DHRUV JANI

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EDUCATION

Columbia University, New York - MS Operations Research — Expected Dec 2024
Coursework: Probability, Applied Statistics, Computational Discrete Optimization, Stochastics Models, Simulation, Financial Engineering, Exploratory Data Analysis, Statistical Inference & Modelling.

University of California, Davis - BS Mathematical Analytics & Operations Research — 2019 - 2023
Minor in Statistics
Coursework: Optimization, Applied Linear Algebra, Time-Series Analysis, Math for Data Analytics & Deep Learning

EDUCATION

Programming Languages:	Python, R, SQL, MATLAB, Tableau, Shell Scripting, Julia, CSS
Libraries & Framework:	NetworkX, TensorFlow, Numpy, Pandas, CVXPY, Gurobi, Scikit-Learn, SciPy, PyTorch, Matplotlib,
Software:	Google Cloud, Jupyter, SageMath, Scilab, Wolfram Mathematica, STATA, LateX, Power BI, Git, Docker

RESEARCH EXPERIENCE

Graduate Research Assistant — Jan 2024 - Present
Columbia University — *New York, NY*

- Utilized Google Cloud and SSH to curate images from the Waymo dataset, specifically processing data from 5 distinct camera angles.
- Developing advanced generative models, utilizing NLP-driven text prompts, to dynamically generate over 150+ diverse and complex driving scenarios, significantly enhancing testing accuracy and training efficiency by 40% for autonomous vehicle systems.
- Conducted ten iterative pre-training sessions, resulting in the creation of short clips featuring four distinct driving scenarios.

Research Assistant — Sep 2023 - Dec 2024
The National Institutes of Health (NIH) — *New York, NY*

- Implemented Self-Supervised Graph Transformer framework on molecular datasets utilizing TensorFlow.
- Collaborated on molecular drug discovery models, integrating Protein-Ligand docking score prediction with Graph Neural Network.
- Translated SMILES representations to predict 1000 docking scores, and developed a precise PyTorch-based GCN for targeted drug development, predicting 250 scores.

WORK EXPERIENCE

Research Assistant — Dec 2022 - June 2023
Graduate School of Management — *Davis, CA*

- Identified inconsistencies in the acquisition/merger dataset from 2020-21, standardized the data via Pandas and NumPy.
- Employed tools like Power BI and Tableau for dashboard analysis, transforming complex datasets into intuitive visual representations for deeper understanding of business dynamics.
- Achieved a 75% accuracy by identifying correlated patterns within acquisition headlines to accurately classify mergers and non-mergers.

Data Analyst Intern — June 2022 - Sep 2022
Apple — *Mountain View, CA*

- Delivered insights on 60K clinical records from Apple Watch users using descriptive statistics and data transformation.
- Formulated reports forecasting trends via linear regression; identified independent variables and dependent variables with 83% accuracy.
- Enacted recommendations based on analytical findings, resulting in a 15% increase in user engagement metrics for Apple Watch health features.

Teaching Assistant — June 2021 - June 2022
California State Summer School for Mathematics & Science (COSMOS) — *Davis, CA*

- Tutored 20 students, offering support in grasping high-school mathematical statistics concepts and problem-solving skills.
- Collaborated with my professor to refine card shuffling techniques, particularly using Markov chain models, achieving a 20% decrease in simulation runtime and enhancing accuracy in predicting card distribution patterns and game outcomes.
- Coordinated workshops, STEM outreach, trivia nights, networking events, and guest speaker series with 4 student assistants.

PROJECTS

Logistics Optimization Built a mathematical model using Python & Gurobi which can minimize the shipping cost for 10K orders with constraints being weight, time, plant capacity and carrier fee.

Vehicle Routing Built an optimization model using Python & Gurobi which can compute minimal traversing route of a capacitated vehicle delivering items utilizing minimum flow and neural graphs.

LEADERSHIP & EXTRA-CURRICULAR ACTIVITIES

- Managed council funds as an Executive Secretary of the UC Davis Mathematics Society. (2022-2023)
- Conducted workshops as a Education Lead member in Davis Data Science Club for 500 students.
- Awarded 'Best Student Assistant 2021' at COSMOS UC Davis for exceptional work ethics and professional conduct.