

Kenton Hamaluik, M.Sc.

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EXPERIENCE

Research and Development Engineer 2018–Present
Rehabtronics, Inc.

- Architected and developed a full-stack cloud-ready EMR software platform for medical device and patient management which now serves as Rehabtronics' underlying technology platform
- Developed over a dozen computer games and tests for a medical rehabilitation device resulting in increased patient engagement and outcomes
- Developed firmware and accompanying software utilities for medical devices and development tooling
- Maintained and upgraded legacy codebases to provide support for existing products and customers
- Employed machine learning algorithms to research and build novel athletic training products
- Aided in the design and development of multiple medical devices currently being sold in international markets with multiple partners
- Wrote and maintained software and documentation within an ISO 13485 quality management system to ISO 62304 standards to pass regular FDA and ISO audits
- Administered a Microsoft 365 environment and general IT operations to keep the company secure & productive across multiple offices and remote-work situations

Independent Contractor 2015–Present

- *Myself*—Developed, published, and maintain multiple cross-platform mobile apps of personal interest
- *Alberta Health Services*—Developed multiple bespoke online surveys allowing researchers to collect sensitive data from large populations
- *Click'N'Push*—Developed algorithms, hardware, firmware, apps, and a website to create an early-stage accessibility mapping application which won the 2018 HealthHack competition
- *Theatre Alberta*—Developed a database and WordPress plugin to present real-time local theatre information to a province-wide membership
- *Redliner, Inc.*—Developed schematics, firmware, app, and protocols to realise a wheelchair-based activity-monitoring product
- *Salu Design Group*—Developed firmware, app, and Bluetooth protocol to facilitate offline and real-time transfer of a wearable's data

Director of VR/AR Development 2015–2018
Rehabilitation Robotics Laboratory, University of Alberta

- Designed, developed, and deployed educational virtual- and augmented-reality applications across multiple platforms resulting in increased student engagement and understanding
- Coordinated interactions between technical implementations and content expertise to present complex information in new and insightful ways
- Managed a small team of staff, graduate students, and summer students
- Collected and reported business analytics and results to high-level stakeholders to promote our work and maintain grant funding

Research Assistant 2015
Rehabilitation Robotics Laboratory, University of Alberta

- Developed virtual-reality experiences for campus-wide research, education, and promotional initiatives
- Developed a novel wearable health-monitoring device for manual wheelchair users
- Maintained, operated, and trained students on numerous laboratory technologies
- Managed IT infrastructure for the lab

- Developed and implemented an ISO 13485 quality management system
- Revised design and documentation of a biomedical device to comply with international standards

EDUCATION

Master of Science, Mechanical Engineering

University of Alberta, Edmonton, AB, June 2014

Numerical Characterization of Ultrasound Elastography for the Early Detection of Deep Tissue Injuries

Bachelor of Science with Honours, Mechanical Engineering Biomed Co-op

University of Alberta, Edmonton, AB, May 2011

TECHNOLOGIES

Competent	Skilled	Expert
C++, Java, LabVIEW, PHP, Sass, SQL, Typescript	C, C#, CSS, Dart, GLSL, Javascript, Python, Rust	Haxe
PostgreSQL, React, SQLite	Flutter, Rocket, WinForms	Mithril
KiCad, Mathematica, SPSS Microsoft 365	Adobe CC, COMSOL, git, L ^A T _E X, MATLAB, SOLIDWORKS	Blender, Microsoft Office, Unity3D

PATENTS

Ferguson-Pell, M., **Hamaluik, K.**, Salimi, Z. 2018. Systems and methods for monitoring the activity of wheelchair users. WO2017059534A1 filed 2015-10-06. Patent Pending.

PUBLICATIONS

Aaskov, J., Kawchuk, G.N., **Hamaluik, K.**, Boulanger, P., Hartvigsen, J., “X-ray vision: the accuracy and repeatability of a technology that allows clinicians to see spinal X-rays superimposed on a person’s back” *PeerJ* 7:e6333 <https://doi.org/10.7717/peerj.6333>

Hamaluik, K., “Numerical Characterization of Ultrasound Elastography for the Early Detection of Deep Tissue Injuries,” M.Sc. thesis, Department of Mechanical Engineering, University of Alberta, Edmonton, AB, 2014.

Hamaluik, K., Moussa, W., Ferguson-Pell, M., “Numerical Characterization of Quasi-Static Ultrasound Elastography for the Detection of Deep Tissue Injuries,” *IEEE Transactions on Medical Imaging*, vol. 33, no. 7, pp. 1410–1421, July 2014.

Hamaluik, K., “Development of a Finite-Element Model of Clinical Ultrasound for the Detection of Deep Tissue Injury,” a poster presentation at the IFESS conference, Banff, AB, 2012.

Hamaluik, K., Ferguson-Pell, M., “Development of a Long-Term Wheelchair Propulsion Instrumentation Device for Use in Evaluating Community Ambulation Parameters,” a podium presentation at the Alberta BME conference, Banff, AB, 2011.

AWARDS

<i>Edmonton HealthHack Competition</i>	2018
Won first place	
<i>Project SMART Trainee Award</i>	2011–2014
<i>Queen Elizabeth II Graduate Scholarship</i>	2012–2013
<i>Canadian Engineering Competition</i>	2011
Won first place in the Innovative Design category	
<i>Western Engineering Competition</i>	2011

Won first place in the Innovative Design category	
<i>Jason Lang Scholarship</i>	2009–2010
<i>University of Alberta Academic Excellence Scholarship</i>	2006–2007
<i>Faculty of Engineering Academic Excellence Scholarship</i>	2006–2007

TEACHING

<i>MecE 260 Teaching Assistant</i>	2012–2013
A mechanical design course where students are introduced to mechanical design philosophy and design and build competitive robots.	
• Taught seminars • Supervised and assisted students in mechanical dissection labs • Supervised students in a living machine shop • Provided design counselling	
<i>MecE 563 Teaching Assistant</i>	2012
An introductory finite-element class spanning theory and practice solving real-world problems.	
• Taught seminars • Graded assignments and projects	