ELLIOT CARTEE

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Research Experience

-Research with Prof. Alexander Vladimirsky (Cornell University) on Pedestrian Flow Modeling, Surveillance-Evasion Games, Uncertainty Quantification, and Mean Field Games, 2014-2019

-Visiting Student Research Collaborator with the Department of Operations Research and Financial Engineering at Princeton University, Fall 2018

Awards

-Robert J. Bättig Graduate Prize for Excellent Achievements in Research ($2500 prize)

Cornell Mathematics Department 2018-2019

-Pauline and Irving Tanner Dean's Scholar, Cornell University

Publications

- Cartee, E., & Vladimirsky, A. "Control-Theoretic Models of Environmental Crime" Submitted to *SIAM Journal on Applied Mathematics*.

-Cartee, E., Lai, L., Song, Q., & Vladimirsky, A. "Time-Dependent Surveillance-Evasion Games" Accepted for presentation at *IEEE CDC 2019*.

-Cartee, E., & Vladimirsky, A. "Anisotropic Challenges in Pedestrian Flow Modeling" *Communications in Mathematical Sciences*, 16(4), 1067–1093 (2018).

-Virgin, L. N., Plaut, R. H., & Cartee, E. "The Effect of Gravity on a Slender Loop Structure" In *Nonlinear Dynamics, Volume 1* (pp. 185-190). Springer, Cham (2016).

-Virgin, L. N., Plaut, R.H., & Cartee, E. "Adjacent Equilibria in Highly Flexible Upright Loop on Rigid Foundation" *Experimental Mechanics*, 55(6), 1191-1197 (2015).

- Khan, S., Johnson, J., Cartee, E., & Yao, Y. "Global regularity of chemotaxis equations with advection" *Involve, a Journal of Mathematics*, 9(1), 119-131 (2015).

Presentations

Surveillance-Evasion Mean Field Games: July 17, 2019

International Congress on Industrial and Applied Mathematics, Valencia, Spain

Time-Dependent Surveillance-Evasion Games: April 6, 2019

Applied Math Days 2019, Rensselaer Polytechnic Institute

Anisotropic Interactions in Pedestrian Flow Modeling: March 23, 2019

New York State Regional Graduate Mathematics Conference, Syracuse University

Surveillance-Evasion Mean Field Games (Poster): October 11, 2018

NSF Algorithms for Threat Detection Workshop, American University

Anisotropic Challenges in Pedestrian Flow Modeling (Poster): August 28, 2017

Mean Field Games Workshop, UCLA (IPAM)

Models of Pedestrian Flow: April 6th, 2015

Scientific Computing and Numerical Analysis seminar, Cornell University

Teaching Experience (Cornell University)

Head TA, MATH 2940: Linear Algebra for Engineers, Fall 2019

Head TA, MATH 2930: Differential Equations for Engineers, Spring 2019

REU Graduate Student Mentor, Summer 2018

Head TA, MATH 2930: Differential Equations for Engineers, Fall 2017

Instructor, MATH 1110: Calculus I, Spring 2017

Head TA, MATH 2930: Differential Equations for Engineers, Fall 2016

TA, MATH 2930: Differential Equations for Engineers, Spring 2016

Grader, MATH 4250: Differential Equations and Numerical Analysis, Fall 2015