Michael Musty

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Employment

Data Scientist / Machine Learning Engineer 2021 – present
Faraday
Partner with clients to prototype and build on the Faraday consumer-prediction platform, from technical guidance to custom solutions. Contribute to feature development, research, and implementation across the modeling infrastructure and the API/UI.

Researcher 2020 – 2021
ERDC-CRREL, Hanover, NH
Computer-vision projects focused on landmine detection; supported research publications with statistical modeling and code.

Postdoctoral Researcher 2019
ICERM, Brown University, Providence, RI
Semester program on arithmetic geometry, number theory, and computation.

Graduate Research & Teaching Assistant 2014 – 2019
Dartmouth College, Hanover, NH

Graduate Research & Teaching Assistant 2012 – 2014
University of Vermont, Burlington, VT

Lecturer 2011 – 2013
Norwich University, Northfield, VT

Graduate Research & Teaching Assistant 2008 – 2009
McGill University, Montréal, QC

Education

Ph.D. in Mathematics 2019
Dartmouth College, Hanover, NH
Advisor: John Voight. Dissertation: *2-Group Belyi Maps.*

M.S. in Mathematics 2014
University of Vermont, Burlington, VT
Advisor: Jonathan Sands. Dissertation: *Computing Iwasawa λ-invariants.*

B.A. in Mathematics & Scientific Computing 2008
Boston College, Chestnut Hill, MA

Awards

Selfridge Prize in Number Theory 2018
Number Theory Foundation (awarded at ANTS-XIII)

Publications

2-Group Belyi Maps. Ph.D. thesis, Dartmouth College, 2019.

Computing Canonical Rings of Hilbert Modular Forms (in progress). With the Hilbert modular forms collaboration.

A Database of Belyi Maps. With S. Schiavone, J. Sijsling, and J. Voight. Proc. ANTS-XIII, *The Open Book Series* 2, Mathematical Sciences Publishers, 2019.

Understanding the cost of dermatologic care. With A. Steen, J. Mann, V. Carlberg, A. Kimball, and E. Thompson. *Journal of the American Academy of Dermatology* 76.4 (2017), pp. 609–617.

Numerical calculation of three-point branched covers of the projective line. With M. Klug, S. Schiavone, and J. Voight. *LMS Journal of Computation and Mathematics* 17.1 (2014), pp. 379–430.

Selected Talks

2-Group Belyi Maps 2020
JMM Special Session on Number Theory, Arithmetic Geometry, and Computation, Denver, CO

2-Group Belyi Maps 2019
Maine–Québec Number Theory Conference, Québec, Canada

A Database of Belyi Maps 2018
Simons Collaboration Meeting, Cambridge, MA

Computing Iwasawa λ-invariants 2015
Dartmouth Number Theory Seminar, Hanover, NH

Skills

Programming & tools: Python, R, Magma, SageMath, SQL, Git, LaTeX.
Data science & math: Machine learning, statistical modeling, computer vision, computational number theory.