dexterbarrows

curriculum vitae

contact

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about

dexter.barrows.io

programming

C++
C#
Python
R
LaTeX
MATLAB

frameworks

.NET
CUDA
OpenMP

Education

2014–2016 **Master of Science · Applied Mathematics** McMaster University

Thesis title:	*A Comparative Study of Techniques for Estimation and Inference of Nonlinear Stochastic Time Series*
Supervisor:	Dr. Ben Bolker
Research:	Epidemic modelling and forecasting using mechanistic, semi-mechanistic, statistical, and computational approaches, such as Hamiltonian MCMC, Iterated Filtering 2, and S-mapping algorithms.
Repository:	https://github.com/dbarrows/nls-forecast

2010–2014 **Bachelor of Science · Mathematics / Computer Science** Ryerson University

Thesis title:	*Software for Multi-level Monte-Carlo Simulation of Stochastic Biochemical Kinetics*
Supervisor:	Dr. Silvana Ilie
Research:	Development of software utilizing cutting-edge algorithms for simulating systems of biochemical reactions.
Repository:	https://github.com/dbarrows/mlmc-ssbk

Experience

2017–2019 **Software Developer** 7D Surgical

- Designed and implemented software components for medical embedded systems
- Created user interfaces for surgical devices
- Optimised algorithms for GPU-accelerated 3D image processing

2015–2017 **Research Assistant** Biophotonics and Bioengineering Laboratory (BBL)

- Semi-automatic vascular segmentation algorithm development
- Development of software for GPU-accelerated real-time optical coherence tomography (OCT) raw data processing and display

2014–2016 **Teaching Assistant** McMaster University

- Ran tutorials and labs, and invigilated and graded tests and exams
- Courses: Introduction to Scientific Computing and Calculus for Life Sciences

2013 **Data Analyst** Canadian Society of Association Executives (CSAE)

- Performed data sourcing, verification, and analysis

Publications

2017 **Conference proceeding** SPIE Photonics West

Title:	Graphics processor unit acceleration enables realtime endovascular Doppler optical coherence tomography imaging
Authors:	**Dexter Barrows**, Barry Vuong, Kenneth Lee, Jamil Jivraj, Victor X. D. Yang
Link:	https://dx.doi.org/10.1117/12.2254930

2017 **Conference presentation** SPIE Photonics West

Title:	Graphics processor unit acceleration enables realtime endovascular Doppler optical coherence tomography imaging: development and validation
Authors:	**Dexter Barrows**, Joel M. Ramjist, Barry Vuong, Kenneth Kuei-Ching Lee, Jamil Jivraj, Victor X. D. Yang
Link:	https://doi.org/10.1117/12.2256623

2017 **Conference presentation** SPIE Photonics West

Title:	Assessment of hemodynamics of intracranial aneurysms using Doppler optical coherence tomography in patient specific phantoms: preliminary results
Authors:	Joel M. Ramjist, Jamil Jivraj, **Dexter Barrows**, Barry Vuong, Ronnie Wong, Victor X. D. Yang
Link:	https://doi.org/10.1117/12.2256532

Certifications

2018-present **Data Science** University of Toronto

Modelling, visualisation, big data, and machine learning.

2017 **LBR iiwa - Commissioning and Programming** KUKA College

Operation and programming of the KUKA LBR iiwa personal robotic assistant, including safe interaction, manual operation, basic maintenance, authoring robotic applications, and debugging.

Leadership

2013–2014 **President, Mathematics Course Union (MCU)** Ryerson University

- Acted as a liaison between students, the Department of Mathematics, and the Faculty of Science.
- Representative on Departmental Council: Curriculum Advising Committee, By-law Revising Subcommittee
- Steering Committee Member, Ryerson Science Society (RSS)