





NATHAN KING

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EDUCATION

University of Waterloo

PhD in Computer Science

EARLY 2025 (EXPECTED)

Supervisors: Christopher Batty, Steven Ruuth

Simon Fraser University

MSc in Applied and Computational Mathematics

MAY 2015

Supervisor: Steven Ruuth

Memorial University of Newfoundland

BSc (Hons) in Applied Mathematics and Physics

MAY 2013

Supervisor: Ronald Haynes

EXPERIENCE

Research Scientist Intern

Meta, Reality Labs Research

JUN - NOV 2023

Sausalito, CA

Research Intern

Meta, Reality Labs Research

AUG 2021 - FEB 2022

Pittsburgh, PA (Remote)

Sessional Instructor

University of Waterloo, School of Computer Science

MAY - DEC 2020

Waterloo, ON (Remote)

Research Assistant

Simon Fraser University, Department of Mathematics

MAR - AUG 2018

Burnaby, BC (Remote)

Research Scientist

Rutter Inc., Department of Research and Development

MAR 2016 - JUN 2018

St. John's, NL

Research Assistant

Memorial University of Newfoundland, Department of Mathematics and Statistics

MAY - AUG 2012 & 2013

St. John's, NL

PUBLICATIONS

TBA

- [1] _____, Nathan King, _____, _____
Conditionally accepted to ACM SIGGRAPH Asia 2024

A Closest Point Method for PDEs on Manifolds with Interior Boundary Conditions for Geometry Processing

- [2] Nathan King, Haozhe Su, Mridul Aanjaneya, Steven Ruuth, Christopher Batty
ACM Transactions on Graphics 2024

Solving Variational Problems and PDEs that Map between Manifolds via the Closest Point Method

- [3] Nathan King, Steven Ruuth
Journal of Computational Physics 2017

INVITED TALKS

A Closest Point Method for PDEs with Interior Boundary Conditions for Geometry Processing

AUG 2025 ACM SIGGRAPH North America Vancouver, BC
FEB 2024 UW School of Computer Science Seminar Series Waterloo, ON (Virtual)
MAR 2023 SFU Applied and Computational Math Seminar Burnaby, BC

Surface Partial Differential Equations with Interior Constraints

NOV 2022 FoieGraph Montreal, QC (Virtual)
AUG 2021 UW School of Computer Science Seminar Series Waterloo, ON (Virtual)

Intersections with Discrete Closest Point Surfaces

DEC 2021 GRAPHQUON Montreal, QC (Virtual)

Real-Time Detection of Stationary and Moving Marine Radar Targets

NOV 2017 IEEE NL Electrical and Computer Engineering Conference St. John's, NL

The Closest Point Method for Manifold Mapping

MAY 2016 SIAM Conference on Imaging Science Albuquerque, NM
MAR 2016 PIMS SFU Centre for Scientific Computing Seminar Burnaby, BC
JAN 2016 MUN Applied and Computational Mathematics Seminar St. John's, NL

The Closest Point Method

NOV 2015 MUN Applied and Computational Mathematics Seminar St. John's, NL

SOFTWARE

PDEs on Manifolds with Interior Boundary Conditions	C++	JUN 2024
The Closest Point Method for Surface PDEs	C++	FEB 2022
Harmonic Maps between Surfaces	MATLAB	JAN 2021
Interpolation with Quadratic Curves and Patches	MATLAB	JAN 2021
Image Segmentation using the Piecewise-Constant Mumford-Shah Functional	MATLAB	SEP 2014
Numerical Solution of Blow-Up PDEs	MATLAB	SEP 2014

SKILLS

Languages	C++, MATLAB, L ^A T _E X, Python
Technologies	Eigen, Polyscope, Geometry Central, Blender
Other Experience	Houdini, PyTorch, OpenMP, SIMD

STUDENT MENTORSHIP

Derek Wu	<i>Undergraduate, University of Waterloo</i>	MAY - AUG 2023
Tümay Özdemir	<i>Masters, University of Waterloo</i>	JUL 2021 - OCT 2022
Umar Ahmed	<i>Undergraduate, University of Waterloo</i>	JAN - MAY 2021
Haocheng Chang	<i>Undergraduate, University of Waterloo</i>	SEP - DEC 2020

LEADERSHIP

Treasurer	<i>Math Graduate Student Association</i>	SEP 2019 - 2022 <i>University of Waterloo</i>
Committee Member	<i>Eastern Newfoundland Science Fair</i>	OCT 2017 - APR 2018 <i>Newfoundland School District</i>
Treasurer	<i>SIAM Student Chapter</i>	NOV 2013 - 2014 <i>Simon Fraser University</i>
President	<i>Physics and Physical Oceanography Society</i>	MAY 2012 - 2013 <i>Memorial University of Newfoundland</i>

VOLUNTEERING

Student Volunteer	<i>ACM SIGGRAPH North America</i>	AUG 2020 <i>Virtual</i>
Proctor	<i>IEEEExtreme Programming Competition 11.0</i>	OCT 2017 <i>Memorial University of Newfoundland</i>
Assistant	<i>Shad Valley Summer Camp</i>	JUL 2013 <i>Memorial University of Newfoundland</i>
Judge	<i>Eastern NL Science & Technology Fair</i>	APR 2012 & 2013 <i>Newfoundland School District</i>

ACHIEVEMENTS

Ontario Graduate Scholarship	<i>Government of Ontario</i>	JAN - DEC 2024
QEII Graduate Scholarship in Science & Technology	<i>Government of Ontario</i>	JAN - DEC 2022 & 2023
President's Graduate Scholarship	<i>University of Waterloo</i>	JAN - DEC 2022, 2023, & 2024
Mathematics Domestic Doctoral Scholarship	<i>University of Waterloo</i>	SEP 2018 - AUG 2020
Provost Prize of Distinction	<i>Simon Fraser University</i>	SEP - DEC 2015
Special Graduate Entrance Scholarship	<i>Simon Fraser University</i>	SEP - DEC 2015
Postgraduate Scholarship (Doctoral)	<i>NSERC</i>	SEP 2015 - APR 2016
Canadian Graduate Scholarship (Masters)	<i>NSERC</i>	MAY 2013 - APR 2014
Special Graduate Entrance Scholarship	<i>Simon Fraser University</i>	SEP - DEC 2013
Undergraduate Student Research Award	<i>NSERC</i>	MAY - AUG 2012 & 2013
Lou Visentin Award	<i>Memorial University of Newfoundland</i>	MAY 2013