

APAR POKHREL

Dallas-Fort Worth, Texas

☎ 682-246-9671 ✉ aparpokhrel.ap@gmail.com 🌐 [aparpokhrel](https://aparpokhrel.com) 🌐 [pokhrelapar](https://pokhrelapar.com) 🌐 pokhrelapar.github.io

Education

The University of Texas at Arlington

August 2024 – Present

Master of Science in Computer Science, Machine Learning & Database Systems

GPA: 4.0/4.0

Coursework: Machine Learning, Neural Networks, Computer Vision, Robotics, GPU Programming

The University of Texas at Arlington

Bachelor of Science in Computer Science, Minor in Mathematics

GPA: 3.81/4.0

Work Experience

Research Assistant, Computer Vision

May 2025 – Present

PRIMaL Lab | Python, PyTorch, CUDA, NumPy, SciPy, MMGeneration

Arlington, Texas

- Engineer GPU-accelerated diffusion-based reconstruction pipelines for 3-D game assets using Neural Point Clouds, targeting improvement in reconstruction fidelity and training convergence.
- Implement 3-D reconstruction pipeline using Unsigned Distance Fields, leveraging iterative gradient-based descent on learned vector fields, targeting 13% improvement in Chamfer Distance and 9% higher F-score on ShapeNet.
- Design physically grounded heat kernel diffusion representation for Event Video Frame Interpolation (E-VFI) tasks and executed large-scale benchmarking against SOTA methods by profiling and optimizing CUDA-backed workflows.

GitLab AI Corps Fellow

January 2026 – Present

GitLab & CoddePath | Ruby on Rails, Vue, PostgreSQL, Redis, Elasticsearch

Remote

- Implement enhancements to the Kubernetes Agent Server (KAS) API to expose cluster infrastructure metadata, including API endpoints, node IP ranges, and network CIDR, improving infrastructure visibility for K8 deployments.
- Resolve stale Elasticsearch migration state issues by redesigning cache invalidation and lookup logic in DataMigrationService, enabling real-time migration status reporting across GitLab Admin Search UI and CLI tooling.
- Contribute to GitLab Duo platform features by implementing backend and UI support for AI usage tracking and credit consumption within the GitLab billing workflows, ensuring accurate monitoring for usage and cost attribution.

Software Engineer

September 2022 – February 2024

SAE International | Java, Spring, JavaScript, Oracle, PostgreSQL, AWS

Warrendale, Pennsylvania

- Resolved 50+ production bug tickets, leveraging AWS CloudWatch and ElasticSearch for log tracing and documented Root Cause Analysis for cross-team knowledge sharing, reducing repeat incidents by 25%.
- Engineered a serverless PDF reporting pipeline on AWS Lambda with SendGrid API and S3, automating report generation, transactional email delivery, and real-time notifications, cutting distribution time by 60%.
- Integrated Keycloak for user auth and SSO with role-based access for 10,000+ users, implementing OIDC/OAuth2 token flows and automated provisioning, and documented API endpoints in Swagger UI for seamless integration.
- Optimized WMI/WMC code allocation and cancellation workflows for 1000+ car manufacturers across 80+ countries, achieving 70% faster lookup and assignment by implementing indexed PostgreSQL tables and caching strategies.

Technical Skills

Languages: Python, Java, JavaScript, SQL, C/C++

Machine Learning & HPC: PyTorch, scikit-learn, NumPy, SLURM, CUDA, Distributed Data Parallel (DDP)

Database & APIs: Oracle, MySQL, PostgreSQL, MongoDB, OpenAPI/Swagger, FastAPI, REST

Libraries & Frameworks : ReactJS, Axios, NodeJS, ExpressJS, JAX, Hugging Face Transformers, Accelerate

Cloud & Dev Tools: AWS (EC2, S3, Lambda), GCP (Cloud Storage, Firebase), Git, GitLab CI/CD, Docker, ELTK

Projects

Parking Occupancy Detection – PKLot | Python, PyTorch

May 2025

- [Paper]** Evaluated YOLOv8 backbones (ResNet-18, VGG16, EfficientNet, Ghost-P2), achieving up to 98.6% mAP50:95, 0.9–4.1ms inference latency, 47% reduction in model parameters with computational efficiency as low as 8.2 GFLOPs.

Hackathons | Flask, ReactJS, Bootstrap, Axios, Python, Tensorflow

September 2022

- Insure It:** Tesseract OCR- based app to parse consumer receipts for insurance quotes. (**1st place@HackUTA 2022**)
- CareHive** (3rd place@Hackdemonium 2.0 2022), **AgroHive** (HackTX 2022), **10 years with Jake** (HackDFW 2022)

Leadership & Affiliations

Teaching: GTA [Java, Operating Systems (Present)], Drone & Bioinformatics Instructor (Summer 2025)

Organizations: ColorStack, CodePath, SASE, SHPE (Member)