Austing Dong

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EDUCATION

Bachelor of Computer Science, University of Waterloo Sep 2022 - Present

- **Statistics & Actuarial Science Competition Prize**
- **President's Scholarship of Distinction**
- **Faculty of Math Entrance Scholarship (25,000CAD)**

SKILLS

Programming Languages	Python, C, C++, Java, R, SQL, JavaScript, TypeScript
Frameworks	React/Preact with TypeScript, Vue, Spring Boot, Fastapi, Flask
AI / ML	PyTorch, TensorFlow, langchain, vLLM, NumPy, Pandas, OpenCV

ACHIEVEMENTS

Euclid Math Contest - Top 1% Apr 2022
USA Computing Olympic Gold Award Passed with Full Marks (Competed using C++) Dec 2021
Scotiabank Data Science Discovery Days Competition 1st place Jan 2023

- Won **1st place** as a team of 5 among 500+ participants. Developed a predictive pipeline integrating EDA + ML models for financial risk analysis.

EXPERIENCE

Undergraduate Research Fellow, University of Waterloo (Advisor: Yuntian Deng) Canada | Sep 2025 - Dec 2025

- Designing and fine-tuning vision–language models with attention regularization and human-labeled supervision, improving controllability and visual interpretability by integrating interactive annotation interfaces.
- Implemented attention visualization and labeling interfaces for multimodal transformer layers, analyzing head-wise token alignment across image–text pairs.
- Exploring the potential of user-driven attention correction for efficient **online VLM learning**, in collaboration with the AI Lab.

Participant – Google–UWaterloo Futures Lab (Fall 2025) Canada | Oct 2025 - Dec 2025

IEEE VIS Student Volunteer Vienna | Nov 2025

Undergraduate Research Fellow, University of Waterloo (Advisor: Anamaria Crisan) Canada | Jan 2025 - Apr 2025

- **First author** of a paper accepted to **IEEE Transactions on Visualization and Computer Graphics (TVCG) – Special Issue for IEEE VIS**. Introducing AG-CAM, an attention-guided visualization framework for interpreting reasoning in early-fusion vision–language models.
- Developed ChartPADs, a persona-adaptive explanation framework that tailors chart descriptions to users' visualization literacy using an editor–critic multi-agent LLM pipeline
- Conducted a multi-factorial mixed-design user study (50+ participants), showing that personalized chart explanations significantly improve comprehension and align with users' cognitive profiles.
- Built an interactive web platform to visualize explanation quality and refinement loops, **submitted to CHI 2026, under review**.

Data Analyst Intern, Microsoft, Hong Kong Hong Kong| Jan 2024 - Apr 2024

- Designed classification pipelines for anomaly detection on Windows Defender & Azure error logs, improving early failure detection over 15%. Conducted full-stack data analysis and automated reporting pipelines for reliability metrics.

Software Developer, YSAIT Canada | Sep 2023 - Dec 2023

- Built backend infrastructure for an **AI-driven e-learning platform** using Flask & ChatGPT-3.5 API.
- Developed an **admin dashboard** with Java (Spring Boot + MyBatis + Redis + MySQL). Reduced API response latency by 30% through caching & async pipeline; deployed scalable backend on AWS EC2.

SELECTED PROJECTS & PUBLICATIONS

ChartPADs: Bridging VL Barriers with Persona Adaptive Chart Descriptions (CHI 2026, under review) Jan - Sep 2025

- Designed an editor–critic multi-agent LLM pipeline (GPT-4o, Gemini 2.5 Pro) for iterative refinement of chart explanations. Conducted a 50-participant mixed-design user study; personalized explanations improved comprehension accuracy by 22%, response confidence by 18%, and perceived clarity by 24% compared to non-personalized baselines.
- Developed a **real-time interactive visualization platform** for explanation comparison and refinement cycles.

Probing Vis Literacy of VLMs: the Good, the Bad, and the Ugly (IEEE VIS 2025, accepted) Jan 2025 - Mar 2025

- Introduced AG-CAM, an adaptation of attention-guided class activation maps for **early-fusion models**, to visualize and interpret the internal reasoning of vision-language models (VLMs) when answering chart-related questions.
- Evaluated four open-source VLMs (ChartGemma, Janus 1B and 7B, LLaVA) and two closed-source models (GPT-4o, Gemini), analyzing their spatial and semantic reasoning capabilities.
- Provided preliminary evidence that AG-CAM visualizations align with human reasoning, paving the way for transparent and reproducible research in AI visualization literacy.