Jialuo (Eric) Chen

85 Wood St., Toronto 365-996-2310 jialuo.chen@mail.utoronto.ca linkedin github website

Education

University of Toronto **September 2022 – May 2027**

Bachelor of Applied Science and Industrial Engineering with PEY-COOP, focus in AI & ML *Toronto, ON*

- **Minor**: Computer Science, Artificial Intelligence in Engineering, Engineering Business | **Annual GPA: 3.65**
- **Relevant Courses**: Artificial Intelligence, Machine Learning, Deep Learning, Data Science, Reinforcement Learning, Operations Research, Data Structures & Algorithm, Statistics, Database Systems, Bayesian Optimization.

Skills

Programming: Python, SQL, JavaScript/TypeScript, Java, C, C#, Shell Scripting, Linux, R, Matlab
AI & ML: Agent Architectures, RAG Pipelines, Vector Databases (Milvus, ChromaDB), OpenAI/Claude APIs, Prompt Engineering, LangChain, Predictive Modeling, Bayesian Optimization, Deep Learning (Transformers), CUDA
Framework/Tools: Git, Pandas, NumPy, GeoPandas, Scikit-learn, PyTorch, PostgreSQL, OOP, Flask, SpringBoot
Business Skills: Communication, Teamwork, Agile Development, Problem-Solving, Collaboration, Leadership, Jira

Experience

Jana Corporation **May 2025 – Present**

Junior Software Developer (Full-stack & Risk Model) *Aurora, ON*

- Developed and deployed a theoretical probabilistic risk framework into production-level scalable Python models, enabling the automated calculation of "Likelihood of Failure" metrics for Large-Load Metering infrastructure.
- Developed a confirmation modal interface in **React** and **TypeScript** to prevent time-costly accidental compute runs on large-scale data, ensuring operational efficiency and a smooth user experience.
- Collaborated with cross-functional teams to conduct **backtesting** of model parameters against historical incident data, enhanced accuracy of identifying high-risk assets, and reduced expected risk exposure by **3.86%**
- Validated data integrity for critical export modules by refining filtering logic using C# and LINQ, achieving a **100% pass rate** in regression testing and eliminating inconsistent segment errors.

JB Research Group, University of Toronto **January 2025 – Present**

Machine Learning Research Assistant (Model Robustness & Optimization) *Toronto, ON*

- **Re-implemented Bayesian optimization algorithms** to solve complex decision-making problems under uncertainty, rigorously benchmarking performance against standard baselines on high-dimensional datasets.
- Applied extensive **data analysis and ablation studies** to identify key performance drivers, discovering "dimensionality variations" and potential deficits that strengthen the algorithm's robustness in complex decision-making environments.
- Implemented **probabilistic policies** (GP-Hedge) for acquisition functions using **PyTorch** and performed **ablation testing** to identify theoretical gaps, achieving a **9.3%** improvement in convergence.

Li Shuai Research Group, Shanghai Jiao Tong University **January 2026 – Present**

Remote Deep Learning Research Assistant (Transformer & Attention) *Shanghai, China*

- Researched linear attention mechanism in **Transformer** architecture to address computational bottlenecks in **NLP and LLM reasoning tasks**, contributing to the development of more efficient **SLMs** (Small Language Models).

Projects

NeuroCommute Route Optimization Agent | *Agentic AI, OpenAI LLMs, SLMs, A** **January 2026 – Present**

- Designed a **Agentic AI route planning system** that integrates **OpenAI LLMs and Qwen 3 8B** as a critique agent to evaluate and refine route suggestions based on user specific concerns.
- Built a baseline using **A*** algorithms to solve multi-constraint routing problems under varying user critiques.
- Designing the agent workflow to iteratively optimize routes based on natural language critiques and complex constraints, connecting the gap between symbolic reasoning (A*) in route planning and neural intuition (LLMs) of users.

ADHD Scholarship Copilot link | *Human-AI Interatcion, RAG, ChromaDB* **November 2025 – Present**

- Designed a **Chain-of-Thought (CoT)** agent framework with Claude AI to decompose complex scholarship application workflows into atomic micro-tasks, implementing **cognitive guardrails** to minimize execution dysfunction.
- Implemented a **privacy-preserving RAG pipeline** using **ChromaDB** strictly enforcing data isolation boundaries to validate scholarship matches against sensitive user profiles without context leakage.

P&G Engineering Business Case Competition (1st Place) link | *Market Analysis, Strategy, ROI* **October 2025**

- Secured **1st Place** by formulating an AI & data-driven market expansion strategy for P&G's new product, utilizing new media, seasonality, and demographic segmentation to project a **2x increase** in household penetration (10% to 27%).
- Optimized a **$78M marketing budget** allocation across high-ROI channels (New Media Influencers, Retailers) based on AI-driven conversion rate analysis, forecasting a **75+%** effectiveness rate for key consumer segments.