Thomas Kim

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Vancouver, BC / Waterloo, ON | U.S./Canadian Citizen

Education

BASc, Honours Biomedical Engineering, Co-op | *University of Waterloo* Sep. 2026 – Apr. 2031

- Current academic year: Digital Computation, Linear Algebra, Calc 1/2, Data Structures and Algorithms, Intro to Machine Learning and AI; Machine Learning Specialization (Stanford Online / DeepLearning.AI)

Experience

Research Volunteer | *Advanced Micro-/Nano-Devices Lab, University of Waterloo* Oct. 2026 – Present

- Pursuing research with PhD student in the Advanced Micro-/Nano-Devices Lab on flexible-polymer CMUT sensor technology
- Building COMSOL simulation and polymer-substrate materials skills with literature review for the lab's next major project

Mechanical Designer, EXO | *BioTron, University of Waterloo* Sep. 2026 – Present

- Design the structural frame and joint components in CAD for a student-built powered lower-body exoskeleton
- Iterate on geometry, joint fit, load paths and manufacturability as the team advances toward a walkable prototype

Research Intern | *Additive Manufacturing Lab, Simon Fraser University* Jan. 2026 – Apr. 2026

- Co-authored a published review; drafted its physical AI and healthcare digital-twins sections under PhD mentorship
- Compared 3D-printed PLA, polymer blends and composites through tensile-strength testing in a biomaterials experiment

Publication

Biswas, P., **Kim, T. M.**, & Kim, W. S. (2026). Integration of digital twins and physical AI in cyber-physical systems. *Intelligent Systems with Applications*, *30*, 200649.

Projects

LabSpotter.app | *React, Python, PyTorch, Hugging Face* Oct. 2026 – Present

- Building a React/Python lab-video action-recognition app with prediction review and run history for the Meta Global AI Developer Hackathon
- Trained a scikit-learn logistic-regression head on frozen V-JEPA2 features (Hugging Face) for 8 lab actions on 384 IBM clips
- Fine-tuned V-JEPA2's last 4 blocks on a 506-clip pilot: 96.2% one-fold training balanced accuracy; planning Meta Model API integration

Heart Disease Classifier | *Python, scikit-learn, XGBoost* Oct. 2026 – Present

- Built a leakage-safe classifier on 920 patients from 4 hospitals (UCI); identified and removed a hospital-ID shortcut feature
- Achieved 92.2% recall on 184 held-out patients using logistic regression, comparing 3 models with 5-fold cross-validation

Hand Dynamometer: Grip Strength Tester | *Onshape, Arduino C++, Python* Sep. 2026 – Nov. 2026

- Designed a 3D-printed grip-strength meter with load-cell sensing, HX711 signal acquisition and custom Arduino firmware
- Developed a Python app for standardized 3-trial grip-strength testing with force-curve comparison against published norms

Leadership

Squadron Chief Warrant Officer (WO1) | *111 Pegasus RCACS* Sep. 2021 – Present

- Led a 200+ cadet squadron as its most senior cadet, directing 30+ staff and mentoring 6 Warrant Officers across 4 departments
- Established and published squadron Standard Operating Procedures; enforced drill, dress and deportment standards

Training Company Sergeant Major | *Vernon Cadet Training Centre* 2026

- Selected nationally as a Staff Cadet for a senior leadership appointment over 1,000 cadets at Vernon Cadet Training Centre
- Led Mission: STEM, a week-long VEX robotics and drone program for 60+ cadets; tested modules for CAF familiarization

Valedictorian · Vice President, Student Council · IB Council Executive | *Sir Winston Churchill Secondary*

- Led student-council executive; raised $9,000 + 30,000 cans yearly for Greater Vancouver Food Bank, earning mayor's letter

Awards

Josef Paldus Engineering Scholarship ($20,000, major award) · **Canada Company Bursary** (1 of 30), 2025
President's Scholarship of Distinction · **Lockheed Martin Scholarship** ($2,500; 1 of 4 nationally), 2026

Skills

Software: Python, C/C++, Java, PyTorch, scikit-learn, Git/GitHub · **AI:** LLM APIs, tool calling, RAG, MCP
Hardware: ESP32, Arduino, sensor integration, PCB design, FDM 3D printing, CAD (SolidWorks, Onshape)
Languages: English (native), Korean (native), French (DELF B2 certified)