

# Luke Kapeluck

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linkedin.com/in/luke-kapeluck | github.com/Stalfoes

## Skills

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**Coding:** Python (NumPy, Pandas, Tensorflow, Torch, JAX, Scikit-Learn, Matplotlib), C, C++, C#, Java, SQL

**Software:** Unix, Git, Microsoft Azure, Visual Studio, Artificial Intelligence, Machine Learning, Reinforcement Learning

**Soft Skills:** Communication, Leadership, Organization, Critical Thinking, Problem Solving, Public Speaking, Teamwork, Teaching

## Education

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**Master of Science in Computing Science** (Thesis-Based) Sept. 2022 – Present  
University of Alberta Est. Completion Aug. 2026

• **Co-Advisors:** Michael Bowling, John D. Martin

• **Focus Areas:** Reinforcement Learning, Artificial Intelligence, Machine Learning, Meta-Learning, and Deep Learning

**Bachelor of Science in Computer Engineering** with Distinction Sept. 2017 – June 2021  
University of Alberta

## Publications

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**Meta-Gradient Search Control: A Method for Improving the Efficiency of Dyna-style Planning,** June 2024

Brad Burega, John D. Martin, **Luke Kapeluck**, Michael Bowling  
[PDF] arXiv:2406.19561

## Work Experience

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**Graduate Teaching Assistant**, University of Alberta – Edmonton, AB Sept. 2022 – Sept. 2023

- Recipient of the Graduate Student Teaching Award for the Faculty of Science, which recognizes outstanding teaching amongst graduate students.
- Designed, wrote, and marked assignments and exams for CMPUT 274 (Introduction to Tangible Computing I) and CMPUT 361 (Introduction to Information Retrieval).
- Assisted with the instruction of classes and held regular office hours for students.
- Leveraged knowledge in Python, teaching, leadership, and communication.

**Software Developer (Internship)**, Delco Automation Inc. – Saskatoon, SK Apr. 2022 – Aug. 2022

- Improved upon and developed multiple real-time locating systems (RTLS) and video monitoring systems.
- Constructed a large, scalable, cloud-based Azure IoT Edge application for visualizing data from BACnet devices on a Grafana dashboard.
- Leveraged knowledge in Microsoft Azure DevOps, Git, Agile Development, Grafana, Azure IoT Edge, BACnet, RTLS, C#, Python, PowerShell, and DOS Batch using Visual Studio.

**Associate Machine Learning Developer (Internship)**, AltaML Applied AI Lab – Calgary, AB Oct. 2021 - Dec. 2021

- Developed a machine learning model for a large international electrical power generation company on icing problems in wind farms across Canada and the United States. Full implementation of the model will save the client millions of dollars in lost energy production resulting in improved profitability.
- Performed data preprocessing, feature engineering, and modelling on a dataset consisting of 100 million rows of

wind turbine data.

- Presented weekly updates to the client on the state of the project using return on investment, user journey maps, user personas, ML cards, and dashboards.
- Trained multiple time series forecasting models on a multitude of actual and forecasted features, including weather and generated power conditions.
- Leveraged knowledge in Python, Microsoft Azure, Pandas, SQL, Tensorflow, scikit-learn, Matplotlib, Spark/Scala, Numpy, Git, and machine learning models (SARIMA, Random Forest, XGBoost, LSTM, etc.).

**Software Developer (Co-op)**, Delco Automation Inc. – Saskatoon, SK May 2019 - Aug. 2019

- Developed an installer application for integrated systems modules to be used by clients using Microsoft WPF.
- Constructed a BLE emergency / duress system for hospital staff using the Electron JavaScript API.
- Leveraged knowledge in Microsoft Azure DevOps, Git, Microsoft WPF applications, agile development, C#, XAML, using Visual Studio, BLE applications, and debugging.

## Projects

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**Personal Website:** [lukekapeluck.com/projects](http://lukekapeluck.com/projects) for additional information and projects.

### Covid-19 Haptic Distancing System

- Designed and developed an Android app-based system that employs Bluetooth communication to determine proximity to others and warn the user using haptic feedback via a wearable device.
- Utilized: C++, Kotlin, Android Studio, Arduino IDE, Embedded Systems, Geofencing, Bluetooth RSSI.

### StarCraft II AI Competition Bot

- Developed an AI to competitively play StarCraft II against other competition bots in a tournament.
- Utilized: C++, OpenGL, Artificial Intelligence, Decision Trees.

### Badminton Practice Bot

- Built and designed an Arduino-based RC car with a target on it, controlled by an Android app to autonomously create training regimens for badminton players.
- Utilized: C++, C, Kotlin, Arduino IDE, Embedded Systems, Bluetooth BLE.

### Book Rental Android App

- Designed and developed an Android application that allows users to request, rent, and loan books to other users.
- Utilized: Java, Android Studio, MVVM Architecture, NoSQL.

## Volunteer Experience and Awards

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<b>Ronald McDonald House Charities of Alberta</b>	2023 – Present
<b>Edmonton Speed Skating Association</b>	2013 – 2017
<b>Children's Wish Foundation of Canada</b>	2010 – 2017

**Graduate Student Teaching Award (2024):** Awarded to recognize outstanding teaching.

**University of Alberta Entrance Scholarship (2017):** Awarded to those with an outstanding entrance average.

**Letters of Reference Available Upon Request**