

# Ho Yin Kelvin, Lee - Curriculum Vitae

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CONTACT	<b>Personal E-mail:</b> <a href="mailto:hykelvinlee42@gmail.com">hykelvinlee42@gmail.com</a> <b>Work E-mail:</b> <a href="mailto:lee887@mcmaster.ca">lee887@mcmaster.ca</a> , <a href="mailto:hoyinkelvin.lee@sickkids.ca">hoyinkelvin.lee@sickkids.ca</a> <b>Portfolio Websites:</b> <a href="#">ORCID</a> , <a href="#">Personal Website</a> , <a href="#">GitHub</a> , <a href="#">LinkedIn</a>		
RESEARCH INTERESTS	Interdisciplinary research software development, Health informatics, Mobile health and wellness apps, Wearable devices, Meta-research on FAIR scholarly outputs and research reproducibility, (Open) Science policy		
EDUCATION	<b>Bachelor of Science, Computing Science</b> , <a href="#">Simon Fraser University</a>		2021
HONOURS AND AWARDS	Dean's Honour Roll, <a href="#">Simon Fraser University</a> First Place in FAS Competition, <a href="#">Simon Fraser University</a>		2021 2019
ACADEMIC RESEARCH EXPERIENCE	<b>Clinical Research Project Assistant - The Hospital for Sick Children (SickKids)</b> Jan 2023 - Present Supervised by <a href="#">Dr. Samantha Stephens</a> <ul style="list-style-type: none"><li>Examined the association between high-level moderation to physical activities &amp; social networking and less fatigue &amp; depression among youth with multiple sclerosis, and assessed the technical considerations and practical applications of consumer-grade wearables (e.g., Fitbit, Apple Watch) in pediatric clinical trials</li><li>Migrated and modernized ATOMIC, a native iOS app originally built in Objective-C, by rebuilding it using Swift and SwiftUI to enhance maintainability, performance, and user experience; currently deployed to 50+ study participants, the app supports personalized health interventions and real-time activity tracking for youth with multiple sclerosis</li><li>Integrated wearable and health data sources into the app ecosystem using Apple CoreMotion, SensorKit, HealthKit, Firebase Realtime Database, and REDCap, enabling automated, real-time monitoring of physical activity</li><li>Architected and optimized a web-based data dashboard (Next.js, Python, Firebase Cloud Functions) to provide 20+ researchers and coaching staff across 3 research sites with real-time visualizations, trend analysis, and participant monitoring tools to support clinical decision-making</li></ul> <b>Undergraduate Research Assistant - Simon Fraser University</b> Apr 2021 - Aug 2022 Supervised by <a href="#">Dr. Joanna Woo</a> <ul style="list-style-type: none"><li>Analyzed central mass density trends in galaxies undergoing quenching, identifying correlations with super-massive black hole masses and their influence on galaxy evolution</li><li>Developed and executed high-throughput HPC workflows on a <a href="#">SLURM-managed cluster</a> to process and visualize large-scale (<a href="#">IllustrisTNG</a>) simulations data using Python, Matplotlib, and Astropy, enabling efficient analysis of the compaction phase in late-stage galaxy evolution</li><li>Led science outreach initiatives, presenting findings to regional astronomy communities and academic audiences to promote public engagement in computational astrophysics</li></ul>		
ACADEMIC PROJECTS	<b>Stable Matching Quantum Algorithm - <a href="#">Project Link</a></b> May 2021 - Jul 2021 <ul style="list-style-type: none"><li>Developed a quantum algorithm leveraging Grover's search to solve the stable matching problem with <math>O(n\sqrt{n})</math> complexity, significantly outperforming the classical Gale-Shapley algorithm (<math>O(n^2)</math>)</li><li>Designed and implemented search black boxes for all entities, optimizing quantum state representation and improving computational efficiency</li><li>Engineered a stability evaluation method to analyze all possible stable matches, achieving 75% accuracy on the Qiskit Aer quantum computing simulator</li></ul> <b>Variable Star Photometry - <a href="#">Project Link</a></b> Jan 2021 - Apr 2021 <ul style="list-style-type: none"><li>Developed an observation proposal detailing optimal target selection and telescope usage time calculations, contributing to an article with methodology, results and visual data representations</li><li>Processed and calibrated astronomical imaging data using Python and astrophysics libraries (e.g. <a href="#">SEP</a>) to correct for atmospheric extinction and cosmic rays, improving data accuracy</li><li>Analyzed luminosity periodicity in variable stars by applying statistical and computational techniques, identifying patterns relevant to astrophysical research</li></ul>		

PROFESSIONAL EXPERIENCE	Research Software Developer, <a href="#">McMaster University</a>	Feb 2022 - Present
	Software Developer, <a href="#">NETGEAR</a>	Sep 2019 - Apr 2020
	Certification Engineer (Co-op), <a href="#">NETGEAR</a>	Jan 2019 - Aug 2019
GOVERNANCE & OVERSIGHT COMMITTEES	Mar 2025 - Present: Evaluation and Reports Committee Member <a href="#">Canadian Science Policy Centre</a>	
	Feb 2025 - Present: Grant Writing and Research Committee Member <a href="#">Canadian Science Policy Centre</a>	
	Nov 2024 - Present: Actionable FAIR Research Software Guidelines Task Force <a href="#">Research Software Alliance</a>	
PROFESSIONAL TRAININGS	TCPS 2: CORE-2022 (Course on Research Ethics), <a href="#">Panel on Research Ethics</a>	
	Issued Dec 2023.	
	Canada GCP - Research Coordinator/Assistant 1, <a href="#">Collaborative Institutional Training Initiative</a>	
	Issued Dec 2023. Expires Dec 2026.	