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++, C#, OpenCV, Unity*   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 project Lattice, a 3D holographic pointcloud project system

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, Go, Ruby, HTML/CSS, Kotlin
Developer Tools: Git, Docker, Kubernetes, Ansible, Postman, Firebase, AWS, Azure, GraphQL, Redis, MySQL, PostgreSQL, MongoDB, Linux, Unix, Arduino, MATLAB, Jira, ServiceNow
Frameworks & Libraries: NumPy, Pandas, TensorFlow, PyTorch, FastAPI, Flask, Django, React, Angular, Node.js, Spring Boot, JavaFX, Java Swing, Pygame, Selenium, Flair