Eddie Tu
Curriculum Vitae

CONTACT INFORMATION
Email: ebtu0622@gmail.com
LinkedIn: linkedin.com/in/eddie-tu-062999261
Website: https://eddie-dos.github.io/eddie_tu/

PROFESSIONAL EXPERIENCE
Assistant Professor of Mathematics and Data Analytics *August 2017 - Present*
Dickinson College, Carlisle, PA

EDUCATION
Ph.D Mathematics, August 2017, University of Tennessee, Knoxville
Advisor: Dr. Jan Rosinski

M.S. Statistics, August 2017, University of Tennessee, Knoxville

M.S. Mathematics, December 2014, University of Tennessee, Knoxville

B.S. Mathematics, Minor in English Literature, May 2011, Randolph-Macon College, Ashland, VA

RESEARCH INTERESTS
Markov Processes, Lévy Processes, Stochastic Modeling, Machine Learning, Bayesian Modeling, Data Analytics for Community Science, Machine Learning for Process Data

PROGRAMMING SKILLS
Python - programming, statistical analysis, machine learning, dashboard development
R - programming, statistical analysis, machine learning
MATLAB - programming, optimization, statistical analysis, stochastic modeling
SQL - basics, PostgreSQL
Mathematica - multivariable calculus teaching tool
LaTeX - articles, posters, beamer presentations
HTML - web development
CSS - web development
JavaScript - basics

PUBLICATIONS
Tu, E., Boback, S., Taylor, E., Kong, B. Harnessing the power of citizen science to study a secretive species: challenges, solutions, and best practices. *Manuscript in progess.*

Tu, E. & Wickard, T. PCA and related methods for anomaly detection in high-frequency sensor networks in manufacturing. *Manuscript in progress.*

Rosinski, J. & **Tu, E.**. Improved small-time asymptotics, with applications to association of Lévy processes. *Manuscript in progress.*

Tu, E.. (2021). Association and other forms of positive dependence for Feller evolution systems. *Theory of Probability and Its Applications*, 66(2), 299-317. https://doi.org/10.1137/S0040585X97T99040X

Tu, E. (2019). On association and other forms of positive dependence for Feller processes. *Journal of Applied Probability*, 56(2), 624-646. doi:10.1017/jpr.2019.36.

Lambert, K., Franssen, C., Bardi, M., Hampton, J., Hainley, L., Karsner, S., **Tu, E.**, Hyer, M., Crockett, A., Baranova, A., & Ferguson, T. Characteristic and distinct neurobiological patterns differentiate paternal responsiveness in two Peromyscus species. *Journal of Neuroscience*, 2011.

CONSULTING WORK

Carlisle Construction Materials (CCM)
Consultant *Summer 2020 - Summer 2021*

Carried out analysis on process data at manufacturing plant.
Built machine learning models for detecting anomalies.
Wrote programs in Python and JavaScript for implementation.

TALKS

Boback, S., **Tu, E.**, Taylor, E. (2022). Project RattleCam: What have we learned so far from spying on rattlesnakes? Presentation at 2022 Biology of the Pitvipers 4 in Rodeo, NM.

Tu, E. (2019). Association and other forms of positive dependence for Feller evolution systems. Presentation at the 2019 Joint Mathematics Meeting in Baltimore, MD.

Tu, E. (2018). Grad School: An Exciting and Challenging Journey. Presentation at Randolph-Macon College, Ashland, VA.

Tu, E. (2017). On the association of certain Feller processes. Presentation at the 2017 Joint Mathematics Meeting in Atlanta, GA.

Tu, E., & Wastvedt, B. (2011). Applications of and Alternatives to Algorithm X for the Exact Cover Problem. Presentation at the 2011 Joint Mathematics Meeting in New Orleans, LA.

Tu, E., & Wastvedt, B. (2010). Applications of and Alternatives to Algorithm X for the Exact Cover Problem. Presented poster at the 2010 Young Mathematicians Conference at The Ohio State University, Columbus, OH.

SERVICE TO THE COLLEGE

Dickinson's Data Science Initiative (DSI)
Active Contributor *Spring 2019 - Spring 2021*

Met weekly with members of DSI as part of the Revolutionary Challenge.
Contributed to work on APSC proposal. Member of search committee for VAPs.

eSports Club
Faculty Advisor *Spring 2020 - present*

MANdatory
Participant and Speaker *Fall 2018, Fall 2019*

Joined discussion groups with student members of MANdatory.

SERVICE TO MATHEMATICS COMMUNITY

Journal of Applied Probability

Refereed paper in Journal of Applied Probability in Februrary 2020.

Joint Mathematics Meeting

Chaired the AMS Contributed Paper Session of Probability Theory and Stochastic Processes at the 2019 Joint Mathematics Meeting.

ADDITIONAL RESEARCH EXPERIENCE

Upward Bound Math and Science Center, University of Tennessee, Knoxville
Graduate Research Mentor *Summer 2013*

Mentored five high school seniors and juniors in a Mathematics research project. Created activities to foster group work and individual critical thinking. Worked on an extension of "The Locker Problem," which involves notions of modular arithmetic. Assisted students in writing paper and giving presentation.

Research Experiences for Undergraduates (REU), James Madison University, Harrisonburg, VA
Undergraduate Researcher *Summer 2010*
Advisor: Dr. Stephen Lucas

We investigated methods to convert certain NP-complete problems to the Exact Cover problem, more specifically, the Vertex Coloring Problem and the Hamiltonian Cycle Problem. Finally, we showed an alternative to Algorithm X for solving Exact Cover, reducing the size the Exact Cover problem.

AWARDS & GRANTS

PIC Math
$5000 grant from Mathematical Association of America *2021*
Funds and supports an applied math course coupled with an industry partner
Funds travel costs to MAA's MathFest 2022

Yueh-Er, Hong-Hsu, & Clarence Cheng Kuo Fellowship Endowment
Award for Outstanding Masters student in Mathematics *May 2014*
University of Tennessee, Knoxville

Dorothea & Edgar D. Eaves Teaching Award (Finalist)
University of Tennessee, Knoxville *May 2013*

The Smithey Mathematics Medal
Award for Outstanding Senior in Mathematics *May 2011*
Randolph-Macon College

Moore-Peace Prize
Award for Outstanding Junior in Mathematics *May 2010*
Randolph-Macon College

TEACHING EXPERIENCE

Dickinson College

PIC (Preparation for Industrial Careers) Math	*Spring 2022*
First Year Seminar: "Rise of the Machines"	*Fall 2021*
Probability and Statistics II	*Spring 2021*
Independent Study (Machine Learning)	*Fall 2019*
Discrete Mathematics	*Fall 2019, Spring 2022*
Integration and Infinite Series	*Spring 2019*
Probability and Statistics I	*Fall 2018*
Single-variable Calculus	*Spring 2018, Fall 2018, Spring 2020, Fall 2020, Fall 2021*
Multivariable Calculus	*Fall 2017, Spring 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021*

University of Tennessee, Knoxville

Calculus I	*Fall 2016*
Calculus III	*Fall 2015, Spring 2016*
Flipped Classroom with heavy use of Mathematica	
Finite Mathematics	*Spring 2014, Spring 2015*
Pre-Calculus	*Fall 2014*
Part of RISER program for first-year engineers	
Basic Calculus	*Fall 2014*
Introduction to Statistics	*Summer 2012, Fall 2012, Spring 2013, Fall 2013*
College Algebra	*Fall 2011, Spring 2012*

CONFERENCES AND WORKSHOPS

PIC Math Faculty Workshop, June 7 - 10, 2021, Zoom.

Ethics Across the Curriculum Faculty Study Group, May 26 - 28, 2021, Dickinson College, Carlisle, PA.

MathFest, July 31 - August 3, 2019, Cincinnati, OH.

International Conference on Machine Learning, June 9 - 15, 2019, Long Beach, CA.

Joint Mathematics Meetings, January 16 - 19, 2019, Baltimore, MD.

MathFest, August 1 - 4, 2018, Denver, CO.

Joint Mathematics Meetings, January 10 - 13, 2018, San Diego, CA.

John H. Barrett Memorial Lectures, May 1 - 3, 2017, University of Tennessee, Knoxville.

Joint Mathematics Meetings, January 4 - 7, 2017, Atlanta, GA.

Workshop on Dependence, Stability, and Extremes, May 2 - 6, 2016, Fields Institute, Toronto, Ontario, Canada.

CRM-PIMS Summer School in Probability, June 15 - July 11, 2015, McGill University, Montreal, Quebec, Canada.

American Mathematical Society Southeastern Spring Sectional Meeting, March 21 - 23, 2014, University of Tennessee, Knoxville.

Joint Mathematics Meetings, January 6 - 9, 2011, New Orleans, LA.

Young Mathematicians Conference, August 27 - 29, 2010, Ohio State University.