Nirvek Pandey

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Education

University of California San Diego **La Jolla, CA**
Regents Scholar, B.S. in Computer Science — September 2022 – March 2026

- **Fundamentals:** Object Oriented Design, Computer Organization, Advanced Data Structures, Discrete Mathematics, Theory of Computation, Design and Analysis of Algorithms, Software Engineering
- **AI and ML:** AI: Search and Reasoning, AI: Probabilistic Models, ML: Learning Algorithms, Deep Learning, Natural Language Processing, Recommender Systems and Web Mining
- **Systems and Parallel Computing:** Operating System Principles, Networked Services, Parallel Computing

Experience

Neurolens **Costa Mesa, CA**
Software Engineering Intern — June – September 2025

- Built a clinical vision analytics dashboard with Next.js and React Charts, adding an OpenAI-powered chat to explain and interpret graphs, helping researchers compare patient trends for R&D.
- Developed a Go-based GraphQL API to pull Microsoft SharePoint data via Microsoft Graph API, using Redis caching to cut latency by 95% for 40% of clinical team requests.
- Implemented query indexing for faster lookups, connection pooling to reduce database overhead, and monthly async jobs to process newly ingested data, lowering load times by 40%.

Data Science Intern — June – September 2024

- Collaborated with data architects to implement an ETL system using SQL and Azure Pipelines, separating analytics workloads that improved pipeline reliability by 27% and accelerated R&D analysis.
- Built an ML pipeline with OpenCV and PyTorch to detect suppressed eye-tracking signals with 84% accuracy in identifying suppressed measurement and enabling more reliable data interpretation for optometry research.
- Created data visualizations utilizing Matplotlib and Seaborn to illustrate the impact of architectural updates.
- Influenced stakeholder decisions to invest in regression-based modeling for next-generation device development.

UC San Diego, CSE 110 **La Jolla, CA**
Project Manager — April – June 2024

- Led a cross-functional Agile Scrum team of 8, facilitating weekly stand-ups and retrospectives that enhanced communication and reduced update turnaround times 46%, managing task progress using GitHub Projects.
- Designed CI/CD workflows with GitHub Actions, reducing deployment errors by 24% and accelerating releases through automated JUnit unit tests and Jest/Puppeteer-based integration testing.
- Directed sprint planning and backlog refinement to synchronize front-end and back-end efforts, increasing development velocity, and improving milestone delivery rates.

Projects

TritonTube *Go, SQLite, gRPC, etcd, AWS EC2, FFmpeg, MPEG-DASH, HTTP* — May – July 2025

- Engineered a scalable video platform with RESTful endpoints for upload and playback through MPEG-DASH.
- Deployed metadata and content services on AWS EC2 using etcd to establish Raft consensus, expanding storage capacity, and improving concurrency through a fault-tolerant, distributed architecture.

Personal Portfolio *Next.js, Node.js, Flask, Firebase, Docker, Google Cloud, Vercel* — January 2025 – Present

- Published a full-stack portfolio with Next.js and Tailwind CSS, integrating a Flask backend and Firebase database.
- Deployed on Vercel to ensure low-latency performance and showcase technical work and personal projects.

Blackjack Optimizer *Python, Pygame, NumPy, Pandas* — May 2024

- Developed a RL agent for Blackjack using Q-learning and gradient descent within a Markov Decision Process.
- Iteratively improved the win rate from 23% to 45% over thousands of simulated games.
- Adding online multiplayer support with Flask and Socket.io for real-time gameplay with up to six players.

Skills

Programming Languages: Python, Go, Java, JavaScript/TypeScript, C++, SQL, HTML, CSS
Libraries & Frameworks: PyTorch, TensorFlow, Scikit-Learn, NumPy, Pandas, Matplotlib, Seaborn, OpenCV, TSFresh, React, Next.js, Express.js, Node.js, Flask, Socket.io, Tailwind CSS, JUnit, Jest, Puppeteer, FFmpeg
Tools & Technologies: Git, Docker, Firebase, Google Cloud Run, SQLite, MongoDB, Vercel, Azure Pipelines, AWS EC2, AWS S3, WandB, CUDA, OpenCL, Figma, Linux, SharePoint, Excel, PowerPoint