine Learning

B.Tech. Computer Science and Engineering Jun 2022
University School of Information, Communication, and Technology (USICT), Delhi, India 9.05/10 GPA
Relevant coursework: Data Structures, Algorithm Analysis & Design, Advanced Database Management, Software Engineering

TECHNICAL SKILLS

Programming Languages: Python, C, C++, Java, MATLAB, SQL
Frameworks, Skills, and OS: Machine Learning, Deep Learning, Data Science, Artificial Intelligence, Database management, Object-oriented programming, Software Design, Web Development, Data structures, Algorithms, SQL, HTML5, CSS, Git, Testing, Debugging, Design, Backend, Data Analytics, TensorFlow, PyTorch, Flask

PROFESSIONAL EXPERIENCE

Schlumberger (SLB), Houston, USA: Data Science Intern Jun 2023 - Aug 2023

- Developed a time series data analysis based system to determine the post job health of underground tools used in oil wells using Python.
- Coded model-based and threshold-based anomaly detection algorithms to analyze post-job sensor data from on-field equipment. Reduced the time required to isolate the cause of post-job faults by over 50%.
- Implemented multi-event rule-based classification algorithms for time series data to detect faults and events with an accuracy of over 90%.

National Physical Laboratory, Delhi, India: Research Intern May 2020 - Jan 2022

- Coded pseudorandom number generators (PRNGs) using Python and statistically analyzed their performance and efficiency using a custom-test suite.
- Conducted Monte Carlo Simulations using the Mersenne Twister PRNG to determine the uncertainty in measuring the length of a block gauge, which is used to calibrate engineering equipment.
- Proposed a novel trial-and-error approach to determine the nature of the probability distribution function obtained using Monte Carlo methods and the associated expanded uncertainty.

Ernst and Young, Gurugram, India: Automation and AI Intern Nov 2020 - Feb 2021

- Developed ML ensembles and Big Data pipelines to predict customer payment default propensity rates using Python. Leveraged XGBoost and custom ensembles to achieve an accuracy of 91%. Further optimized the model to reduce its computational overhead by over 25%.
- Analyzed and developed Generative Adversarial Networks (GANs) using Python and TensorFlow to generate facial images and recovered high-resolution images from lower-resolution images using super-resolution.

PROJECTS

Smart Attendance and Engagement Detection, Class Project Mar 2022

- Implemented a deep learning based web-hosted system to automatically capture attendance in classrooms using face detection and face recognition with over 97% accuracy.
- Detected distracted behavior in class using computer vision algorithms like contour detection and facial landmarks.

Prepdata, Personal Project Feb 2021

- Created a Python library to automate data preprocessing for tabular and textual data for Machine Learning.
- Reduced user intervention by over 50%. This package currently has over 44,000 downloads via the PyPI repository.

TECHNICAL PUBLICATIONS

Comparison of Pseudorandom Number Generators and their Application for Uncertainty Estimation Using Monte Carlo Simulation - Springer "MAPAN" (2021)

Using Machine Learning, Image Processing & Neural Networks to Sense Bullying in K-12 Schools: Enhanced - Springer "Data Engineering for Smart Systems" (2021)

Using Machine Learning to Quantify Multimedia Risk Due to Fuzzing - Springer "Multimedia Tools and Applications" (2021)