Employment

University of Michigan - Ann Arbor, Michigan   2021 - 2024
James Van Loo Postdoctoral fellow (mentor: P. D. Miller)

KTH Royal Institute of Technology - Stockholm, Sweden   2019 - 2021
Postdoctoral researcher (mentor: J. Lenells)

University of Central Florida - Orlando, Florida   2012 - 2019
Graduate teaching/research associate

Larson Texts Incorporated - Erie, Pennsylvania   2011 - 2012
Video content and solutions writer

Penn State Erie - Erie, Pennsylvania   2011
Mathematics tutor

Education

Ph.D., Mathematics, University of Central Florida   2019
(advisors: A. Katsevich and A. Tovbis)
M.S., Mathematics, University of Central Florida   2014
B.S., Mathematics, Penn State Erie   2011

Citizenship

United States of America

Papers

In preparation

- D. Bilman, E. Blackstone, P. D. Miller, and G. Young, The robust inverse scattering transform for the modified Korteweg-de Vries equation and rogue waves of infinite order.

- E. Blackstone, C. Charlier, and J. Lenells, Toeplitz determinants with a one-cut regular potential and Fisher–Hartwig singularities II.

- E. Blackstone, L. Gassot, and P. D. Miller, On Strong Zero-Dispersion Asymptotics for Benjamin-Ono Soliton Ensembles.

- E. Blackstone, L. Gassot, P. Gérard, and P. D. Miller, Long-time asymptotics for the Benjamin–Ono equation.

- E. Blackstone, L. Gassot, P. Gérard, P. D. Miller, and M. Mitchell, Strong small dispersion asymptotics for the Cauchy problem of the Benjamin–Ono equation.

Submitted

- M. Bertola, E. Blackstone, A. Katsevich, and A. Tovbis, On singular limits of finite Hilbert transform operators on multi intervals. https://arxiv.org/abs/2210.10002 (Accepted in Mathematische Nachrichten)

Published

1) E. Blackstone, C. Charlier, and J. Lenells, Toeplitz determinants with a one-cut regular potential and Fisher–Hartwig singularities I. Equilibrium measure supported on the unit circle. *Proc. Roy. Soc. Edinburgh Sect. A* doi:10.1017/prm.2023.73 (2023), 1–42.

2) E. Blackstone, C. Charlier, and J. Lenells, The Bessel kernel determinant on large intervals and Birkhoff's ergodic theorem. *Comm. Pure Appl. Math.* **76** (2023), 3300–3345.

3) E. Blackstone, C. Charlier, and J. Lenells, Gap probabilities in the bulk of the Airy process. *Random Matrices Theory Appl.* **11**, (2022).

4) E. Blackstone, C. Charlier, and J. Lenells, Oscillatory asymptotics for the Airy kernel determinant on two intervals. *Int. Math. Res. Not.* **2022** (2022), 2636–2687.

5) M. Bertola, E. Blackstone, A. Katsevich, and A. Tovbis, Diagonalization of the finite Hilbert transform on two adjacent intervals: the Riemann-Hilbert approach. *Anal. Math. Phys.* **10** (2020).

6) E. Blackstone, Spectral properties of the finite Hilbert transform on two adjacent intervals via the method of Riemann–Hilbert problem. *Electronic Theses and Dissertations* (2019). https://stars.library.ucf.edu/etd/6454

7) E. Blackstone and D.J. Galiffa, Two Differential Equations for the Linear Generating Function of the Charlier Polynomials. *Appl. Math. E-Notes* **13** (2013), 60–67.

Selected Talks

1) Large gap asymptotics for the Bessel kernel determinant, Midwestern Workshop on Asymptotic Analysis at IUPUI, October 2023.

2) The spectral theory of finite Hilbert transforms acting on many intervals, Integrable systems and random matrix theory seminar at University of Michigan, January 2023.

3) The zero-dispersion limit of the Benjamin-Ono equation, IMACS Conference on Nonlinear Evolution Equations at University of Georgia, April 2022.

4) Large gap asymptotics for Airy and Bessel kernel determinants, Integrable systems and random matrix theory seminar at University of Michigan, February 2021.

5) Spectral properties of the finite Hilbert transform on two adjacent intervals via the method of Riemann-Hilbert problem, Analysis seminar at KU Leuven, December 2019.

6) Singular limits of certain Hilbert-Schmidt integral operators and applications to tomography, IMACS Conference on Nonlinear Evolution Equations at University of Georgia, April 2019.

7) Deift-Zhou Method for the Asymptotics of Operators with an Integrable Kernel: Transition from Discrete to Continuous Spectrum, AMS Spring Southeastern Sectional Meeting at College of Charleston, March 2017.

8) Riemann-Hilbert Problems and Finite Hilbert Transforms with Applications to Tomography, University of Central Florida Analysis Seminar, November 2016.

9) Generating Functions for the Charlier Orthogonal Polynomial Sequence, MAA Allegheny Mountain Sectional Meeting at West Virginia University, April 2012.

Referee service
Advances in Nonlinear Analysis, Hong Kong Research Grants Council

Awards
UCF math department outstanding dissertation award, 2019

Undergraduate research projects

1) Haoyan Shi - Soliton solutions of the KdV equation, summer 2023

2) Mutian Shen - A 'simple' linear algebra problem arising from the Benjamin–Ono equation N-soliton solution, summer 2023

Teaching
University of Michigan

- Math 156 - Applied honors calculus II   Fall 2021

- Math 316 - Differential equations   Winter 2022, Spring 2022, Fall 2023

- Math 286 - Honors differential equations   Fall 2022, Fall 2023

- Math 216 - Introduction to differential equations   Spring 2023

University of Central Florida - Instructor of Record

- MAC2311 - Calculus with analytic geometry I   Summer 2016

- MAC2312 - Calculus with analytic geometry II   Fall 2018, Spring 2019

- MAC2313 - Calculus with analytic geometry III   Summer 2015

- MAS3105 - Matrix and Linear Algebra   Fall 2017, Spring 2018

University of Central Florida - Teaching Assistant

- Mathematics Assistance and Learning Lab   Fall 2012, Spring 2013

- MAC2311 - Calculus with analytic geometry I Fall 2013 - 2015, Summer 2014, Spring 2016

- MAP2302 - Ordinary Differential Equations I   Fall 2016

References
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University of Michigan
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Alexander Tovbis
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Professor of Mathematics
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Gavin LaRose (concerning teaching)
University of Michigan
Karen Rhea Collegiate Lecturer of Mathematics
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