Peter Quinn

peterquinn.ca

Languages

- English and French (Bilingual), German (basic)

Education

Master of Engineering, Thesis, Electrical and Computer Engineering 2019-pres.
McGill University, Montréal, QC

- Research Areas: Computer Graphics and Machine Learning
- Supervisor: Prof. Derek Nowrouzezahrai
- McGill Engineering Undergraduate Student Masters Award (MEUSMA) 2019
- Graduate Excellence Fellowship 2019

Bachelor of Engineering, Honours Electrical Engineering 2015-2019
McGill University, Montréal, QC

- GPA: 3.91
- Dr. Alfred S. Malowany Prize 2019
- Brodeur-Drummond Scholarship 2017
- Motorola Foundation Scholarship 2016
- Dean's Honour List
- Faculty of Engineering Scholarship 2017
- J. W. McConnell Scholarship 2015

Diplôme d'Études Collégiales (DEC), Honours Science 2013-2015
John Abbott College, Sainte-Anne-de-Bellevue, QC

- Honour Roll (Top 10% of Honours Science program)
- Dean's List (Top 35 students in the College)
- David Burt Memorial Scholarship 2015
- Credited Marine Biology Project in Belize in conjunction with University of Belize 2015

High School Diploma 2013
Westwood Senior High School, Hudson, QC

- Honour Roll (Above 80% average)
- McGill Science Award (Highest average in Math, Physics and Chemistry) 2013
- Governor General Award (Highest average in High School upon graduation) 2013

Research Experience

Summer Undergraduate Research in Engineering (SURE / NSERC USRA) May-Aug 2019
McGill University, Montreal, QC

- Conducted a research project under the supervision of Prof. Derek Nowrouzezahrai on a differentiable rendering system using PyTorch
- Implemented a custom path tracing renderer in Python that parallelized ray tracing on the GPU and was compatible with the automatic differentiation tools built into the PyTorch, an open source machine learning library
- Presented a research poster to members of the university, alumni and guests at a poster presentation

Research Internship in Science and Engineering (DAAD RISE) May-Aug 2017
Technical University of Kaiserslautern, Kaiserslautern, Germany

- Publication based on this work is currently in peer review
- Worked on the development of novel microwave antenna designs with Prof. Marco Rahm's research group for metamaterials and terahertz technology under the supervision of Ph.D. student Zinching Dang
- Simulated and optimized antenna designs in CST Microwave Studio, then manufactured designed antennas using photolithography in a clean room

- Constructed an antenna measurement setup and programmed the instrumentation using Labview to automate measurements

Summer Undergraduate Research in Engineering (SURE / NSERC USRA) May-Aug 2016
McGill University, Montreal, QC
- Conducted a research project under the supervision of Prof. Andrew Kirk and Dr. Philip J. Roche on a new system for rapidly replicating DNA (PCR) using lasers and gold nanorods
- Designed and constructed using 3D printing a device to hold sample tubes precisely aligned with focusing optics
- Constructed circuitry and programmed microcontrollers to monitor samples using temperature sensors and control the timing of laser pulses to optimize heating cycle
- Presented a research poster to members of the university, alumni and guests at a poster presentation

Research Project Jan-May 2015
McGill University, Montreal, QC
- Research project conducted in McGill chemistry labs under Professor Amy S. Blum and graduate student Julia Del Re on the self-assembly of gold nanoparticles and protein scaffolds
- Report on project received 1st place in CIC Montreal Local Section Chemistry Research Project Contest

Work Experience

Teaching Assistant Sept 2019-pres.
Realistic/Advanced Image Synthesis, McGill University, Montreal, QC
- Help instructor to prepare assignments
- Present additional background information to students to be used when completing course assignments
- Respond to student's questions during tutorial sessions

Hardware Design Intern May-Aug 2018
Matrox, Dorval, QC
- Performed electrical qualification and troubleshooting of hardware designs for upcoming camera products
- Documented test results and compared with specification to ensure that the designs were working as intended

School Scheduler May-Aug 2015
Dash Computer Solutions, Montréal, QC
- Used company software to create and manage class schedules for Montreal high schools
- Optimized schedules based on constraints supplied by school

Private Tutor 2012-2015
- Worked with grade 7-11 students to improve math and science skills
- Communicated with parents to schedule sessions and to report progress and areas of focus

John Abbott College Physics Tutor 2014-2015
John Abbott College, Sainte-Anne-de-Bellevue, QC
- Helped students with physics homework at drop in peer tutoring hours

Design Team Experience

Member of Power Sub-Team Sept 2015 – May 2018
Autonomous Underwater Vehicle (AUV) Project, McGill Robotics, McGill University
- Design and layout of custom microcontroller PCB, design of a PCB to control and power a grabber arm
- Collaborated with other members/sections to ensure that all the systems/PCBs will be compatible
- Oriented and trained new recruits about the team and the software/tools used

Projects

Deep Learning for Lighting Simulations Sept 2018-Apr 2019

McGill University, Montreal, Quebec

- Completed my undergraduate Honours Thesis titled “Deep Learning for Lighting Simulations” under the supervision of Prof. Derek Nowrouzezahrai
- Worked on improving ray tracing using recent advancements in machine learning for modeling complex probability distributions
- By constructing rays using samples taken from a learned distribution, there was a visible improvement in the images for an equal number of samples when compared to randomly constructed rays

FPGA Game Fall 2017

- Programmed an FPGA to allow a user to play a simplified game of black jack against a computer controlled dealer

Autonomous Robot Winter 2016

- Constructed a robot using a Lego Mindstorms kit running the Lejos Java library that was capable of autonomously localizing, navigating, picking up and shooting balls
- Documented all stages of development and testing in a group of six students

Lab Safety Courses

McGill University, Montreal, QC

- Laser Safety 2016, exp. 2019
- Workplace Hazardous Materials Information System (W.H.M.I.S.) 2016, exp. 2019

Volunteer Experience

Student Life Work 2011-2013

- Going to an underprivileged elementary school in Verdun, spending time with the kids and serving them lunch
- Workshops encouraging younger students to get involved in Student Life

Activities and Interests

- Member of McGill Robotics 2015-2018
- Member of Academic Journal Club at John Abbott College 2015
- Member of Squash Club at John Abbott College 2014-2015
- Member of Kayak Club at of John Abbott College 2015
- Member of Westwood Senior/Junior High School Band and Jazz Band 2008-2013
- Member of Student Life at Westwood High School 2012-2013

Scholarship Descriptions

Undergrad

Dr. Alfred S. Malowany Prize ($500) - Awarded to a graduating student by the Faculty of Engineering Scholarships Committee upon recommendation of the Department of Electrical and Computer Engineering. Preference will be given to a student in good academic standing who intends to pursue graduate studies in the Department of Electrical and Computer Engineering.

J W McConnell Scholarship ($3000) - Available to students entering any undergraduate degree program. While academic standing is of primary importance, account may also be taken of financial need and/or qualities of leadership in community and school activities.

Motorola Foundation Scholarships in Electrical and Computer Engineering ($2871) - Established in 2001 by the Motorola Foundation in conjunction with Motorola Canada Software Centre (MCSC) for outstanding students having completed at least one year of study in the area of Electrical, Computer or software Engineering. Awarded on the basis of high academic standing by the Faculty of Engineering Scholarships Committee.

Brodeur-Drummond Scholarship / Faculty of Engineering Scholarship ($3000)- For outstanding undergraduate students who have completed at least one year of a B.Eng. Program in the Faculty of Engineering. Awarded by the Faculty of Engineering on the basis of high academic standing and overall contribution to University life. / Provides awards based on academic achievement to students in the top 5% of the Faculty. Granted by the Faculty of Engineering Scholarships Committee to equalize the value of awards to students of comparable standing.

Dean's Honour List - Awarded to graduating students who are in the top 10% of the faculty's graduating class of students.

NSERC USRA / McGill SURE Program ($5625) - NSERC Undergraduate Student Research Awards (USRA) are awarded based on academic standing and professor rankings to McGill Engineering students who wish pursue a research project with a professor through the Summer Undergraduate Research Experience (SURE) program.

RISE - Globalink Research Internship ($6,000) - The RISE-Globalink Research Internship is a competitive initiative that offers undergraduate students at Canadian universities in science and engineering the opportunity to participate in a research project supervised by a doctoral student at a German university or institution.

Graduate

MEUSEMA ($17,500 for 2 years) – Awarded to students who meet following criteria: Graduated from a McGill Engineering undergraduate program with a CGPA of 3.5 or higher, completed a research project at McGill University, and be admitted to a Master's program within the Faculty of Engineering directly from a McGill Engineering Undergraduate degree.

Hydro Quebec ($10,000 renewable once) - Awarded by the Faculty of Engineering to outstanding students entering a full-time Master's degree program in the Faculty who are residents of Quebec.

Graduate Excellence Fellowship ($1,250) - In the Faculty of Engineering, this award is designed to assist in funding new and continuing Graduate students. The value of the GEF is at the discretion of the Department or School and is available to Research Masters students registered full-time within their first two years of study (M1-M2) and PhD students in PhD1-PhD5. Nomination for this award is at the discretion of the Department or School.