

# PRINCE SAVSAVIYA

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## Professional Summary

M.S. Computer Science candidate (UC Riverside, March 2026) with expertise in **ML systems, High-Performance Computing (HPC), and Distributed Systems**. Experience ranging from **optimizing GPU-accelerated physical simulations** to building scalable platforms like RetrieveX (+25% precision) and predictive Kubernetes autoscalers (-18% over-provisioning). Skilled in Python, C++, CUDA, and Cloud Infrastructure. Seeking SWE/ML role to design large-scale, high-efficiency systems.

## Education

<b>University of California, Riverside</b>	Riverside, CA	March 2026 (expected)
M.S. Computer Science, GPA 3.56/4.0		
<b>Adani Institute of Infrastructure Engineering, GTU</b>	Ahmedabad, IN	May 2024
B.E. Information & Communication Technology, GPA 3.6/4.0		

## Core Technical Skills

<b>Languages &amp; Query:</b>	Python, C++, Java, C, SQL (PostgreSQL/MySQL), Bash, R
<b>Systems &amp; Cloud:</b>	Docker, Kubernetes, AWS (EC2, S3, EKS), Linux, REST APIs, MPI
<b>Data &amp; Search:</b>	Elasticsearch, Lucene, FAISS
<b>AI , ML &amp; Data Science</b>	:Deep Learning(PyTorch, TensorFlow), scikit-learn, BERT/NLP, Computer Vision, MLOps (Optuna, Vector Search)
<b>Performance &amp; HPC:</b>	CUDA, PETSc, DolfinX/FEniCSx, Gmsh
<b>DevOps &amp; Quality:</b>	Git/GitHub Actions (CI/CD), Unit Testing, Monitoring, Hyper-parameter Tuning

## Experience

<b>Graduate Researcher – University of California, Riverside</b>	Riverside, CA	May 2025 – Present
- Built a modular <b>ALE-ready</b> simulation framework integrating <b>CFD and FEM solvers</b> ; validated against <b>Turek-Hron</b> benchmarks for high-fidelity FSI stability.		
- Developed a parameterized Python+Gmsh benchmark generator with automated regression tests and logging, reducing setup time for new FSI/CFD cases by <b>80%</b> .		
- <b>Optimized</b> PETSc/CUDA kernels under GPU-aware MPI, reducing memory-transfer bottlenecks and improving multi-GPU throughput by <b>2×</b> .		
- Prototyping <b>physics-informed ML predictors (e.g., Hamiltonian Neural Networks)</b> to reduce fixed-point iterations in partitioned FSI coupling; designing feature sets and data pipelines to accelerate convergence.		
<b>Research Intern – Adani University</b>	Ahmedabad, IN	May 2023 – Dec 2023
- Built a physics-informed ML framework combining PDE ageing models with ensemble regressors (SVR, RF, GBR, DT, GPR), <b>cutting MSE 98%</b> and <b>RMSE 86%</b> vs. data-only baseline.		
- Ingested <b>200,000+</b> battery-cycle records in Python; automated feature engineering and Optuna tuning, reducing experiment turnaround <b>30%</b> .		
- <b>Publication:</b> <i>Journal of Power Sources</i> , Vol. 627, 2025 (IF ≈ 7.9) – DOI 10.1016/j.jpowsour.2024.235771.		

## Selected Projects

<b>RetrieveX – Hybrid Search Engine</b>	Django · Lucene · BERT · FAISS	Jan 2025 – Apr 2025
- Built medical information retrieval system (150,000 docs) merging BM25 keyword search with BERT+FAISS vectors, improving top-3 precision <b>25%</b> and reducing latency <b>40%</b> .		
- Deployed as asynchronous REST API with Django; served $P_{95}$ queries in <200 ms.		
<b>Predictive Kubernetes Autoscaler</b>	LSTM · Kubernetes · Helm · GitHub Actions	Jan 2025 – Apr 2025
- Developed an LSTM-driven autoscaler forecasting CPU/memory load to adjust replicas dynamically, reducing over-provisioning <b>18%</b> .		
- Deployed to AWS EKS with Helm and CI/CD pipelines; sustained 99.9% SLA under $4\times$ load spikes.		
<b>Risk-Analytics Microservice</b>	FastAPI · Pandas · PostgreSQL · Docker · AWS	Sep 2024 – Jan 2025
- Designed real-time analytics service ingesting multi-asset data (equities, bonds, FX) with vectorized pipelines; delivered metrics in < <b>150 ms</b> .		
- Automated deployment (CI/CD) with GitHub Actions → AWS ECR → EC2; 99.9% uptime with Prometheus–Grafana monitoring.		