Apar Pokhrel

Fort Worth, Texas
682-246-9671 aparpokhrel.ap@gmail.com aparpokhrel pokhrelapar

Education

University of Texas at Arlington **August 2024 – May 2026**
M.S. in Computer Science *GPA: 4.0/4.0*

- **Advisor:** Dr. Diego Patiño
- **Thesis:** *pending*

University of Texas at Arlington **May 2022**
B.S. in Computer Science, Minor in Mathematics *GPA: 3.81/4.0*

Research Interests

- Computer Vision & 3-D Reconstruction
- Neural Networks & Deep Learning
- Neural Rendering & Generative Models
- Computational Biology & Medical Imaging
- Multimodal LLMS
- Human/Robot Interaction

Relevant Coursework

- Neural Networks
- Machine Learning
- Robotic Vision
- Computer Vision
- Computer Networks
- Bioinformatics
- Artificial Intelligence
- NLP

Research Experience

Research Assistant **May 2025 – Present**
PRIMaL Lab *Arlington, Texas*

- Develop and evaluate Diffusion Model-based pipelines for 3-D scene reconstruction using point cloud data.

Work Experience

Software Engineer **September 2022 – February 2024**
SAE International *Warrendale, Pennsylvania*

- **eAuditNet** | Java, JavaScript, Oracle, Spring MVC + JSP
  - Resolved bug tickets by examining Kibana logs and engaging clients, reducing repeat incidents by 25%.
  - Developed store procedures to optimize audit and expense processes, slashing support ticket response time by 30% and assisted in resolving data exchange failures by dissecting failure codes and server logs.
  - Successfully designed and integrated email configurations to streamline audit scheduling, invoices, and payments.
- **WMI/WMC** | Java, ReactJS, PostgreSQL
  - Improved global WMI code allocation logic for car manufacturers by 70% using indexing & caching table lookups.
  - Created schema designs, identified data mappings, and transformation requirements for PostgreSQL migration.
  - Created dynamic reports across global code confirmation, cancellation, and verification areas, streamlined report delivery via SendGrid API, resulting in a 60% reduction in report distribution time.

Student Developer, IEEE Robotics **August 2021 – May 2022**
The University of Texas at Arlington *Arlington, Texas*

- Collaborated on build for an underwater ROV capable of performing dive, submerge, and travel maneuvers.

Teaching Experience

Graduate Teaching Assistant **August 2024 – Present**
University of Texas at Arlington *Arlington, Texas*

- Support faculty in instruction of Object Oriented Programming for 120+ students, enhance student performance through review sessions, proctor exams, grade assignments, and streamline grade entries via **auto-grader.**

Drone Design **Summer 2025**
Upward Bound Math & Science Center *Arlington, Texas*

- Developed and led an intensive project-based curriculum introducing students to drone aerodynamics, control systems, electronics, and hands-on design using simulation and prototyping tools.

Bioinformatics & Medical Research **Summer 2025**
Upward Bound Math & Science Center *Arlington, Texas*

- Designed and delivered bioinformatics module on genomic analysis, protein structures, and introduced machine learning models for biological data classification, clustering, and medical image segmentation.

BugHouse Tutor **August 2024 – Present**
University of Texas at Arlington *Arlington, Texas*

- Assist Computer Science & Engineering students across lower and upper-level CSE coursework.

Peer Academic Leader **Janurary 2021 – May 2022**
University of Texas at Arlington *Arlington, Texas*

- Guided first-year engineering students on academic affairs policy, major exploration, and engineering practices.

Projects

Optimizing YOLOv8 for Parking Space Detection – PKLot | *Python, PyTorch, CUDA* **May 2025**

- Achieved 0.986 mAP@0.5:0.95 score by customizing YOLOv8 with optimized backbones (ResNet-18, VGG16, EfficientNetV2, Ghost-P2) on the PKLot dataset.
- **[Pre-Print]** Conducted a detailed study of backbone architectures, analyzing precision–recall trade-offs, inference latency, and computational efficiency for real-time performance.

Hackathons | *Flask, ReactJS, Bootstrap, Axios, Python, Tensorflow, Google Collab* **May 2022 – September 2022**

- **Insure It**: Mobile app that parses consumer receipts for easy insurance quote suggestions. (1^{st} place HackUTA)
- **CareHive**: ML model that detects nenonatal pneumonia from chest radiographs. (3^{rd} place @Hackdemonium 2.0)
- **AgroHive**: ML model that predicts 38 crop diseases among 13 crop varieties to improve crop yield. (HackTX)
- **10 years with Jake**: Interactive game that stimulates a 10-year State Farm home insurance plan. (HackDFW)

Honors & Awards

- **Graduate Teaching Assistantship**, Annual $14,000 waiver. 2024 - 2026.
- **Department of Education Dean's Scholarship**. 2024
- **Maverick Academic Scholarship**. Annual $24,000 scholarship. 2018 - 2022

Talks & Presentations

- **Medical Image Segmentation using CNN & Transformers**. Upward Bound Math & Science Center. 2025
- **Vision-Based Drone Navigation: Deep Learning Approaches for Object Detection and Path Planning**. Upward Bound Math & Science Center. 2025
- **Optimizing YOLOv8 for Parking Space Detection: Comparative Analysis of Custom Backbone Architectures**. University of Texas at Arlington. 2025.
- **Meta Segment Anything Model 2: Zero-shot Segmentation**. University of Texas at Arlington. 2025.
- **From Photos2Anime: Exploring Generative Adversarial Networks**. University of Texas at Arlington. 2022.

Technical Skills

Languages: Python, JavaScript, Java, SQL, C/C++
Database: Oracle, MySQL, PostgreSQL, MongoDB, Neo4j
APIs & Integration: OpenAPI, FastAPI, Swagger, REST
Libraries & Frameworks : LaTeX, ReactJS, Axios, Jest, NodeJS, ExpressJS, Bootstrap, TailwindCSS
Cloud & Developer Tools: AWS, GCP, Git, Gitlab CI/CD, Jupyter, Jira, Postman, Elasticsearch
Machine Learning: PyTorch, NumPy, Pandas, scikit-learn, NLTK