Zhihong (Cody) Jiang

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EDUCATION BACKGROUND

New York University — **New York, NY**
M.S. in Computer Science (Merit Scholarship Recipient) — Expected Dec 2026
B.S. in Computer Science, Minor in Applied Mathematics, Minor in Game Design — Sep 2021 – May 2024

Elite Preparatory Academy — **Somerset, NJ**
Honor Class — Sep 2018 – May 2020

TECHNICAL SKILLS

Languages: Python, C++, C#, C, SQL, JavaScript, Golang
Backend / Systems: Flask, Express.js, Node.js, REST APIs, JWT, CRON scheduling, Linux, Docker, Git
Frontend: React, Vite, HTML/CSS
Databases: MySQL, MongoDB
Data / Processing: Pandas, NumPy, Dask, PySpark, ETL pipelines
Engineering Practices: Static analysis, incremental/diff-based processing, logging/observability, fault-tolerant processing
Visualization (optional/relevant): D3.js, Vega-Lite, Matplotlib
Additional: Unity, XLua (for game systems engineering)

ENGINEERING EXPERIENCE

Gameplay / AI Systems Developer (Software Engineering Focus) — **New York, NY**
AbyssalPact (Unity, C#, XLua) — Apr 2025 – Present

- Designed and implemented a hybrid **C# + XLua** runtime framework for enemy decision logic in a turn-based card game, including orchestration, Lua integration, and strategy routing.
- Built the core enemy turn execution service with state-aware scoring, legal target selection, summon placement, and exception-safe fallbacks to ensure reliable turn completion.
- Created an extensible **AI Tag + metadata system** (enum-based, Lua-backed) to support scalable card intent modeling and configurable scoring as the card pool expanded.
- Implemented runtime AI configuration interfaces (e.g., thresholds, loop limits, tag weights) and multi-strategy selection paths to accelerate balancing iteration, reduce code-level tuning overhead, and support gradual migration from legacy to deck-specific logic.
- Improved reliability and debuggability through AI-specific logging, Lua/C# logging safeguards, and re-entrancy protection for runtime execution paths.

Software Engineering Intern — **Anhui, China**
Anhui Yuntai Transportation Development Limited — Jun 2023 – Aug 2023

- Developed software features for a mobile vehicle-operations application supporting bus dispatch and car-rental workflow management.
- Built a **C++ data management module** for routes, revenue, trip duration, and passenger flow records to support operational reporting and analysis.
- Analyzed route and operations data to support optimization recommendations, contributing to a reported **15% improvement** in workflow efficiency.

Engineering Assistant (Applied AI Tooling) — **New York, NY**
AI-Powered Interview Simulation Tool — Oct 2023 – Mar 2024

- Developed and integrated features for an interview simulation tool using Python-based NLP and audio processing pipelines.
- Implemented response-analysis and scoring workflow components using **PyTorch, Transformers, Torchaudio, and SpaCy**.
- Built user-facing features and supporting documentation to improve usability and help users adopt the tool more effectively.

SELECTED SOFTWARE PROJECTS

AI-Generated Code Technical Debt Analysis System **New York, NY**
Python, Dask, Git, Docker, Static Analysis, Visualization Sep 2025 – Present

- Built an incremental **diff-based analysis pipeline** for multi-branch repositories to detect structural anomalies and AI-generated code risk patterns in evolving codebases.
- Engineered a fault-tolerant caching and commit-delta processing workflow that reduced end-to-end analysis time from hours to minutes for repeated repository scans.
- Designed and implemented detectors for duplication bursts, dependency drift, unreachable code, and API inconsistencies across code revisions.
- Implemented scalable processing for large repository histories using Git lineage-aware analysis to improve change tracking across commits and branches.
- Developed dashboards to surface module hotspots, diff timelines, and risk trends for engineering review and prioritization.

NVIDIA Options Market Pipeline & Visualization **New York, NY**
Python, Pandas, D3.js, Data Engineering, Financial Systems Sep 2025 – Dec 2025

- Built an ETL pipeline for options-chain data ingestion and transformation, including preprocessing, normalization, bucketing, and derived metrics computation.
- Implemented data cleaning, schema alignment, and calls/puts joining workflows to improve dataset consistency and downstream analysis reliability.
- Developed interactive visualizations and analysis tooling for risk/stability exploration, including detection of extreme short-dated options behavior.

Steam Review Radar (NYU Big Data Project) **New York, NY**
PySpark, XGBoost, Data Processing, Platform Behavior & Signal Quality Sep 2025 – Dec 2025

- Built large-scale data processing and feature-generation workflows for Steam review helpfulness prediction and review signal-quality analysis.
- Implemented spam/duplication detection and reviewer pattern analysis pipelines across large user-review datasets.
- Designed evaluation metrics to reduce exposure bias and improve consistency and interpretability of review-quality comparisons.

Self-Supervised World Model (JEPA) for Sequential Prediction (NYU Deep Learning Project) **New York, NY**
PyTorch, Self-Supervised Learning, Sequential Modeling, Training Pipeline Sep 2024 – Dec 2024

- Owned the end-to-end implementation and training workflow for a self-supervised JEPA-based world model (inspired by LeCun, 2022) to predict future latent states for agent trajectory forecasting.
- Designed a recurrent JEPA variant that fused image sequences with action inputs, enabling the model to learn environment structure and dynamics rather than only short-term frame correlations.
- Diagnosed and mitigated representation collapse during training by testing and integrating regularization strategies (including VicReg and BYOL-style constraints), improving training stability and representation quality.

ADDITIONAL SOFTWARE PROJECTS

Backend / Web

· Designed and implemented a relational airline booking system using **SQL + Flask**, including core data models, booking workflows, and backend request handling.

· Built an anonymous course-review backend using **MongoDB + Express.js**, with API endpoints for review submission, retrieval, and moderation-oriented data access.

· Implemented **JWT-based authentication** and scheduled email delivery features in a reminder application, including user session handling and timed notification workflows.

· Developed task-management CRUD features with filtering and sorting to support item organization and user-driven state updates.

Systems / Interactive Engineering

· Built a custom **C++ physics engine** with **OpenGL** rendering and collision handling for interactive simulation and gameplay-style object updates.

· Developed browser-based interactive games in **JavaScript** using event-driven state management for real-time input handling and gameplay logic.

SELECTED COURSEWORK

Object Oriented Programming · AI for Games · Machine Learning · Deep Learning · Algorithmic Machine Learning and Data Science · Data Analysis · Big Data · Information Visualization · Databases · Software Engineering · Web Development · Operating System · Human Computer Interaction · Design & Analysis of Algorithms · Digital Logic and State Machine Design