

W. Justin Toth

CONTACT INFORMATION	Combinatorics and Optimization Dept. Faculty of Mathematics University of Waterloo 200 University Ave W Waterloo, Ontario Canada	(226)345-7600 wjtoth@uwaterloo.ca wjtoth.com	
RESEARCH INTERESTS	Combinatorial Optimization, Algorithmic Game Theory, Matching Theory, Polyhedral Combinatorics, and Operations Research in Surgical Planning.		
PROGRAMMING LANGUAGES	Python, Java, C/C++		
EDUCATION	Department of Combinatorics and Optimization, University of Waterloo Ph.D. Student, Combinatorics and Optimization (expected Apr 2021) <ul style="list-style-type: none">• Advisor: Jochen Könemann MMath in Combinatorics and Optimization, Dec 2016 <ul style="list-style-type: none">• Thesis: Structure in Stable Matching Problems• Advisor: Jochen Könemann Department of Mathematics and Statistics, University of Windsor BMath in Mathematics and Computer Science, May 2015 <ul style="list-style-type: none">• Graduate with Great Distinction• Outstanding Scholar		
CERTIFICATION	Centre for Teaching and Learning, University of Waterloo Certificate in University Teaching, Apr 2020 <ul style="list-style-type: none">• 4 Workshops and 4 Response Papers• Teaching Dossier• Research Project: <i>Impact of Assessment Methods on Student Learning Outcomes</i>• Two Teaching Observations Fundamentals of University Teaching Certificate, Dec 2016 <ul style="list-style-type: none">• 6 Workshops and 3 Practice Teaching Sessions		
RECOGNITIONS	2018	2021	NSERC Graduate Scholarship - Doctoral (\$21000/year value) University of Waterloo
	2018	2021	President's Graduate Scholarship - Doctoral (\$10000/year value) University of Waterloo
	2015	2016	NSERC Canadian Graduate Scholarship - Masters (\$17500 value) University of Waterloo
	2015	2016	President's Graduate Scholarship (\$5000 value) University of Waterloo
	Spring	2013	NSERC Undergraduate Student Research Award (\$9000 value) University of Windsor
	2011	2015	President's Scholarship (\$9000/year value) University of Windsor
	2011	2015	Outstanding Scholars Award (\$1300/year value) University of Windsor

EMPLOYMENT	Spring	2015	Software Engineer Coop Communications Security Establishment, Ottawa.
	2014	2015	Undergraduate Research Assistant in Computational Geometry. Advisor: Asish Mukhopadhyay, School of Computer Science University of Windsor.
	Spring	2014	Software Engineer Coop Communications Security Establishment, Ottawa.
	2013	2014	Undergraduate Research Assistant in Graph Algorithms. Advisor: Peter Tsin, School of Computer Science University of Windsor.
	Spring	2013	NSERC Undergraduate Research Assistant in PDE Computation. Advisor: Ronald Barron, Department of Mathematics University of Windsor.
	2012	2013	Undergraduate Research Assistant in PDE Computation. Advisor: Ronald Barron, Department of Mathematics University of Windsor.
JOURNAL PUBLICATIONS	J. Könemann, K. Pashkovich, and J. Toth. Computing the Nucleolus of Matching Games in Polynomial Time. <i>Mathematical Programming</i> , 1-27 (2020)		
	J. Könemann, K. Pashkovich, and J. Toth. An Elementary Integrality Proof of Rothblum's Stable Matching Formulation. <i>Operations Research Letters</i> , 44.6 :754-756 (2016)		
PREPRINTS	J. Drake, M. Drygala, R. Fukasawa, J. Könemann, A. Linhares, T. Looi, J. Phillips, D. Qian, N. Saber, J. Toth, C. Woodbeck, J. Yeung. Optimized Cranial Bandeau Remodelling. <i>arXiv:1912.10601</i> , (2019)		
CONFERENCE PRESENTATIONS	A General Framework For Computing the Nucleolus Via Dynamic Programming <i>Symposium on Algorithmic Game Theory</i> , University of Augsburg. (Sept 16-18, 2020)		
	Computing the Nucleolus of Matching Games in Polynomial Time. <i>Integer Programming and Combinatorial Optimization</i> , University of Michigan. (May 22-24, 2019)		
	Computing the Nucleolus of Matching Games in Polynomial Time. <i>International Symposium on Mathematical Programming</i> , University of Bordeaux. (July 1-6 2018)		
	An Elementary Integrality Proof of Rothblum's Stable Matching Formulation. <i>9th Ottawa Mathematics Conference</i> , University of Ottawa. (June 17-19 2016)		
OTHER PRESENTATIONS	Computing the Nucleolus Via Dynamic Programming. <i>Invited Talk - Corvinus Game Theory Seminar</i> , Corvinus University of Budapest. (Sept 25, 2020)		
	Semesterly Presenter. <i>CombOpt Reading Group</i> , University of Waterloo. (Spring 2017 - Fall 2020)		
	Optimal Stable Matching. <i>3 Minute Thesis</i> , University of Waterloo. (Feb 14 2017)		
	A Short New Proof that the Stable Matching Polytope is Integral. <i>Optimization Seminar</i> , University of Waterloo. (Jan 25 2017)		
TEACHING EXPERIENCE	University of Waterloo		

Fall	2020	Teaching Assistant, CO 602 Fundamentals of Optimization
Fall	2020	Teaching Assistant, CO 351 Network Flow Theory
Spring	2020	Lecturer, CO 327 Deterministic OR Models
Winter	2020	Teaching Assistant, CO 353 Computational Discrete Optimization
Fall	2019	Teaching Assistant, CO 456 Introduction to Game Theory
Spring	2019	Lecturer, CO 327 Deterministic OR Models
Winter	2019	Teaching Assistant, CO 353 Computational Discrete Optimization
Fall	2018	Teaching Assistant, CO 456 Introduction to Game Theory
Spring	2018	Teaching Assistant, CO 351 Network Flow Theory
Winter	2018	Teaching Assistant, CO 353 Computational Discrete Optimization
Fall	2017	Teaching Assistant, CO 456 Introduction to Game Theory
Spring	2017	Teaching Assistant, Co 250 Introduction to Optimization
Winter	2017	Teaching Assistant, CO 353 Computational Discrete Optimization
Fall	2016	Teaching Assistant, CO 456 Introduction to Game Theory
Spring	2016	Teaching Assistant, MATH 128 Calculus for the Sciences
Winter	2016	Teaching Assistant, CO 353 Computational Discrete Optimization
Fall	2015	Teaching Assistant, MATH 136 Linear Algebra 1

University of Windsor

Winter	2015	Teaching Assistant, 62-190 Mathematical Foundations
Fall	2015	Teaching Assistant, 62-120 Linear Algebra 1

SERVICE

Nov	2020	Reviewer, Mathematics of Operations Research
Aug	2020	Reviewer, International Symposium on Algorithms and Computation
Spring	2020	Supervisor, 4th Year Engineering Design Project, Cloud Safari
Jan	2020	Reviewer, Symposium on Computational Geometry
Dec	2019	Creative Lead, TORCH Operations Research Challenge
Oct	2019	Reviewer, Algorithmica
July	2019	Subreviewer, SODA 2019 on behalf of Laura Sanità
March	2019	Volunteer Organizer, TORCH Operations Research Challenge at University of Waterloo
Fall	2018	Co-Organizer, CombOpt Reading Group at University of Waterloo (<i>ongoing</i>)
Spring	2018	Subreviewer, EC 2018 on behalf of Jochen Könnemann
March	2018	Volunteer Organizer, TORCH Operations Research Challenge at University of Waterloo
	2017	2018 Graduate Student Representative, C&O to Computing Facilities
Spring	2017	Volunteer, IPCO 2017 at University of Waterloo
Spring	2017	Subreviewer, ESA 2017 on behalf of Jochen Könnemann
2014	2015	Undergraduate Student Representative, Mathematics Department Council at University of Windsor
2014	2015	Finance Minister, Computer Science Society at University of Windsor