Elliot Cartee

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Current position

2020–Present	**L.E. Dickson Instructor**, *University of Chicago*, Department of Mathematics.

Education / Research Experience

2014–2020	**Ph.D., Mathematics**, *Cornell University*, Advisor: Alexander Vladimirsky. Thesis title: Topics in Optimal Control and Game Theory
Fall 2018	**Visiting Student Research Collaborator**, *Princeton University*, Operations Research and Financial Engineering.
2014–2017	**M.S., Mathematics**, *Cornell University*.
2011–2014	**B.A., Mathematics**, *Cornell University*.

Awards

2018-2019	Robert J. Bättig Graduate Prize for Excellent Achievements in Research
2011-2014	Pauline and Irving Tanner Dean's Scholar

Publications

E. Cartee, A. Farah, A. Nellis, J. van Hook, A. Vladimirsky, *Quantifying and managing uncertainty in piecewise-deterministic Markov processes*, submitted to SIAM/ASA Journal on Uncertainty Quantification.

E. Cartee and A. Vladimirsky, *Control-theoretic models of environmental crime*, SIAM Journal on Applied Mathematics, 80(3), 1441-1466 (2020).

E. Cartee, L. Lai, Q. Song, and A. Vladimirsky, *Time-dependent surveillance-evasion games*, 2019 IEEE CDC, Nice, France, pp. 7128-7133 (2019).

E. Cartee and A. Vladimirsky, *Anisotropic challenges in pedestrian flow modeling*, Communications in Mathematical Sciences, 16(4), 1067-1093 (2018).

L. N. Virgin, R. Plaut, and E. Cartee, *The effect of gravity on a slender loop structure*, Nonlinear Dynamics, Volume 1 (pp. 185-190). Springer, Cham (2016).

L. N. Virgin, R. Plaut, and E. Cartee, *Adjacent equilibria in highly flexible upright loop on rigid foundation*, Experimental Mechanics, 55(6), 1191-1197 (2015).

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

Presentations

October 2020	**Control-Theoretic Models of Environmental Crime**, *CAMP / Nonlinear PDEs Seminar*, University of Chicago.

May 2020	**Quantifying and managing uncertainty in Piecewise-Deterministic Markov Processes**, *Scientific Computing and Numerical Analysis seminar*, Cornell University.
Dec. 2019	**Time-dependent Surveillance-Evasion Games**, *IEEE Conference on Decision and Control 2019*, Nice, France.
October 2019	**Modeling Environmental Crime in the Presence of Ground Patrols (Poster)**, *NSF Algorithms for Threat Detection Workshop*, George Washington University.
October 2019	**Control-Theoretic Models of Environmental Crime**, *Doctoral Consortium on Computational Sustainability*, Carnegie Mellon University.
October 2019	**Control-Theoretic Models of Environmental Crime (Poster)**, *3rd AFOSR Workshop on Computational Control*, Monterey, CA.
Sept. 2019	**Control-Theoretic Models of Environmental Crime**, *Scientific Computing and Numerical Analysis seminar*, Cornell University.
July 2019	**Surveillance-Evasion Mean Field Games**, *International Congress on Industrial and Applied Mathematics*, Valencia, Spain, (Invited mini-symposium talk).
April 2019	**Time-dependent Surveillance-Evasion Games**, *Applied Math Days 2019*, Rensselaer Polytechnic Institute.
March 2019	**Anisotropic Interactions in Pedestrian Flow Modeling**, *New York State Regional Graduate Mathematics Conference*, Syracuse University.
October 2018	**Surveillance-Evasion Mean Field Games**, *NSF Algorithms for Threat Detection Workshop*, American University.
August 2017	**Aniostropic Challenges in Pedestrian Flow Modeling**, *Mean Field Games Workshop*, UCLA (IPAM).
April 2015	**Models of Pedestrian Flow**, *Scientific Computing and Numerical Analysis seminar*, Cornell University.

Teaching Experience

University of Chicago

August 2020	**Instructor**, *MATH 16110: Honors Calculus I (IBL)*.

Cornell University

Fall 2019	**Head TA**, *MATH 2940: Linear Algebra for Engineers*.
Spring 2019	**Head TA**, *MATH 2930: Differential Equations for Engineers*.
Summer 2018	**REU Graduate Student Mentor**.
Fall 2017	**Head TA**, *MATH 2930: Differential Equations for Engineers*.
Spring 2017	**Instructor**, *MATH 1110: Calculus I*.
Fall 2016	**Head TA**, *MATH 2930: Differential Equations for Engineers*.
Spring 2016	**TA**, *MATH 2930: Differential Equations for Engineers*.
Fall 2015	**Grader**, *MATH 4250: Differential Equations and Numerical Analysis*.