

Jacob K. Lo

DEEP LEARNING ENGINEER

EXPERIENCE

CO-FOUNDER, **BOOK SUMMARY AI**

Nov 2022 – Present San Francisco, CA

Fine-tuned large language models (LLMs) for efficient processing of long textbooks input exceeding 300,000 tokens, enhancing output accuracy by 24%.

Optimized GPU memory usage by converting LLMs (7 billion parameters) to model layer offloading using DeepSpeed, achieving a substantial 60% reduction in GPU memory usage.

Developed vector storage solutions using LangChain to manage and retrieve similar queries, resulting in 40% faster prompt handling.

CO-FOUNDER, **STEALTH STARTUP**

Jan 2022 – Nov 2022 San Francisco, CA

Developed data scraper, collected over 1 trillion transactions data for Fortune 500 company stocks across NASDAQ and New York Stock Exchange.

Developed machine learning pricing models and other algorithms including Monte Carlo simulation specifically tailored for algorithmic day trading, resulting in a portfolio with a 12% annual return.

Developed a new web-based dashboard application to visualize profit/loss metrics daily per stock using Plot.ly and Dash, enabling real-time updates and interactive data insights for enhanced trade monitoring.

SOFTWARE CONTROL ENGINEER, **TRIMBLE INC.**

Jun 2018 – Dec 2021 Peoria, IL

Optimized IMU sensors' location on 2 new construction vehicles using MATLAB, adding it to 300+ official support vehicles for Trimble Grade Control software.

Fine-tuned the vibration noise algorithm for heavy dozers (230,000 lbs+), achieving a 36% boost in Grade Control accuracy.

Improved proprietary Kalman filter frameworks for robotic arm control within the Trimble Grade Control software, and solidified its industry-leading position in productivity and accuracy.

EMBEDDED SOFTWARE ENGINEER, **CATERPILLAR INC.**

Jan 2015 – Jun 2018 Peoria, IL

Developed a new algorithm for calculating heavy equipment stopping mechanism, for existing high-precision machine guidance on autonomous trucks (Level 3 automation), achieving a 22% improvement in equipment operational accuracy.

Implemented a real-time cloud-based AWS-powered monitoring system for mining infrastructure statistics, data capture, and analytics across all dozers on a mine site, resulting in a 13% timesaving in daily mining operations.

Researched and trained on different mining material prediction deep learning models, increasing the output accuracy by 1.6%.

CONTACT

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[Github.com/JACOBKLO](https://github.com/JACOBKLO)

SKILLS

PyTorch, TensorFlow, Keras
Python, C++, Java, HTML, CSS
JavaScript, Matplotlib, Plot.ly
Scikit-Learn, Pandas, NumPy
DeepSpeed, LangChain
LLaMA, BERT, Hugging Face
Linux, Git, Docker, SQL
AWS, Google Cloud, Azure
MATLAB, Simulink, Anaconda
CI/CD Pipelines
Statistical Analysis
Supervised Learning
Hyperparameter Tuning
Text Classification
Speech Recognition
Audio Generation
Data Preprocessing/Cleaning
Convolutional Neural
Networks (CNNs) for
Computer Vision
Generative Pre-trained
Transformers (GPTs)
Recurrent Neural Networks/
Long Short-Term Memory
Networks (RNNs / LSTMs)
Generative Adversarial
Networks (GANs)
AI ethics

Problem-Solving: Able to analyze complex datasets/models

Adaptability: Read lots of research papers on rapidly evolving AI landscapes

Communication: Collaborated with Agile teams across the USA and New Zealand/India

Leadership: Lead multiple projects at Trimble/Caterpillar

Creativity: Innovate complex models solving specific needs

EDUCATION

Fast.ai
Deep Learning for coders
University of Wisconsin
BA of Computer Science

ABOUT ME

Dedicated to developing creative streamlined systems with potential to positively impact billions of individuals globally