

EDUCATION

California State University of Long Beach

B.S. in Computer Science, Minor in Mathematics

Expected Grad: May 2027

Relevant Courses: Systems Programming, Computer Architecture, Data Structures & Algorithms, Optimization, Deep Learning

CSULB Programming Team

ICPC Southern California Regionals Contest - 2025

Competitive Programming Knowledge Base - <https://koishite.ru/competitive>

- Authored rigorous algorithm writeups with proofs and reusable C++ templates, used by students preparing for ICPC competitions.

EXPERIENCE

Zwei Labs

Software Engineering Intern

Remote

Oct 2025 - Jan 2026

- Built **distributed backend systems** for real-time prediction market trading under strict latency and correctness constraints.
- Designed a decimal-safe math library to prevent rounding bugs in trade execution and inventory updates.
- Architected a **low-latency event stream pipeline** for market and inventory updates with **deterministic behavior** under burst traffic.
- Implemented **non-blocking concurrent** ingestion for multiple market feeds with fault isolation.
- Added pre-trade validation checks to prevent invalid orders under stale data and position limits.

Beach Investment Group

Long Beach, CA

June 2024 - May 2025

Quantitative Developer Intern

- Owned end-to-end market forecasting systems, from raw data processing to model training and repeatable forecast generation.
- Reworked slow training code by moving heavy computation to GPUs and using faster data layouts, cutting model iteration time by 60%.
- Delivered **market forecasts** used in external funding proposals, directly supporting **\$115K in secured funding (CFAOC RFP 2024)**.

PROJECTS

Real-Time Face Tracking & Expression Mapping Software (ML + Backend)

- Built a real-time ML pipeline mapping webcam input to avatar expressions using face tracking and lightweight emotion inference.
- Optimized streaming inference** via data reduction, multithreading, and latency-first tuning, maintaining <5 ms end-to-end latency.
- Structured the system as parallel stages (capture, inference, smoothing) to avoid blocking and stabilize frame-time.
- Exposed a **WebSocket-based real-time API** enabling low-latency client synchronization and streaming.

Chewse | Dual-User Swiping for Date Spot Matcher (Full-Stack)

- Built a backend coordinating **real-time shared session state** between paired users using **Redis**.
- Reduced match detection from **O(n)** to **O(1)** using Redis Sets, enabling fast responses as session size scaled.
- Containerized services with **Docker** and deployed on **AWS using Kubernetes and Terraform**.
- Implemented autoscaling, health checks, and rolling updates to support reliable production deployments.
- Improved request throughput by optimizing concurrent request handling in Go.

SKILLS

Programming Languages: C++, Python, Go

Systems: Linux, Multithreading, Concurrency, Profiling, SIMD

Distributed Systems: Redis, Caching, Stateless Services, Horizontal Scaling

Infrastructure: Docker, Kubernetes, Terraform, AWS

Software Engineering: Data Structures & Algorithms, System Design, Object-Oriented Programming