LAURENCE PALMER

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EDUCATION

University of Southern California **Aug. 2023 - Present**
Master's of Science, Computer Science

University of California, Berkeley **Aug. 2022 - May 2023**
Master's of Engineering, Industrial Engineering and Operations Research

University of California, Santa Barbara **Sep. 2017 - Jun. 2021**
Bachelor's of Science, Applied Mathematics; Bachelor's of Arts, Economics
Awards: High Honors (top 8.5%), Letters and Science Honors Program, Academic Excellence Award, Gretler Fellow

WORK EXPERIENCE

Graduate Student Researcher **Aug. 2024 - Present**
Media Communications Laboratory (MCL), Computer Vision Group
- Researching novel machine learning algorithms (green learning) for computer vision and multimedia applications
- Applying green learning methods to decrease model size and training time while increasing explainability compared to traditional AI algorithms

Data Analyst **Aug. 2023 - Aug. 2024**
Emendata LLC, PIMAS Group
- Supported the Program Integrity and Modeling Analytics Support Contract (PIMASC) to identify fraud, waste, and abuse (FWA) across Medicare and Medicaid programs
- Led 14 analytics projects uncovering fraud schemes across service areas including durable medical equipment (DME), hospice, and substance use disorder (SUD) facilities generating dozens of leads for CMS investigators
- Created production Health Plan Management System (HPMS) model for detecting fraudulent DME supplies and proposed new model methodology to overcome collinearity amongst features
- Developed the inaugural summer internship program end to end including generating Python, data management, and natural language processing training materials

Software Engineer **Sep. 2022 - May 2023**
Shelton AI, Machine Learning Group (Capstone)
- Led exploratory data collection and analysis for features relevant to prediction of capital drawdowns
- Implemented MLP and LSTM RNN with PyTorch on Nvidia GeForce GPU (Ubuntu 22.04) to predict timing and magnitude of capital drawdowns achieving an MAPE of 5% (MLP) and 2% (LSTM)

Software Engineer **Feb. 2022 - Aug. 2022**
Veryfi, Platform Group
- Released Tensorflow models into production, contributed to regex database for validation training
- Created an algorithm to read and parse magnetic ink characters on checks into routing, account, and check numbers supporting formats from United States, Canada, and the Caribbean
- Developed new microservices deployed with Docker and AWS Lambda/EKS such as PII redaction from W2s
- Created a web scraper using Selenium to collect training data for Business Card model totaling over 1M samples
- Implemented ZXing Python C++ wrapper in barcode microservice bringing processing times down 10x

SELECTED PROJECTS AND PUBLICATIONS

Green U-Shaped Learning Approach to Image Dehazing (Submitted: IEEE MIPR 2025) **Sep. 2024 - May. 2025**
- Helped develop a novel algorithm to dehaze images with no reliance on deep learning or back propagation.
- Highly competitive with deep learning solutions with a fraction of the parameters on popular haze datasets such as RESIDE SOTS indoor/outdoor (PSNR: 39.18dB, 36dB), NH-Haze (PSNR: 16dB) , and Dense-Haze (19dB).

Pullup **Aug. 2021 - Jan. 2022**
- Created a web and iOS application for planning carpool rides following MVC pattern
- Used Django to build web app and APIs along with a pub/sub architecture leveraging Kafka, MongoDB, and OpenStreetMaps for route tracking
- Built personal cloud utilizing only spare laptops, 8-port switch, and ethernet cables

LEADERSHIP, SERVICE & VOLUNTEERING

Cub Support **Oct. 2020 - Jun. 2021**
- Tutored mathematics and reading comprehension to assist low-income students with remote learning during COVID

Greeks 4 Kids **Apr 2018 - Jun. 2021**
- Organized fundraisers for school supplies and toy drops to local organizations (StoryTellers Children's Center, Boys and Girls Club of Santa Barbara) with annual donations over $10,000

SKILLS

Languages: Python, C/C++, SQL, Swift, SAS
Libraries/Frameworks: PyTorch, nltk, Matplotlib, Seaborn, Pandas, SciPy, scikit-learn, NumPy, Selenium, Django, Flask, Kafka, pytest, Docker, Kubernetes, Git
Tools: Tableau, Excel, Google Suite, GitLab, Jira
Cloud: AWS, ADO, Linode
Databases: PostGres, MySQL, MongoDB, Snowflake