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, Software Engineering, Reccomender Systems & Web Mining, Natural Language Processing, Parallel Computing, Operating System Principles

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, Keras
Tools & Technologies: Linux, UMIX, Git, Docker, Firebase, MySQL, PostgreSQL, MongoDB, Figma, Vercel

Relevant Experience

Neurolens — Costa Mesa, CA 92626
Data Science Intern — June 2024 - Sept 2024

- Designed 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.
- Developed data visualizations using matplotlib and Seaborn to articulate the significance of architectural updates to stakeholders, driving informed decision-making and cross-functional alignment.

Students Who Engage, Lead, and Learn — La Jolla, CA 92092
SWELL Guide, Student Leader — 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.
- 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, Machine Learning, Prompt Engineering* — Jan 2025 - Present

Designed 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) for effectiveness, refining prompts iteratively to enhance security evaluation.

Work

The Ida and Cecil Green Faculty Club at UCSD — La Jolla, CA 92092
Student Lead, Server, Host — Oct 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

Development Journal *JavaScript, Git, Node.js, Jest, Puppeteer* — April 2024 - June 2024
Collaborated with an Agile Scrum team of 8, engaging in pair programming with backend developers while contributing to daily stand-ups and retrospectives to enhance code quality, knowledge sharing, and team alignment. Independently designed, optimized, and maintained the CI/CD pipeline using GitHub Actions, reducing deployment errors by 24% and accelerating release cycles. Developed strong teamwork, adaptability, and leadership skills by balancing individual responsibilities with collaborative development efforts.

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 over 45% of matches.

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.