Varmin Singh

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EDUCATION

University of California, Berkeley **Aug. 2022 – May. 2026**
BA: Data Science, Emphasis: Economics, Machine Learning Berkeley, CA
- Relevant Coursework: Data Science for Economists, Corporate Finance, Probability for Data Science, Structure and Interpretation of Computer Programs, Principles and Techniques of Data Science, Data Structures, Advanced Programming in R, Money and Banking, Discrete Math & Probability, Computer Architecture, Artificial Intelligence, Designing and Understanding Deep Neural Networks

EXPERIENCE

University of California, Berkeley **Aug. 2024 – Pres.**
Academic Intern for Computer Architecture Berkeley, CA
- Assisting during office hours to help students debug labs/projects and answer technical/conceptual questions.
- Collaborating with other academic interns and student instructors to develop better information delivery methods.

Penserra **Jun. 2024 – Pres.**
Data Engineer Intern Orinda, CA
- Automated CP data management using Python and Bloomberg API, reducing manual entry time by 80%, and integrated BL API pages with Excel, enabling real-time updates and customized client reports for 50+ issuers.
- Created a document parsing pipeline using Azure Computer Vision, OpenCV, and Tesseract OCR to extract trading data, reducing manual data upload time by 70% for the fixed income department.
- Migrated financial data from Excel workflows to a PostgreSQL database and scaled company-wide, improving data handling processes and query efficiency, and enhancing the usability of critical economic data for multiple teams.

University of California, Berkeley **Jan. 2024 – May. 2024**
Undergraduate Research Assistant Berkeley, CA
- Built predictive models for AWS EC2 outages using a one-year dataset, analyzing CloudWatch metrics, ELB logs, Auto Scaling events, and Lambda functions to improve system reliability.
- Utilized Bayesian Networks and Gradient Boosting Trees to identify causal links between outages and alerts, pinpointing root causes and uncovering component interactions.
- Achieved ~97% precision, delivering actionable insights to enhance cloud resilience and minimize downtime.

Projects

Recurrent Neural Networks for Sequence Prediction (Research)
- Built an RNN model to predict running averages from a sequence of numbers, with a regression layer to predict values at each timestep and the final timestep, testing different prediction approaches.
- Gained hands-on experience building and optimizing RNNs for time-series prediction tasks.

AI Skin Disease Detection (Berkeley AI Hackathon)
- Developed a convolutional neural network (CNN) using Pytorch to apply computer vision techniques on over 25,000 images for skin disease detection, achieving over a 90% accuracy in classifying 8 types of skin diseases.
- Implemented a user-friendly web interface for easy image uploads and real-time AI-driven disease predictions.

Email Spam Detection
- Utilized natural language processing (NLP) techniques and a support vector machine (SVM) classifier using scikit-learn, achieving a classification accuracy of 90% on spam/ham email datasets through cross-validation testing
- Optimized model performance by fine-tuning hyperparameters and applying text preprocessing techniques, using five-fold cross-validation to improve predictive accuracy and overall model robustness significantly.

SKILLS & INTERESTS

- **Languages:** Python, SQL, R, Java, C, JavaScript
- **Tools:** Pandas, AWS, Tableau, Node.Js, NumPy, Selenium, PostgreSQL, Scikit-Learn, PyTorch, TensorFlow, Git
- **Interests:** Deep Learning, Data Engineering/Analysis, Back-End, Basketball, Hiking, Weight Lifting