Nihal Bhatnagar

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Education

Rice University Houston, TX

Bachelor of Science in Computer Science, Minor in Data Science. GPA: 3.66 Major GPA: 3.84 *May 2024*

- Coursework: Advanced Algorithms, Data Structures and Algorithms, Algorithmic Robotics, Data Science Models

Awards/Activites: Summa Cum Laude, Eagle Scout, 1580 SAT, Rice Thresher (School Newspaper) Web Developer

Experience

Rice University Robotics and Physical Interactions Lab Houston, TX

Student Research Assistant *Jun. 2022 - Present*

- Designing detailed simulation models for robotic arm movement using MuJoCo library in C++ and Python
- Modeling classical robotic systems and modern motion planning algorithms in C++ using ROS Noetic

State Farm Dallas, TX

Software Engineering Intern - *Systems Enablement Team* *May 2022 - Aug. 2022*

- Implemented features on full-stack web tools and products aimed at orchestrating data flows across enterprise
- Automated E2E workflow data validation EOT, reducing Data QA from 4-6 hours to five minutes for 1000+ devs
- Integrated automation tool into product with React/Redux based UI, reducing overall testing time by 30%
- Collaborated on REST API service with AWS API Gateway/Lambda and Express.js to facilitate workflow triggers

Software Engineering Co-Op - *Data Engineering Team* *Sep. 2021 - Dec. 2021*

- Built real-time dashboard monitoring of the validity of processed data schemas using PySpark and Grafana
- Updated 6 team CI/CD pipelines to GitOps automated deployment and assisted 3 teams in implementing changes
- Created PyTest unit and integration tests for new Spark jobs, reducing product testing time by 50 minutes
- Deployed Kubernetes clusters in EKS to support integration testing across multiple lanes of data

Software Engineering Intern - *Data Engineering Team* *May 2021 - Aug. 2021*

- Engineered and modified ETL pipelines transforming legacy data and new transactions for downstream analytics
- Saved $2,500/yr on AWS costs by using Apache Spark and Maven to implement schema consolidation feature
- Reduced team Glue job run times by 5% through data optimization scripts written in Scala and Python
- Utilized Terraform to deploy AWS Glue infrastructures, consolidating legacy data flows for millions of records

University of Texas at Austin, Computer Science Dept. Austin, TX

Machine Learning Research Assistant *Jun. 2020 - Nov. 2020*

- Led team of 3 to reduce run times in the motion planning of high degree of freedom arms using neural networks
- Reduced computation time of traditional planning algorithms by implementing TensorFlow and Keras CNN's
- Designed customized arm simulators using Klamp't and OMPL libraries to visualize and execute trained models
- Utilized Pandas library to generate and format 10,000 workspaces and optimize configuration-space calculation

Projects

NLP for Fantasy Football Predictions | *NLTK, AWS, React.js/Bootstrap, SQL*

- Captured public sentiment on players to generate rankings for player performance weekly on site built with React
- Scraped Twitter and Articles via Tweepy/BeautifulSoup API; Fed data into custom ANN to generate rankings
- Created REST API in AWS; Utilized CloudWatch to trigger Lambda jobs and run models with Python

Scholastician.org | *React.js, PHP, MySQL, Bootstrap*

- Awarded U.S. Congressional Commendation from Van Taylor for helping 1000+ users during the pandemic
- Developed dynamic website aimed at matching tutor and student users nationwide for SAT prep
- Applied MySQL DB and PHP to create login system and store tutoring information, Bootstrap for frontend

Technical Skills

Languages: Python, Java, C++, JavaScript, HTML/CSS, R, Scala, SQL
Frameworks/Libraries: React.js, Node.js, Jest, PyTest, ROS, Kubernetes, Terraform, Tensorflow, PySpark, pandas