Jeegn Dani

Website | LinkedIn | GitHub

Email: jeegndani1604@gmail.com

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*

Experience

- **Purdue University - Dept. of Computer Science** — West Lafayette, IN
  Graduate Teaching Assistant — *Jun. 2021 - Present*
  - **Courses Taught**: Database Systems, Data Structures & Algorithms, Intro to Data Science, Discrete Math
  - **Autograder Development**: Developed an autograding system for Relational Algebra (Python, SQL), saving 20+ grading hours/week. Integrated real-time feedback to streamline submissions and assessment.
  - Led a data-driven analysis with Prof. Hisham Benotman on 200+ assessments, showing a 25% boost in grading reliability with autograding vs. manual. Submitted to DataEd'25 @ SIGMOD.
  - Designed and graded exams, assignments, and projects, while conducting weekly recitations (50 students per session) and leading help sessions on coursework, programming tutorials, and exam preparation.
- **Cognitive Robot Autonomy & Learning Lab (CoRAL)** — West Lafayette, IN
  Software Engineer — *Jan. 2022 – Oct. 2023*
  - **Multi-Agent Neural Rearrangement Planning (MANER)**: Designed a PyBullet-based simulation framework for multi-agent object rearrangement in cluttered environments.
  - Developed a real-time Linux-based communication system to bridge simulations with physical robot experiments.
  - Customized Raspberry Pi-controlled robots for warehouse automation research, enhancing real-world applicability.
  - Published in IEEE Robotics and Automation Letters – [https://arxiv.org/pdf/2306.06543.pdf].
- **Discovery Undergraduate Interdisciplinary Research Internship** — West Lafayette, IN
  Machine Learning Research Assistant — *Jun. 2021 - Dec. 2021*
  - Built an RShinyApp as a decision-making tool for county correctional facilities for predicting reoffense rates among drug offenders. Intended for supporting rehabilitation approaches.
  - Deployed ML models like Logistic Regression, Decision Trees, Random Forests, Neural Networks, and XGBoost trained on healthcare data, with a focus on interpretable models under the guidance of Professor Pengyi Shi.

Projects

- **Self-Supervised Learning for Remote Sensing**:
  - Investigated self-supervised pretraining methods (contrastive learning, masked autoencoders) for satellite imagery.
  - Built a diverse land cover dataset (Google Earth Engine) improving geographic representation for satellite ML models, enhancing model robustness across varied regions.
  - Evaluated state-of-the-art methods such as SeCo, SatMAE, CROMA, and PRESTO for temporal and multispectral learning on both existing and the newly created dataset.
- **AWS Microservices Migration**:
  - Refactored a monolithic Django CRUD app into containerized microservices, modularizing code and databases.
  - Deployed it on AWS EC2 and microservices on ECS/EKS with ECR, hosting the frontend on S3 with CDN.
- **LLVM Compiler**: Developed an LLVM-based compiler in C++, focusing on middle-end optimizations like dead code elimination, loop detection, speculative loop unrolling, and SSA-based register allocation.

Technical Skills

- **Languages & Technologies**: Python, C, C++, Java, SQL, PyTorch, TensorFlow, AWS, Docker, Kubernetes, Linux, Django, LaTex
- **Graduate Coursework**: Deep Learning, Probabilistic ML, Computer Vision, NLP, Statistical ML, Robotics, Cloud Computing, Analysis of Algorithms, Compilers, Information Security.