# NICHOLAS LANDRY

nicholas.landry@colorado.edu · nwlandry.github.io
www.linkedin.com/in/landrynicholas · https://github.com/nwlandry

## 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 on complex networks using a simplicial contagion model

**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 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 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** 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 – Present)
- 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

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