Taehoon Kim

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Education

University of Toronto 2021 - 2026
Bachelor of Applied Science, Computer Engineering + PEY Co-op *Toronto, ON*

Experience

Capstone Researcher and Co-Author Sept 2025 - Present
University of Toronto - Research Lab of Professor Vaughn Betz *Toronto, ON*

- **Paper**: "VTR-LLM: Multi-Agent LLM Framework for Automated Debugging of FPGA CAD Flows". Submitted to **ACM TRETS**, Jan 2026.
- Engineered an **iterative, multi-agent framework** using Llama 3/GPT-4 that **autonomously resolves 95% of VTR FPGA CAD flow failures**, outperforming single-agent baselines by **110% (43% vs 91%)**.
- Implemented specialized error-resolution agents using a **FAISS-based retrieval system** to semantically map error logs to relevant documentation chunks for accurate resolution.
- Automated the regression benchmark suite with Python and **curated a dataset of 92 diverse failure scenarios**, providing the evaluation metrics used to validate the system's performance.

AR Application Developer Intern May 2024 - April 2025
ModiFace *Toronto, ON*

- Implemented new rendering/simulation features and bug fixes to ModiFace's **AR try-on SDK** reaching **millions of end users** through **brands including Google, Amazon, and Walmart**.
- **Reduced number of hair-shoulder clipping artifacts by 30%** by executing the complex merge of a new tracking model across the physics engine, 3D rendering pipelines, and AI prediction pipelines.
- **Reduced project maintenance burden by over 55%** by spearheading a major architectural optimization, allowing for the **deprecation of 421k lines of code**.
- Reduced load times and memory usage by **up to 10%** by implementing minification to SDK packaging pipelines.
- Rapidly mastered diverse codebases and technology stacks, contributing **72 CRs across 20 repositories**.

Web and Mobile Developer Intern July - August 2021, May - August 2022
Maplesoft *Waterloo, ON*

- Developed cross-platform UI features, unit tests, and bug fixes in Flutter and implemented server endpoints with JAX-RS.
- **Won a company-wide hackathon** competing against 6 other teams after designing and building an interactive tutorial for Maplesoft's web app.
- Implemented free-trial and paywall features leading to **sales improvements of over $1000 per month**.
- Completed **42 tickets per term** to become the most productive member within my team.

Projects

Procedural Grassy Field Simulation | *C++, OpenGL, GLSL* 2023

- Created a 3D graphics engine to learn about 3D rendering, game engines, and graphics optimizations.
- Emulated realistic lighting and physics with wind and dynamic normal vector recalculation within the vertex shader as well as the Phong lighting model in the fragment shader.
- **Increased frame rate from <0.1 to 40+** by implementing **GPU instancing and frustum culling**.
- **Decreased initial load time by 97%** by separating the world into chunks which only load when necessary.

Technical Skills

Languages: C/C++, Java, Python, JavaScript, C#, Dart, SQL, HTML/CSS, Objective-C
Frameworks/Libraries: Node.js, OpenGL, Flutter, JAX-RS, TensorFlow, NumPy, Unity, Godot, Blender API
Developer Tools: Git, Linux, Bash, VS Code, Visual Studio