

## Education

PhD	2017
Computer Science, University of Waterloo	
MMath	2009
Computational Mathematics, University of Waterloo	
BMath with Honours	2008
Computational Mathematics with Pure Mathematics Minor, University of Waterloo	

## Professional Appointments

Postdoctoral Researcher	2017
Electrical and Computer Engineering, University of Waterloo	
Visiting Postdoctoral Scholar	2017
Department of Physics and Computer Science, Wilfrid Laurier University	
Research Intern	2017
Maplesoft	

## Peer-reviewed Publications

- C. Bright, D. Đoković, I. Kotsireas, V. Ganesh. A SAT+CAS Approach to Finding Good Matrices: New Examples and Counterexamples. To appear at the AAAI Conference on Artificial Intelligence, 2019.
- C. Bright, I. Kotsireas, A. Heinle, V. Ganesh. Enumeration of Complex Golay Pairs via Programmatic SAT. Proceedings of the International Symposium on Symbolic and Algebraic Computation, 2018.
- C. Bright, I. Kotsireas, V. Ganesh. The SAT+CAS Paradigm and the Williamson Conjecture. ACM Communications in Computer Algebra, 2018.
- C. Bright, I. Kotsireas, V. Ganesh. A SAT+CAS Method for Enumerating Williamson Matrices of Even Order. Proceedings of the AAAI Conference on Artificial Intelligence, 2018.
- E. Zulkoski, C. Bright, A. Heinle, I. Kotsireas, K. Czarnecki, V. Ganesh. Combining SAT Solvers with Computer Algebra Systems to Verify Combinatorial Conjectures. Journal of Automated Reasoning, 2017.
- C. Bright, V. Ganesh, A. Heinle, I. Kotsireas, S. Nejati, K. Czarnecki. MATHCHECK2: A SAT+CAS Verifier for Combinatorial Conjectures. Proceedings of Computer Algebra in Scientific Computing, 2016.
- C. Bright, V. Ganesh, A. Heinle, I. Kotsireas, S. Nejati, K. Czarnecki. MATHCHECK2: A SAT+CAS Verifier for Combinatorial Conjectures. Proceedings of the 1st Workshop on Satisfiability Checking and Symbolic Computation, 2016.
- C. Bright, R. Devillers, J. Shallit. Minimal Elements for the Prime Numbers. Journal of Experimental Mathematics, 2016.

C. Bright, A. Storjohann. Vector Rational Number Reconstruction. Proceedings of the International Symposium on Symbolic and Algebraic Computation, 2011.

### **Publications under Review**

C. Bright, I. Kotsireas, A. Heinle, V. Ganesh. Complex Golay Pairs up to Length 28: A Search via Computer Algebra and Programmatic SAT.

C. Bright, I. Kotsireas, V. Ganesh. Applying Computer Algebra Systems and SAT Solvers to the Williamson Conjecture.

### **Invited Talks**

Faster SAT Solving with Applications to Sudoku. Maplesoft, Waterloo, Canada, August 31, 2018.

Improvements to Satisfy and ChromaticNumber. Maplesoft, Waterloo, Canada, March 23, 2018.

### **Conference and Workshop Talks**

MATHCHECK: A SAT+CAS Mathematical Conjecture Verifier. International Congress on Mathematical Software, Notre Dame, USA, July 26, 2018.

Enumeration of Complex Golay Pairs via Programmatic SAT. International Symposium on Symbolic and Algebraic Computation, New York, USA, July 17, 2018.

A SAT+CAS Method for Enumerating Williamson Matrices of Even Order. AAAI Conference on Artificial Intelligence, New Orleans, USA, February 4, 2018.

A SAT+CAS Method for Enumerating Williamson Matrices of Even Order. International Workshop on Satisfiability Checking and Symbolic Computation, Kaiserslautern, Germany, July 29, 2017.

MATHCHECK2: Combining Learning-based Search (SAT) with Symbolic Computation (CAS). International Workshop on Satisfiability Checking and Symbolic Computation, Timișoara, Romania, September 24, 2016.

MATHCHECK2: A SAT+CAS Verifier for Combinatorial Conjectures. Computer Algebra in Scientific Computing, Bucharest, Romania, September 20, 2016.

MATHCHECK: A Math Assistant Combining SAT with Computer Algebra Systems. International Joint Conference on Artificial Intelligence, New York, USA, July 12, 2016.

MATHCHECK2: A SAT+CAS Verifier for Combinatorial Conjectures. International Workshop on Satisfiability Modulo Theories, Coimbra, Portugal, July 2, 2016.

MATHCHECK2: A SAT+CAS Verifier for Combinatorial Conjectures. Computationally Assisted Mathematical Discovery and Experimental Mathematics, London, Canada, May 13, 2016.

Vector Rational Number Reconstruction. International Symposium on Symbolic and Algebraic Computation, San Jose, USA, June 9, 2011.

### **Poster Presentations**

The SAT+CAS Paradigm and the Williamson Conjecture. International Symposium on Symbolic and Algebraic Computation, New York, USA, July 17, 2018.

A SAT+CAS Method for Enumerating Williamson Matrices of Even Order. AAAI Conference on Artificial Intelligence, New Orleans, USA, February 4, 2018.

Vector Rational Number Reconstruction. East Coast Computer Algebra Day, Waterloo, Canada, April 9, 2011.

### Departmental Talks

SAT+CAS: A Powerful New Combinatorial Search Method. Ottawa–Carleton Combinatorics & Optimization Seminar Series, Ottawa, Canada, October 5, 2018.

Computational Methods for Combinatorial and Number Theoretic Problems. March 23, 2017.

MATHCHECK2: A SAT+CAS Verifier for Combinatorial Conjectures. December 7, 2016.

Minimal Elements for the Prime Numbers. December 7, 2016.

MATHCHECK2: A SAT+CAS Verifier for Combinatorial Conjectures. November 18, 2016.

Extremal Examples in the *abc* Conjecture. March 27, 2014.

Proving the Prime Number Theorem in an Hour. September 9, 2013.

Computing the Galois Group of a Polynomial. April 8, 2013.

From the Shortest Vector Problem to the Dihedral Hidden Subgroup Problem. December 8, 2011.

Vector Rational Number Reconstruction. August 20, 2009.

Lattice Basis Reduction and the LLL Algorithm. May 21, 2009.

### Teaching Experience

Elementary Algorithm Design and Data Abstraction Fall 2015

Introduction to Computer Science 1 Spring 2015

Designing Functional Programs Fall 2014

### Awards

Morgan Deters Travel Award June 2016

TA Award for Outstanding TA Performance August 2013

UW Special Graduate Scholarship April 2011

Undergraduate Student Research Award May 2007

Computational Mathematics Upper Year Scholarship (3 years) October 2005

René Descartes Scholarship October 2004

### Service

Reviewed papers for the Journal of Integer Sequences, the International Symposium on Artificial Intelligence and Mathematics, Computer Algebra in Scientific Computing, the International Symposium on Formal Methods, the International Workshop on Satisfiability Checking and Symbolic Computation, the International Conference on Principles and Practice of Constraint Programming, the International Symposium on Symbolic and

Numeric Algorithms for Scientific Computing, the International Conference on Formal Structures for Computation and Deduction, and Notes on Number Theory and Discrete Mathematics.

Mentor for the Google Summer of Code program during the summer of 2014.

Web administrator for Computer Science Graduate Student Association at the University of Waterloo.

## References

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