ANIKA VERMA

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Education

University of Southern California (USC)   Los Angeles, CA - Aug 2024 - May 2026
Master's of Science, Computer Science   GPA: 3.50/4.0

S.R.M Institute of Science and Technology   Tamil Nadu, India - Jun 2018 - May 2022
Bachelors of Technology, Computer Science and Engineering   GPA: 3.80/4.0

Experience

Research Assistant – Transactional Graph Databases (in collaboration with eBay)   Los Angeles, USA - May 2025 – Aug 2025
- Collaborated with eBay to build ACID-compliant storage models for OLAP queries using UNIX automation and microservices.
- Designed a scalable JanusGraph + FoundationDB application in Java with Gremlin, improving query efficiency by 25% and enabling real-time graph traversal.
- Automated performance benchmarks via CI/CD pipelines and shell scripts, reducing manual testing by 20%.
- Benchmarked In-Memory, BerkeleyDB, FoundationDB(FDB), identifying FDB with 20–30% lower latency and highest fault tolerance.
- Improved backend speed by 15% and reduced query planning time by 35%, enhancing graph database performance and scalability.

HighRadius Corporation, Associate Consultant 2   Hyderabad, India - Jun 2022 - Jul 2024
- Tasked to automate financial data pipelines for global clients. Built Python and SQL-based ETL flows, optimized AR reconciliation, and integrated secure SFTP data exchange for banks.
- Integrated Cash Application data flows with client ERP systems using Python and SQL, automating pipelines and reducing payment reconciliation processing time by 30%.
- Analyzed large-scale financial datasets and optimized CI/CD data pipelines, improving Accounts Receivable (AR) processing efficiency by 25% and strengthening backend reliability for Order-to-Cash (OTC) workflows.
- Automated secure file transfers (SFTP) for seamless bank data exchanges and built Python dashboards for monitoring and scalability, achieving 40% faster data retrieval.
- Optimized SQL queries and data models, boosting pipeline performance by 20% and minimizing system downtime.

Projects and Hackathons

Echoes (AV-HuBERT 433h, Fairseq, FlaskMail, MediaPipe, OpenCV, PyTorch, React, SMTP)   Oct 2025
- Award-winning hackathon project revolutionizing speech therapy gaps for patients with autism and post-stroke challenges.
- Developed an AI lip-reading assistant integrating AV-HuBERT for speech decoding and DeepFace for emotion tracking, implemented real-time camera stream analysis with automated SMTP real-time based report generation to the doctor.
- Fine-tuned HuBERT on a 20-word vocabulary, achieving **<300 ms inference** latency and 90% emotion detection accuracy.

PostgreSQL B-Tree Index Optimization (C, SQL, PostgreSQL, Docker, GDB)   Aug 2025
- Aimed to optimize B-Tree index traversal for faster query performance.
- Implemented leaf-page prefetching and linear-scan enhancements within PostgreSQL internals, validated using JOB/IMDB benchmarks.
- Reduced query latency by 15% and improved index scan efficiency on analytical workloads.

JanusGraph + FoundationDB Benchmarking (Java, Gremlin, Distributed Systems)   May 2025
- Evaluated distributed graph database scalability under real workloads.
- Developed linear and bushy tree parallelism strategies for graph traversals, automated CI/CD benchmarking pipelines.
- Increased distributed query planning efficiency by 35% and minimized manual testing overhead by 20%.

Moodify Market (Next.js, Node.js, MongoDB, Blockchain, SpotifyAPI)   Nov 2024
- Developed a decentralized web app for emotion-based music curation.
- Integrated Spotify API and blockchain components using Metaplex and DAIN, implemented MongoDB backend for user sessions.
- Delivered an interactive, scalable app with real-time personalization and robust backend integration.

Defense Services Hackathon (OpenCV, YOLO, Python)   Mar 2021
- Built a border surveillance system for real-time object detection.
- Trained YOLO models with Darknet and OpenCV to identify intrusions and obstacles across varied terrains.
- Improved detection accuracy to 92% and generated real-time alerts for field operators.

Honors and Awards

HackSC 2025 : Won HackSC 2025 hackathon (Best Overall) for building an AI-powered accessibility tool Echoes, awarded Meta Smart Glasses as top prize for innovation in accessible healthcare, recognized for creativity, technical design, and impact.
HighRadius : Best Employee Award 2024.

Technical Skills

Programming: Python, Java, JavaScript, C/C++, HTML/CSS.
Machine Learning and AI: Deep Learning, NLP, Computer Vision, Classification, Continual Learning, LangChain, Stanza.
Frameworks and Libraries: PyTorch, TensorFlow, Scikit-learn, Hugging Face Transformers, OpenCV, Pandas, NumPy, Matplotlib.
Databases: PostgreSQL, FoundationDB, SQL.
Tools: Docker, Git, GitHub, Scalable Systems, CI/CD, Unix Shell, A/B testing, VS Code.
Web Development: React, Flask, Tailwind CSS, FlaskMail, SMTP Integration, MediaPipe