PANKAJ SHARMA

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EDUCATION

University of California, Riverside CA **September 2024 - March 2026**
Master's of Science in Computer Science **GPA: 3.96 / 4.0**

Birla Institute of Technology and Science, Pilani, KK Birla Goa Campus, India **August 2015 - May 2019**
Bachelor of Engineering (Honors) in Electronics and Instrumentation **GPA: 8.29 / 10.0**

WORK EXPERIENCE

University of California, Riverside – Student Assistant | *Full Stack Developer* **February 2025 - Present**
- Contributed to the modernization and maintenance of the TA Assignment System used by the Computer Science Department, improving TA-course matching efficiency and contract generation.

JP Morgan Chase & Co., Mumbai | *Software Engineer II* **January 2022 - September 2024**
- Modernized legacy Mule flows to scalable and robust Spring Integration, improving memory efficiency by 44% and eliminating application crashes. This enhanced system stability, improved code maintainability, and mitigated security risks by remediating vulnerabilities in packages like Spring Beans.
- Migrated PROD databases sizing 50 GB from Sybase ASE to MSSQL Server with no downtime.
- Modernized legacy applications to containerized workloads and migrated them from on-prem to Amazon Web Services (AWS EKS).
- Developed *Active Inventory Management* (AIM) Cash Optimization based on Signavio BDM that Cash Managers and Portfolio Managers use to actively manage residual cash on client accounts before the close of day.

JP Morgan Chase & Co., Mumbai | *Software Engineer I* **July 2019 - January 2022**
- Collaborated daily with cross-functional tech and business teams enhancing operational efficiency and meeting critical deadlines.
- Designed a ReactJS frontend UI for AIM, facilitating investment of over $1.6 billion in previously uninvested cash in 2022 by enabling more efficient asset management. The total invested cash volume in 2022 via AIM was $188 Billion.
- Updated the authentication and authorization setup across micro-services to use OAuth2.
- Enhanced the CI/CD pipelines to the latest industry standards using Harness.

Retailio, Mumbai | *Software Engineering Intern* **January 2019 - June 2019**
- Enhanced frontend UI for Retailio's Retailer and Distributor web panels, improving user navigation and contributing to a 20% increase in daily transactions. I also added critical functionalities to the internal ADMIN panel.
- Implemented backend API to support ERP integration, MIS report generation, and synchronization of OMS payments.
- Worked on implementing batch jobs that helped reduce manual intervention in Payment Processing. Created UI in AngularJS where users can upload Payment Information in Excel and trigger batch jobs to process the same.

PROJECTS

Machine Learning Framework for Computer Architecture Research (MS Project) **September 2025 – March 2026**
- Revamped an ML framework to predict CPU microarchitecture simulation outcomes.
- Modernized legacy code, improved usability, and documented workflows for ongoing research.

Sensei Search (OpenAI CLIP) **April 2025 – June 2025**
- Developed a multimodal search engine enabling image–text and text–image retrieval using OpenAI's CLIP embeddings with FAISS indexing for fast similarity matching.
- Enhanced retrieval relevance through foreground segmentation, OOD detection, and prompt optimization, achieving robust generalization on the Flickr8k dataset.

NeRF-in-the-Wild: 3D Scene Reconstruction **April 2025 – June 2025**
- Replicated and optimized NeRF-W to reconstruct photorealistic 3D scenes from unposed images, improving training efficiency by 35%. Enhanced model stability and lighting generalization, achieving 28.71 PSNR (synthetic) and 24.79 PSNR (real-world).

KNative Scaling Policy Analysis **January 2025 - March 2025**
- Benchmarked KNative autoscaling (CPU vs. RPS metrics) using Kubernetes, Prometheus, and Grafana on CloudLab.
- Compared latency, scaling speed, and resource utilization under dynamic traffic to recommend optimal scaling strategies.

Pneumonia X-Ray Classifier **October 2024 - November 2024**
- Used various deep-learning techniques like Transfer Learning with Pre-trained Convolutional Neural Network (ResNet), Custom CNN models and Vision Transformers (VIT) to identify potential Pneumonia cases based on X-ray images

SKILLS

Languages: Java, C++, C, Python, JavaScript, TypeScript, SQL, Groovy, Golang, Kotlin
Tools & Frameworks: Spring, React, AWS, Terraform, Kubernetes, NumPy, Pandas, PyTorch, Flask, Django, Oracle, MSSQL Server, MariaDB, Sybase ASE, Docker, Spinnaker, Harness, CockroachDB, Splunk, Gremlin
Relevant Coursework: Design and Analysis of Algorithms, GPU Architecture and Parallel Programming, Artificial Intelligence, Advanced Machine Learning, Advanced Computer Vision, Advanced Operating Systems, Advanced DBMS, Spatial Computing, Cloud Computing and Cloud Networking, Data Mining Techniques, Cryptography, Discrete Mathematics, Probability & Statistics
Certifications: AWS Certified Cloud Practitioner, Certificate in AI - JPMC AI Research, Certificate in Networking Management by NetTech

AWARDS AND ACHIEVEMENTS

- 'Best Use of IT in Treasury and Capital Markets' by InformaConnect in December 2022
- 'Circle Of Excellence Award' in the Above & Beyond Category at JPMC for best performer of the year in 2020