

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 tests, 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%
- Developed 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
- Implemented schema consolidation feature utilizing Apache Spark/Maven, saving \$2,500/yr on AWS costs
- 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 Flask

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