# Matthew P. Kowal

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## *Profile*

- An Applied Math graduate and Computer Science master's candidate looking to use deep learning and computer vision techniques to create innovative and beneficial solutions to a wide variety of problems
- An energetic team player who has worked on multiple machine learning projects, engineering design projects, and who understands commitment as well as how to work with others.
- A reliable leader and great presenter who you can trust to guide a team of researchers or younger students through the constant development of presentation / teaching techniques

## *Education*

### Ryerson University                                                     2018 - Present

Masters of Computer Science (MSc - Candidate)

- Coursework: Machine Learning, Deep Learning in Computer Vision, Neural Information Processing
- Specialization in computer vision, deep learning and machine learning. Interests include depth estimation, semantic segmentation, meta-learning, probabilistic modelling, autonomous vehicles
- Projects include meta-learning error masks for semantic segmentation, one-shot neural architecture search, few-pixel adversarial attack methods, low-level vision tasks for high level goals
- The Chang School of Continuing Education
    - Coursework – Data Structures and Algorithms

### Queen's University                                                     2013 - 2017

Bachelor of Applied Science (B.A.Sc), Applied Mathematical Engineering (Mechanics Option)

- Coursework: Logic, Algebraic Structures, Thermodynamics, Solid Mechanics, Materials, Advanced Calculus, Advanced Differential Equations, Real Analysis, Linear Algebra, Kinematics, Dynamics, Vibrations, Circuits, Error Analysis, Fluid Dynamics, Modern Control Theory, Systems and Signals, Probability, Optimization Theory, Math and Engineering Seminar, Computer Vision Project
- Research Project: Designed a computer vision eye tracking algorithm for the purpose of monitoring driver attention in vehicles. Implemented in C and MATLAB. Project recognized with Keyser Award of Excellence.
- Extracurricular Activities: Varsity Baseball – Pitcher, FREC (Engineering Frosh Leader – Safety, Mental Health and Leadership Training), Co-President of the Queen's ESports Association

### Coursera Certifications

- Andrew Ng's Deep Learning specialization courses
    - Neural Networks and Deep Learning
    - Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization
    - Structuring Machine Learning Projects
- University of Toronto - Geoffrey Hinton's Neural Networks for Machine Learning
- University of Toronto – Python Programming

## *Selected Experience*

- Graduate Assistant at Ryerson University (January 2019 – June 2019)
    - CPS 616 – Algorithms, taught by Dr. Neil Bruce
    - Lead lab sessions, answer questions from students, marking, and course organization
- Mechanical Designer – Morrison Hershfield (July 2017 – August 2018)
    - Analysis and design of mechanical systems, including building controls, cooling and heating systems, HVAC, plumbing, electrical and fire protection. AutoCAD and Revit modelling.
    - Projects worked on: University of Toronto laboratory, University of Guelph Laboratory, TTC McNicoll bus garage, Pearson Airport and more.
    - Site inspections, as-built condition surveys, construction overviewing, client meetings
- Research Assistant to Professor Jeff Lee, Baylor University (September 2017 – September 2018)
    - Research on properties of temperature, heat conduction, and thermal diffusivity at relativistic speeds
    - Deriving the relativistic heat equation using black body radiation for both inertial and non-inertial cases
- Structural Assistant – Morrison Hershfield (Summer 2015 and 2016)
    - Conducted half-cell testing, coring, and deformation checking of bridges in the field.
    - Soffit, deck and abutment surface mapping, AutoCAD work, Core and SAS logging, spreadsheet logging.
- Student Research Assistant -  Scientific study of the Masaya volcano, Nicaragua (Spring 2012)
    - Examined effects of sulfur expulsion on nearby towns, collected butterflies, and studied spatiotemporal gravity changes.
- University/High school Mathematics Tutor – (February 2019 – present)
    - Weekly tutoring sessions covering course material as well as advanced topics to better prepare student for upcoming subjects
    - Grade 11 mathematics and 1st year statistics
- Instructor/Trainer – Leaside Baseball Academy (Summer 2011 - 2013)
    - Responsible for a group of 10-15 young elite athletes on a daily basis, provided instruction for skill development, as well as guidance on teamwork and sportsmanship.
    - Maintained the field and facilities to ensure a safe and clean park space suitable for athletics
    - Discussed progress of athletes with parents and provided personal training when requested

## *Skills and Interests*

- Programming and software
    - Python, C, C++, MATLAB, GNU Octave, Simulink, Maple
    - PyTorch, Tensorflow, Keras
    - AutoCAD, SolidEdge, NX Technology, Revit
    - Microsoft Office (Excel, PowerPoint, Word)
- Interests include baseball, close-up magic, competitive video games, drums (jazz, rock and classical), freestyle and back country skiing, fitness and movement, Tough Mudder finisher, small business owner