Nirvek Pandey

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Education

University of California San Diego **La Jolla, CA 92092**
Regents Scholar, Computer Science B.S. Sept 2022 - June 2026
Relevant Coursework: Object Oriented Design, Advanced Data Structures, Discrete Mathematics, Design and Analysis of Algorithms, AI: Search & Reasoning, AI: Probabilistic Models, Machine Learning: Learning Algorithms, Deep Learning, Software Engineering, Reccomender Systems & Web Mining, Natural Language Processing, Parallel Computing, Operating System Principles, Networked Services

Skills

Programming Languages: Python, Java, JavaScript/TypeScript, C++, C#, R, SQL, HTML, CSS
Libraries & Frameworks: NumPy, Pandas, Matplotlib, Seaborn, OpenCV, Scikit-Learn, PyTorch, TensorFlow, TSFresh, Pygame, Angular, React, Express.js, Node.js, JUnit, Jest, Puppeteer, OpenCL, CUDA, Socket.io
Tools & Technologies: Linux, UMIX, Git, Docker, Firebase, MySQL, Flask, MongoDB, Figma, Vercel

Relevant Experience

Data Science Intern **Costa Mesa, CA 92626**
Neurolens June 2024 - Sept 2024
- Established Extract-Transfer-Load (ETL) system architecture to optimize data flow from databases to end-user data products, streamlining integration and increasing pipeline consistency by 27% for the R&D team.
- Leveraged OpenCV and PyTorch to process eye-tracking and time-series data, achieving 84% accuracy in identifying suppressed measurements, enhancing explainability and advancing data collection for optometrists.
- Processed data visualizations using matplotlib and Seaborn to articulate the significance of architectural updates to stakeholders, driving informed decision-making and cross-functional alignment.

Project Manager **La Jolla, CA 92092**
University of California, San Diego, CSE 110 April 2024 - June 2024
- Led an Agile Scrum team of 8, facilitating daily stand-ups and retrospectives to improve communication and streamline issue resolution, reducing turnaround time for project updates by 25%.
- Managed the CI/CD pipeline using GitHub Actions, reducing deployment errors by 24% and accelerating release cycles by optimizing workflows and automating unit and integration testing.
- Oversaw backlog prioritization and sprint planning, aligning frontend and backend development efforts to increase development velocity and improve on-time completion rates for key project milestones.

SWELL Guide & Student Leader **La Jolla, CA 92092**
Students Who Engage, Lead, and Learn July 2023 - June 2024
- Formulated and executed an automated record-keeping system using REST API and Python, reducing manual data entry time for CSE staff by 40% and enhancing data accuracy and efficiency.
- Led mentorship sessions for 75+ students, providing guidance on academic engagement, mental well-being, and career development, resulting in a 22% increase in program participation.

Research

LLM Security and Automated Jailbreak *CUDA, ML, Prompt Engineering* January 2025 - Present
- Improved an automated red-teaming framework to evaluate Large Language Model (LLM) vulnerabilities against jailbreak attacks.
- Built and optimized an adversarial attack system using LLMs as attackers, targets, and judges, drawing from the "Distract Large Language Models for Automatic Jailbreak Attack" framework.
- Assessed diverse architectures (Vicuna, Llama, DeBERTa, DeepSeek, Grok, Granite) for effectiveness, refining prompts iteratively to enhance security evaluation.

Work

Student Lead, Server, Host **La Jolla, CA 92092**
The Ida and Cecil Green Faculty Club at UCSD October 2023 - Present
- Facilitate seamless guest experiences for events with 30–250 attendees by delivering prompt, personalized service and proactively addressing individual needs.
- Coordinate and optimize catering inventory across the stockroom, kitchen, and multiple event floors, ensuring timely availability of supplies and preventing stock shortfalls.

Projects

Personal Portfolio *Next.js, Node.js, Flask, Firebase, Docker, Google Cloud, Vercel* January 2025 - Present
Launched a responsive, full-stack website to showcase my technical skills and projects. Leveraged Next.js with Tailwind CSS for a dynamic and mobile-first frontend, implemented a robust backend using Flask to display project demos, integrated Firebase for real-time data management, and deployed on Vercel for scalable performance.

Blackjack Optimizer *Pygame, NumPy, Pandas* May 2024
Designed and implemented an search algorithm for Blackjack 21, applying reinforcement learning using Markov Decision Process, Q-learning, and gradient descent; successfully winning 45% of matches. Currently working toward implementing online play leveraging Flask and Socket.io for real time interactions up to six players.

Sudoku Solver *SciPy, NumPy, Pandas* April 2024
Engineered efficient constraint solving algorithm using a backtracking approach to determine the completed state of a provided Sudoku Board; consistently filling standard Sudoku boards in under one second.