NICHOLAS LANDRY

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EDUCATION

University of Colorado, Boulder *2022 Expected*
Ph.D. in Applied Mathematics
Overall GPA: **3.85**

University of New Hampshire, Durham *May 2014*
B.S. in Mechanical Engineering
University Honors Program
Overall GPA: **4.0**

EXPERIENCE

University of Colorado Boulder August 2019 - Present
Research Assistant *Boulder, CO*

· Mentored by Prof. Juan G. Restrepo
· Developed theory for predicting opinion formation and epidemic dynamics for a hypergraph contagion model based on structural characteristics
· Developing a framework for reservoir computing on OECT architecture

Turbocam International November 2014 - July 2017
Product Engineer *Barrington, NH*

· **Note: Intern from November 2014-March 2015
· Led interdepartmental, large-scale projects and ensured their success through effective communication
· Developed software applications for machine status tracking (MTConnect compliant)
· Implementing process and quality automation through developed software applications
· Evaluated milling tools based on their impact on spindle vibration
· Conducted specialized analysis of tool wear and high-cycle fatigue
· Helped improve manufacturing processes and created 5-axis mill programs
· Integrated advanced dimensional probing into the 5-axis milling process

The University of New Hampshire May 2013 - December 2015
Research Assistant *Durham, NH*

· Mentored by Prof. Marko Knezevic
· Awarded UNH Summer Undergraduate Research Fellowship (SURF) grant to conduct research
· Developed a metal microstructure data compaction method to make metal-forming simulations more computationally efficient; applied this framework to metals with cubic and hexagonal symmetries
· Extended work on data compaction and developed and optimized a high dimensional convex hull to minimize necessary microstructure data
· Developed FFT methods to generate material property closures for metals with hexagonal symmetry; relevant for efficient microstructure-sensitive finite element simulations

PUBLICATIONS

Nicholas Landry, Juan G. Restrepo, *The effect of heterogeneity on hypergraph contagion models*, arXiv:2006.15453, Under Review

Nicholas W. Landry, Marko Knezevic, *Delineation of First-Order Elastic Property Closures for Hexagonal Metals Using Fast Fourier Transforms*, Materials, Volume 8, No. 9, September 2015, Pages 6326-6345

Marko Knezevic, **Nicholas W. Landry**, *Procedures for reducing large datasets of crystal orientations using generalized spherical harmonics*, Mechanics of Materials, Volume 88, September 2015, Pages 73-86, ISSN 0167-6636

Marko Knezevic, Daniel J. Savage, **Nicholas W. Landry**, *Towards Computationally Tractable Simulations of Metal Forming Processes With Evolving Microstructures*, Proc. ASME. 45813; Volume 2: Processing, June 09, 2014, Paper No. MSEC2014-3984, pp. V002T02A070, doi:10.1115/MSEC2014-3984

TALKS

Nicholas Landry, *The effect of heterogeneity on hypergraph contagion models*, Contributed Talk, TopoNets 2020, September 2020

Nicholas Landry, *The effect of heterogeneity on hypergraph contagion models*, Poster, Dynamics Days Digital 2020, August 2020

Nicholas Landry, *The effect of simplex and network degree distribution on explosive transitions in epidemic dynamics using simplicial contagion models*, Contributed Talk, Front Range Applied Mathematics Student Conference 2020, February 2020

Nicholas Landry, Invited Talk, Colorado chapter of Society of Young Network Scientists, February 2020

Nicholas Landry, *Contagion on Complex Networks*, Radio, Season 3 Episode 13, Probably Novel at University of Colorado Boulder, February 2020

Nicholas W. Landry, Juan G. Restrepo, *The effect of simplex and network degree distribution on simplicial contagion models*, January 2020, Poster at Dynamics Days 2020, Hartford, CT

Nicholas W. Landry, *Music Data Mining: Finding Structure in Song*, Presentation for Statistics, Optimization, and Machine Learning Seminar, University of Colorado Boulder, Fall 2018

TEACHING EXPERIENCE

University of Colorado, Boulder   June 2020 - July 2020
Graduate Instructor   *Boulder, CO*

· Taught Calculus 1 for Engineers to 20 students five days a week
· Presented concepts, developed course material and exams

University of Colorado, Boulder   August 2017 - Present
Graduate Teaching Assistant   *Boulder, CO*

· Taught Calculus 1 for Engineers to 75 students total in 3 recitation sections a week (August 2017 – December 2017)
· Taught Calculus 2 for Engineers to 85 students total in 2 recitation sections and 1 workgroup a week (January 2018 – May 2018, June 2019 – August 2019, August 2019 – December 2019)
· Taught Calculus 3 for Engineers to 26 students total in 2 recitation sections a week (August 2018 – December 2018)

- Taught Differential Equations and Linear Algebra to 50 students total in 2 recitation sections a week (January 2019 – May 2019)
- Assisted teaching Matrix Methods to 120 students total (January 2020 – May 2020)
- Instructed Calculus 1 for Engineers to 20 students total in a remote learning setting and managed a teaching assistant (June 2020 – July 2020)
- Presented concepts, developed course material and quizzes
- Improved teaching skills by reviewing recorded video of recitation with lead TA

AWARDS

Chief Student Marshal for UNH Commencement 2014 based on GPA and contributions to the college *2014*

Mechanical Engineering Faculty Choice Award for Poster at UNH Undergraduate Research Conference *2014*

Vice President of Pi Mu Epsilon for excellence in mathematics and an outstanding academic record *2012*

Member of Tau Beta Pi indicating high academic standing *2012*

Nominee for the Goldwater Scholarship; 1 of 4 students representing UNH *2012*

UNH Presidential Scholarship for consistent achievement *2010-2011*

Kenneth J. Higson Scholarship showing academic promise and performance *2011*

Eagle Scout built a community gathering area for the Eagle project *2008*

CERTIFICATIONS

Certificate in College Teaching November 2018
Graduate Teacher Program *Boulder, CO*

- Attended 20 hours of teaching-related workshops
- Observed by a faculty member to vouch for my teaching
- Participated in 2 consultations using video footage from my class
- Attended 20 hours of discipline-specific teaching workshops.
- Wrote a teaching portfolio, outlining my teaching experience, skills, and philosophy

SERVICE

CU Boulder Applied Math Department August 2018 - May 2019
Lead TA *Boulder, CO*

- Led a weekly seminar for 15 first year students
- Facilitated video consultations to student TAs to help develop effective teaching skills
- Informed students about important topics, like obtaining residency, finding a research advisor, summer opportunities, and succeeding as a grad student

CU Boulder Applied Math Department August 2018 - August 2019
Graduate Student Representative *Boulder, CO*

- Gathered student input through polls and meetings
- Met with the Applied Mathematics graduate committee to voice student concerns
- Collaborated with students and faculty to help create policies agreeable to both parties

"I Have a Dream Foundation" of Boulder County Summer 2018
Tutoring Volunteer *Boulder, CO*

· Tutored underprivileged students in the local school district in math and science

TECHNICAL STRENGTHS

Programming Languages	Python, MATLAB, C, C++, C#, VBA, Fortran
Programs	Visual Studio, LaTeX
Protocols	MTConnect