

Ken Chen

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EDUCATION

University of Toronto

Toronto, ON

Bachelor of Applied Science, Computer Engineering + PEY Co-op

Sept. 2024 – May 2028

- Relevant Courses: Linear Algebra, Calculus I and II, Computer Fundamentals, Dynamics, Digital Systems, Programming Fundamentals, Software Design and Communication

EXPERIENCE

Software Engineer Intern

May 2025 – Aug. 2025

TD Bank

Toronto, ON

- Spearheaded the engineering of an internal-to-external asset mapping pipeline with database-backed tracking, accurately connecting 98% of 20,000+ asset pairings across relational and NoSQL stores.
- Programmed scalable Python scripts interfacing with middleware databases to scan 100,000+ assets for CID policy and security compliance, reducing manual analysis time by 80%.
- Deployed IP web crawler that identifies 99% of 5,000+ previously unknown assets, seamlessly integrating them into an SQL table for ServiceNow ingestion.

PROJECTS

Lattice - 3D Holographic Imaging System | C++, Unity, OpenCV, OpenGL

Sep. 2025

- Built a Unity-based 3D point cloud streaming framework with C++/C# integration for mixed reality visualization
- Architected 3D geometric-conversion algorithm leveraging pinhole camera model mathematics, k-d tree spatial search for image reconstruction, and convex hull alignment for point cloud offset and camera calibration
- Designed a network rendering pipeline with custom GLSL shaders for high-performance real-time data streaming

Stocker - Stock Trading Simulator | React, Node.js, Firebase

Jun. 2025 – Aug. 2025

- Constructed a full-stack stock trading simulator with 20+ users and virtual portfolio management/trade execution
- Implemented data caching with in-memory structures to reduce redundant API calls and optimize performance
- Integrated a leaderboard system that ranks users by portfolio value using cloud functions and database triggers

Spooky Spikes - 3D Obstacle Avoidance AI | Python, Tensorflow, Keras

May 2025 – Jun. 2025

- Trained a DQN agent to play a reflex-based game by learning to jump and duck over obstacles with 99% accuracy
- Optimized reward shaping, experience replay, and epsilon-greedy exploration for 100% training success
- Programmed 3D environment rendering pipeline and dashboard to visualize AI decisions, q-values, and confidence

Deadknight - Java RPG Game Engine | Java Swing, Java AWT, JavaIO

Apr. 2024 – May 2024

- Engineered a 2D Roguelike game in Java with 60 FPS, multithreaded rendering, real-time input, and animation
- Developed a sophisticated physics engine featuring convex hull collision detection using Separating Axis Theorem, binary search velocity resolution, and KD-Tree spatial partitioning for entity interactions
- Built a level design pipeline with a visual level editor, procedural level generation, and systematic content loading

AWARDS & CERTIFICATIONS

Hack the North - Finalist Winner & YC Invitee | Hack the North

2025

- Won Best Overall and YC Unicorn Prize interview over 250+ teams at North America's largest hackathon
- Created Lattice, a 3D holographic point cloud projection system using Xbox Kinects and Microsoft HoloLens

AWS Certified Cloud Practitioner | Amazon Web Services

2025

- Acquired foundational AWS cloud services and architecture knowledge.

Governor General Academic Medal | Thornhill Secondary School

2024

- Awarded to the student who achieves the highest grade average upon graduation from a secondary school

TECHNICAL SKILLS

Languages: Java, Python, C/C++, JavaScript, SQL, TypeScript, Ruby, HTML/CSS, Kotlin

Developer Tools: Git, Docker, Kubernetes, Ansible, Postman, Firebase, AWS, Azure, GraphQL, MySQL, PostgreSQL, MongoDB, Linux, Unix, Jira, ServiceNow, SonarQube

Frameworks & Libraries: NumPy, Pandas, TensorFlow, PyTorch, FastAPI, Flask, Django, React, Angular, Node.js, Selenium, Flair, OpenCV, OpenGL