Xuanyi Lyu
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EDUCATION

University of Toronto Toronto, Canada
Bachelor of Science in **Computer Science & Statistics** Double Major, **Economics** Minor Sep 2022 - May 2026 (Expected)
Honors: Dean's List Scholar (2022-2025)
Core Courses: Software Engineering, Artificial Intelligence, Web Programming, HCI, Data Structures and Analysis, Computer Organization, Systems Programming, Operating Systems, Machine Learning, Probability, Statistics and Data Analysis

ENTREPRENEURSHIP

Commercial Minecraft Role-Playing Game (RPG) Server | *Founder & Operator* Oct 2016 - Present

- Launched and scaled an original RPG server, attracting **10,000+ unique players** in total and sustaining 60+ concurrent active users through engaging PvP systems, boss events, and in-game monetization (subscriptions, merchandise).
- Cultivated a loyal community of 150+ daily active users and **increased player retention by 35%** via targeted feedback loops (e.g., chat groups, in-game mail, polls, and surveys).
- Designed and developed **custom thematic maps**, 3D weapon models, lore, and **8,000+ words** of scripted narrative, enhancing player immersion and increasing average play time by 40%.
- Drove server growth with **digital marketing** across TikTok, WeChat, and Minecraft forums (e.g., MCBBS), generating 20+ daily sign-ups per day and a 15% month-over-month traffic increase.

RESEARCH EXPERIENCE

Full-Stack Loyalty Platform Development for Computer Science Student Union (CSSU) | (GitHub) Jan 2025 – Sep 2025
Research Assistant | Supervisor: Prof. Jack Sun, University of Toronto

- Won **1st place** among 60+ teams in the Winter 2025 Web Design Contest by overwhelming vote; subsequently invited by Prof. Jack Sun to continue developing the project as the official CSSU loyalty platform.
- Developed a full-stack system with **React.js (frontend)** and **Node.js/Express.js/PrismaORM/PostgreSQL (backend)**; integrated JWT-based authentication, implemented a **CI/CD pipeline** via GitHub Actions with Jest testing, and deployed on Vercel and Railway.

Interoperable Provenance Metadata for the Art & Museum Sector | (GitHub) Jun 2025 – Present
Initially Research Assistant (HKUST); subsequently Intern at Art Growth Limited | Supervisor: Prof. Daniel Chun, HKUST

- Designed and implemented a unified, cross-standard provenance framework for digital images, integrating TrustMark imperceptible watermarking with C2PA, W3C DIDs, and Art ID to enable secure embedding and verification to ensure artwork authenticity and traceability.
- Awards & Funding: SREP (Summer Research Exchange Program) Award (CAD $3,000) and IE+ (International Experience Plus) Award (CAD $1,000); selected via competitive Centre for International Experience (CIE) nomination.

ACADEMIC PROJECTS

UX/HCI-Driven Financial Management Application Design | *Team Leader* Sep 2024 - Dec 2024

- Led formative research through 18 interviews, 170 surveys, and contextual observation, synthesizing user insights into **personas, job stories** and **experience maps** that guided strategic UX decisions.
- Designed and tested low-fidelity prototypes and conducted usability evaluations using **think-aloud protocols** and **heuristic evaluation**, increasing task success rate by 32% and improving overall usability.
- Developed and iteratively refined a **high-fidelity Figma prototype**; directed **usability testing** that achieved a **95% satisfaction rate** and reduced **task completion time by 47%**.

Data-Driven Evaluation of NBA Player Scoring Determinants | *Team Leader* Sep 2024 - Dec 2024

- Led a basketball analytics project in R, performing comprehensive data cleaning, exploratory data analysis on 1,400+ NBA player records to uncover scoring trends.
- Developed and refined **multiple linear regression** models using **AIC/BIC** variable selection; performed **multicollinearity** checks, outlier/leverage/influential point analysis, and **Box-Cox** transformations to meet model assumptions.
- Validated model performance via **cross-validation**, **MSE**, and **confidence/prediction intervals**; interpreted coefficients to identify key scoring determinants and presented insights in a formal report to inform data-driven decisions.

MIPS Assembly Language Tetris Game (GitHub) | *Independent Developer* Jan 2024 - May 2024

- Implemented core Tetris mechanics in MIPS assembly, including block generation, movement, rotation, and collision detection, ensuring accurate and responsive gameplay.
- Designed a dynamic pixel-based UI with Bitmap Display and integrated keyboard controls, enabling seamless real-time updates and intuitive player interaction.

Java-based Todo List App for Task and Deadline Management (GitHub) | *Team Leader* Sep 2023 - Jan 2024

- Implemented "**Clean Architecture**" and advanced **design patterns** (Builder, Observer, Strategy) to achieve high modularity, scalability, and code reusability.
- Achieved **100% test coverage** with JUnit 5; integrated the Todoist API to enable cloud sync and reliable task management.

ACTIVITIES

Director, Information Solutions Dept., **University of Toronto Chinese Club** | (Link) Sep 2024 - Present

- Built club website and facilitated collaboration across departments, streamlining event engagement for 100+ members.

Contestant, **Euclid Mathematics Contest**, Excellence Award (Top 25%) Apr 2022
Contestant, **USA Computing Olympiad (USACO)**, Gold Division (Ranked 1/3676) Jan 2022
Contestant, **Purple Comet Math Meet**, Team First Place (Ranked 1/3353) Apr 2021
Volunteer, 100+ hours supporting community services at library, fire station, and blood center. Sep 2021 - Present

SKILLS

Languages: Java, R, Python, C/C++, SQL, TypeScript/JavaScript/HTML/CSS, Assembly language
Technologies: Git, Linux, Microsoft Office, Figma, Canva, Photoshop, Next.js/Node.js/React.