

CURRICULUM VITAE

NATASHA KOMAROV

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EDUCATION

Dartmouth College

Ph.D., Mathematics July 2013
Advisor: Peter Winkler
Thesis: Capture Time in Variants of Cops & Robbers Games on Graphs
Master of Arts, Mathematics June 2010

Carnegie Mellon University

Bachelor of Science, Computational Finance August 2008
University Honors, College Honors
Andrew Carnegie Society Scholar
Institutional Fellowship, Presidential Fellowship

TEACHING EXPERIENCE

Assistant Professor, *St. Lawrence University (SLU)* Fall 2015-present
Courses taught: *MATH 135: Calculus I, MATH 136: Calculus II, MATH 205: Multivariable Calculus, MATH 321: Mathematical Finance, MATH 450: Game Theory Seminar, MATH 4006: Combinatorics*

Postdoctoral Associate, *Carnegie Mellon University (CMU)* Fall 2013-Spring 2015
Courses taught: *21-110: Recreational Problem Solving, 21-301: Combinatorics, 21-470: Topics in Analysis - Mathematical Finance, 21-499: Undergraduate Research in Graph Theory*

Instructor, *Dartmouth College* Winter 2011-Summer 2011
Courses taught: *Math 8: Calculus of Functions of One and Several Variables, Math 20: Discrete Probability*

Teaching Assistant, *Dartmouth College* Fall 2008-Spring 2013
Courses: *Math 3: Introduction to Calculus, Math 8: Calculus of Functions of One and Several Variables, Math 12: Calculus Plus, Math 17: Introduction to Math Beyond Calculus: The Art of Counting*

HONORS SENIOR YEAR EXPERIENCE ADVISING

- Maimaitili Ruze, *[Untitled Markov Chain Monte Carlo simulation project]* 2019-2020.
- Malakia Takane, *Portfolio Utility Optimization On Multi-period Binomial* Fall 2017.
- Molli Richards, *Auctions from a Game Theoretic Perspective* Spring 2017.
- Madison Rusch, *Capture Time of One Cop-Win Graphs with Two Cops* Spring 2017.
- Hannah Durant, *Graph Theory and Epidemiology: Using network models to represent and analyze the spread of infectious diseases* Spring 2016.
- Xiaoying (Claire) Lu, *Counting triangles in graphical realizations of degree sequences with unique k -tuples* (with J. Defranza) Fall 2015.

PUBLICATIONS & PRE-PRINTS

- *[StreetBlock]* (with A. Beveridge) in preparation, 2019.
- *Using spotlights to find a robber* in preparation, 2019.
- *A study of cops and robbers in oriented graphs*
(with D. Khatri, A. Krim-Yee, N. Kumar, B. Seamone, V. Virgile, A. Xu) submitted, 2019.
- *Containment: a variation of Cops & Robber* (with J. Mackey and D. Crytser) submitted, 2019.
- *On the number of 5-cycles in a tournament* (with J. Mackey) J. Graph Theory **86** (3), 2017.
- *Cop vs. Gambler* (with P. Winkler) Discrete Math. **339** (6), 2016.
- *Capturing the drunk robber on a graph* (with P. Winkler) E. J. Combinatorics **21** (3), 2014.
- *Capture time in variants of Cops & Robber games on graphs* Doctoral Thesis, 2013.

SELECTED PRESENTATIONS

1. CanaDAM, Simon Fraser University May 2019
Containing a Robber on a Graph
2. Mathematics Colloquium, Clarkson University April 2019
Containment: A Variation of Cops & Robber
3. Graphs and Optimization Seminar, LaBRI Bordeaux March 2019
Using Edge-to-Edge Pursuit to Surround a Robber
4. Canadian Discrete and Algorithmic Mathematics Conference, Ryerson University June 2017
Using Spotlights to Find a Robber
5. Computer Science Colloquium, Clarkson University March 2017
Constructing a Coherent Tournament
6. Science Cafe, Canton & Potsdam, NY October 2016
The Unintuitive Nature of Randomness
7. MAA Seaway Section Conference at SLU November 2015
Cycles in Tournaments
8. Colloquium at Montclair University February 2015
A Disproof of the Tournament Analog of the Erdős-Burr-Rosta Conjecture
9. Q-Club at SLU February 2015
Capturing a Mole on a Lobster
10. SIAM Conference on Discrete Mathematics in Minneapolis, MN June 2014
Cop vs. Gambler
11. Mathematics Colloquium at Providence College January 2014
Guaranteed Capture of the Perfect Adversary on a Graph
12. Mathematics Colloquium at Bard College November 2013
An Optimal Strategy for Capture in a Cops & Robbers Game with Teleportation and Telepathy
13. Undergraduate Colloquium at Carnegie Mellon University November 2013
Hunter vs. Mole
14. Algorithms-Combinatorics-Optimization Seminar at Carnegie Mellon University September 2013
Optimal Algorithms for an Anti-Incursion Program Fighting a Time-Independent Enemy

15. PhD Thesis Defense at Dartmouth College July 2013
Capture Time in Variants of Cops & Robbers Games
16. 2nd GRASCan Workshop at Ryerson University April 2013
Capturing the Drunk Robber on a Graph
17. Computer Science Theory Reading Group at Dartmouth College February 2013
How Long Can it Take to Hit a Random Walk?
18. Graduate Student Seminar at Dartmouth College *Cops & Drunks: A Probabilistic Variation on Cops & Robbers* February 2012
How to Catch a Sneaky Thief August 2010
An Application of Ramsey's Theorem: Generalizing the Happy Ending Problem August 2009
19. Dartmouth Math Society at Dartmouth College May 2011
A Survey of Results About Random Walks

MISCELLANEOUS PROFESSIONAL DEVELOPMENT ---

- Faculty Advisor: SLU Pi Mu Epsilon Fall 2019-present
- Member: SLU Sustainability Program Advisory Committee Fall 2017-present
- Member: SLU Scholarships, Fellowships, and Grants Committee Spring 2017-present
- SYE advisor for five honors students at SLU 2015-present
- Referee/reviewer for 2010-Present
 - American Mathematical Society
 - Discrete Applied Mathematics
 - Discrete Mathematics
 - Information Processing Letters
 - International Journal of Computer Games Technology
 - Journal of Graph Theory
- Visiting Scholar, LaBRI (Bordeaux, France) March 2019
- Village of Canton representative: Ethics Committee 2018-2019
- Member: Hudson River Undergraduate Math Conference (HRUMC) grant committee 2017-2018
- Member: SLU Assistant Professor of Economics search committee (two positions) 2017-2018
- Faculty Advisor: AWM (SLU student chapter) 2016-2018
- Faculty Co-Advisor for Q-Club at SLU 2015-2018
- Winner: William B. Bradbury, Jr. Faculty Support Award 2017
- Beauty of Discrete Mathematics conference at University of Montreal October 2017
- Co-chair: SLU Visiting Assistant Professor of Mathematics search committee 2016-2017
- Member: SLU Math, CS, Stats Department Assessment Committee 2016-2017
- Faculty Advisor: Chess Club at SLU 2015-2017
- Faculty Advisor: Quidditch Club at SLU 2015-2017

- May College at SLU May 2016
- Member: Petersen Quantitative Resource Center Assistant Director search committee Spring 2016
- Instructor: Johns Hopkins Center for Talented Youth Odyssey Series August 2011
- Instructor: Dartmouth Math Camp at Dartmouth College August 2010
- Pedagogy Seminar at Dartmouth College June-August 2010

PROGRAMMING SKILLS

Mathematical Software: \LaTeX , Matlab, Mathematica, Maple, R

Other Programming Knowledge: SQL, Java, Javascript, HTML/CSS

REFERENCES

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| Peter Winkler | Patti Frazer Lock | John Mackey |
| Dept. of Mathematics | Dept. of Math. CS, & Stats. | Dept. of Mathematics |
| Dartmouth College | St. Lawrence University | Carnegie Mellon University |
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