

Yuliang Peng

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EDUCATION

University of Maryland, College Park

M.S. in Applied Machine Learning

GPA: 3.8/4.0, Expected May 2027

B.S. in Computer Science

GPA: 3.6/4.0, May 2024

Relevant Coursework: Data Structures and Algorithms, Computer Vision, Systems for Machine Learning, Cloud Computing

WORK EXPERIENCE

ICBC USA — *Software Engineer Intern* | Los Angeles, CA | Jun 2026 - Aug 2026

- Integrated an **enterprise AI/LLM platform** into banking workflows, developing Python/SQL adapters, prompts, and validation logic for document processing, information extraction, analytics, and financial applications.
- Developed AI-assisted workflows for **document understanding and financial analysis**, transforming unstructured inputs into summaries, extracted fields, and decision-support outputs.

ModeSens — *Software Engineer (Full-time)* | Remote, USA | Apr 2025 - Sep 2025

- Engineered components of a **serverless, event-driven ingestion platform** using AWS Lambda, SAM, SQS, Redis, and Asyncio/HTTPX, implementing asynchronous processing, retries, deduplication, and failure recovery.
- Implemented modular JSON-LD / DOM / API parsers within a framework covering **360+ merchant schemas**, normalizing heterogeneous product, pricing, inventory, sizing, brand, and image data into catalog records.
- Implemented a **coarse-to-fine vision-matching stack** using perceptual hashing, SIFT/FLANN, CIELAB/HSV features, and SSIM for robust matching across crop, viewpoint, lighting, and background variation.
- Implemented **Redshift-to-S3 archival and ETL components** using Python, SQL UNLOAD, partitioned storage, and Redshift Spectrum, validating row counts and timestamps before warehouse cleanup.

Bank of China — *Software Engineer (Full-time)* | Los Angeles, CA | Jul 2024 - Apr 2025

- Developed **Java/Spring Boot transaction-processing and reconciliation services** for financial workflows, supporting status, retries, failures, settlement states, and downstream reporting.
- Implemented PostgreSQL-backed lifecycle controls including **idempotency and automated reconciliation**, identifying duplicates, invalid transitions, and missing settlements.
- Investigated production failures through logs and root-cause debugging; enhanced Grafana monitoring for latency, retries, reconciliation gaps, and failures, reducing incident-triage time by **30%**.

PROJECTS

[Quant.ai](https://quant.ai) | **ML-Driven Market Simulation & Decision Platform** | C++17, Python, LightGBM, LambdaMART, HMM

- Built a signal pipeline over high-frequency market and limit-order-book data, engineering **Order Flow Imbalance (OFI)**, microprice, depth imbalance, spread, and volatility features for short-horizon prediction.
- Trained **LightGBM and LambdaMART** models for return prediction, probability estimation, and cross-sectional ranking; implemented a 3-state Gaussian HMM for market-regime detection and dynamic risk scaling.
- Built an **agentic intelligence layer** using frontier LLMs to transform unstructured market events into structured features and trading hypotheses, combining semantic outputs with quantitative signals for downstream decision-making.

Aviation & Low-Altitude Tourism Intelligence | Python, PyTorch, Llama-3, Qwen2.5-VL, CLIP, vLLM

- Built a **generative ABSA pipeline** over 27K+ aviation-tourism reviews using Llama-3-8B and schema-constrained structured extraction, converting noisy UGC into fine-grained aspect, opinion, sentiment, and emotion signals with 0.82 F1.
- Built a **coarse-to-fine multimodal validation pipeline** using perceptual hashing and SSIM for image filtering, then CLIP and Qwen2.5-VL for text-image alignment, achieving 0.84 cross-modal consistency F1.
- Developed an **LLM-as-a-Judge and guardrail evaluation pipeline** for structured-output quality and hallucination detection, reducing structural hallucinations by 92%; optimized inference with INT8/ONNX and vLLM/FastAPI.

PUBLICATION

International Cargo Charter Operations and Preighter Performance | *Transport Policy*, Vol. 184, Article 104173, 2026

- Co-authored a study on CAAC cargo-charter networks, contributing software, data curation, validation, and visualization.

SKILLS

Languages: Python, C++, Java, JavaScript/TypeScript, SQL | **Spoken:** English, Chinese, Japanese

Backend / Infrastructure: Spring Boot, FastAPI, PostgreSQL, Redis, Docker, AWS, Grafana, CI/CD, Git

Systems / Performance: POSIX Sockets, TCP/UDP, pybind11, gdb, Linux perf, AddressSanitizer, UndefinedBehaviorSanitizer