Jeegn Dani

Portfolio | LinkedIn | GitHub

Email: jeegndani1604@gmail.com
Phone: +1 (765)775-9133
Location: West Lafayette, IN

Education

- **Purdue University** — West Lafayette, IN
  Masters of Science in Computer Science; GPA: 3.9 — *Aug. 2023 – May. 2025*
- **Purdue University** — West Lafayette, IN
  Bachelor of Science in Computer Science and Data Science; GPA: 4.00 — *Aug. 2019 – May. 2023*

Technical Skills

- **Languages & Technologies**: Python, C, C++, Java, SQL, PyTorch, TensorFlow, HuggingFace, ScikitLearn, Linux, Pybullet, ROS, Django, Express, LaTex, AWS, GCloud, Docker, Kubernetes, MongoDB, Neo4j
- **Graduate Coursework**: Deep Learning, Probabilistic ML, Computer Vision, NLP, Statistical ML, Robotics, Cloud Computing, Analysis of Algorithms, Compilers, Information Security, Networks

Experience

- **Purdue University - Dept. of Computer Science** — West Lafayette, IN
  Graduate Teaching Assistant — *Jun. 2021 - Present*
  - Developed a scalable autograding system for Relational Algebra (Python, SQL) for a class of 250+ students, saving 20 grading hours/week by automating assessment and integrating real-time feedback for a better student experience
  - Co-led a study spanning 2 semesters with Prof. Hisham Benotman analyzing 600+ assessments; demonstrated 25% grading reliability boost (autograder vs manual grading); submitted to DataEd'25 @ SIGMOD.
  - Conducted recitations (50 students/session), graded coursework, and led tutorials in 4 core CS classes: DataBase Systems, Data Structures & Algorithms, Discrete Math, and Intro to Data Science.
- **Cognitive Robot Autonomy & Learning Lab (CoRAL Lab)** — West Lafayette, IN
  Machine Learning Engineer — *Jan. 2022 – Oct. 2023*
  - **Multi-Agent Neural Rearrangement Planning (MANER)**: Developed a PyBullet simulation environment to generate training data for a Transformers based multi-agent rearrangement algorithm in cluttered scenes.
  - Engineered a real-time Linux-based backend to connect simulation outputs with physical robot control, enabling deployment and execution of learned multi-agent rearrangement policies in real-world experiments.
  - Customized Raspberry Pi-controlled robots for warehouse automation research, enhancing real-world applicability.
  - Developed a vision pipeline for instance segmentation from bird's-eye-view input, for real-time scene understanding
  - Co-authored a paper in IEEE Robot Automation Letters demonstrating a 15% faster traversal time and 10% higher success rate in multi-agent rearrangement — [arXiv Link].
- **Discovery Undergraduate Interdisciplinary Research Internship** — West Lafayette, IN
  Machine Learning Research Assistant — *Jun. 2021 - Dec. 2021*
  - Built a RShiny app to predict recidivism risk in county correctional facilities, aiding rehabilitation decision-making.
  - Performed preprocessing and feature engineering, trained and deployed interpretable ML models (SVM, Logistic Regression, XGBoost, Random Forests, Neural Networks) on healthcare data under Prof. Pengyi Shi's mentorship

Projects

- **Self-Supervised Learning for Remote Sensing**:
  - Curated a geographically diverse satellite imagery dataset using Google Earth Engine to address regional bias in land cover classification tasks, improving generalization across varied ecosystems.
  - Benchmarked foundational models based on contrastive learning and masked autoencoders with CNN and Vision Transformer backbones on temporal and multispectral satellite imagery, using public and newly curated datasets.
- **Bayesian Inference with MCMC**: Analyzed MALA and HMC algorithms for improving confidence estimation and interpretability in ML models; implemented Riemannian MCMC using the Expected Fisher Information matrix and evaluated its efficiency in high-dimensional, correlated prediction tasks.
- **AWS Microservices Migration**: Refactored a monolithic Django CRUD app into Dockerized microservices, deploying backend on AWS ECS/EKS and frontend on S3 with CDN for scalable and low-latency performance.