

# LAURENCE PALMER

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## EDUCATION

<b>University of Southern California</b> <b>Master's of Science, Computer Science</b>	<b>Aug. 2023 - Present</b>
<b>University of California, Berkeley</b> <b>Master's of Engineering, Industrial Engineering and Operations Research</b>	<b>Aug. 2022 - May 2023</b>
<b>University of California, Santa Barbara</b> <b>Bachelor's of Science, Applied Mathematics; Bachelor's of Arts, Economics</b> Awards: High Honors (top 8.5%), Letters and Science Honors Program, Academic Excellence Award, Gretler Fellow	<b>Sep. 2017 - Jun. 2021</b>

## WORK EXPERIENCE

<b>Graduate Student Researcher</b> <b>Media Communications Laboratory (MCL), Computer Vision Group</b>	<b>Aug. 2024 - Present</b>
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- ▶ 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
- ▶ Focus on image denoising and video quality assessments

<b>Data Analyst</b> <b>Emendata LLC, PIMAS Group</b>	<b>Aug. 2023 - Aug. 2024</b>
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- ▶ 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

<b>Software Engineer</b> <b>Shelton AI, Machine Learning Group (Capstone)</b>	<b>Sep. 2022 - May 2023</b>
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- ▶ 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)

<b>Software Engineer</b> <b>Veryfi, Platform Group</b>	<b>Feb. 2022 - Aug. 2022</b>
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- ▶ 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

<b>Green Blind Video Quality Assessment (Amazon Prime)</b>	<b>Jun. 2025 - Present</b>
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- ▶ Developing a blind video quality assessment algorithm using a hybrid of pre-trained, deep learning feature extractors combined with green learning tools which forgoes the need for expensive back propagation while reducing FLOPs

<b>GUSL-Dehaze (Accepted: IEEE MIPR 2025, 20% acceptance rate)</b>	<b>Sep. 2024 - May. 2025</b>
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- ▶ Helped develop a novel, physics-aware algorithm inspired by a U-Net architecture 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 and NH-Haze

<b>Pullup</b>	<b>Aug. 2021 - Jan. 2022</b>
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- ▶ 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

## SKILLS

**Languages:** Python, C/C++, SQL, Swift, SAS

**Libraries/Frameworks:** PyTorch, Matplotlib, Pandas, scikit-learn, Numpy, Selenium/BS, Django, Flask, Kafka, pytest, Docker, Kubernetes, Git

**Tools:** Tableau, Excel, Google Suite, GitLab, Jira

**Cloud:** AWS, ADO, Linode

**Databases:** Postgres, MySQL, MongoDB, Snowflake