MORGAN BYERS

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EDUCATION

Ph.D. in Computer Science May 2026
University of Colorado | Boulder, Co

Bachelor of Science in Computer Science and Mathematics May 2021
Texas State University | San Marcos, Tx
Summa Cum Laude
Graduated in Honors College

WORK EXPERIENCE

Teaching Assistant, University of Colorado, Boulder January 2021 – May 2023
As a TA, I lead a weekly recitation for about 40 students in CSCI1300: Starting Computing. Other responsibilities include creating course content (homeworks, quizzes, projects, tests, etc.), answering emails, and holding regular office hours. During this time, I also worked as a head TA within CSCI 1300 for two semesters. Responsibilities included reviewing course content created by other TAs, coordinating weekly meetings, and advising new TAs on workflow tools like Canvas and Github.

Course Manager, University of Colorado, Boulder August 2021 – December 2021
I managed the course CSCI 1300: Starting Computing for three professors with around 800 students in total. Responsibilities included responding to student emails, creating and uploading course materials, creating teaching videos explaining core C++ programming concepts, and holding office hours.

Research Assistant, Texas State University August 2020 – May 2021
Working under the supervision of Dr. Vangelis Metsis, I explored extensions of my prior research by experimenting with additional deep learning architectures including transformer models and transfer learning.

Grader, Texas State University January 2020 – May 2021
Graded weekly homework assignments for multiple sections of Math 3377: Linear Algebra. Class sizes regularly exceeded 40 students and graded coursework consisted of computations and proofs.

Digital Product Developer, The University Star January 2019 – May 2021
Maintained front- and back-end of website using Wordpress CMS. Ensured compliance with WCAG 2.0. Improved mobile experience through adaptive CSS. Regularly explained technical concepts to peers without web development experience.

PUBLICATIONS

Journal Articles

G. Gharooni-Fard, M. Byers, V. Deshmukh, E. Bradley, C. Mayo, C. Topaz, and O. Peleg. "A Computational Topology-based Spatiotemporal Analysis Technique for Honeybee Aggregation," *Nature Complexity*. in press. [Online] available: https://arxiv.org/abs/2307.09720

M. Byers, M. Trahan, E. Nason, C. Eigege, N. Moore, M. Washburn, V. Metsis. "Detecting Intensity of Anxiety in Language of Student Veterans with Social Anxiety Using Text Analysis," *Journal of Technology in Human Services*, pp. 1 – 21, March 2023. [Online] available: https://www.tandfonline.com/doi/pdf/10.1080/15228835.2022.2163452

Conference Papers

M. Byers, L. Hinkle, V. Metsis, (accepted), "Topological Data Analysis of Time-Series as an Input Embedding for Deep Learning Models," in *The 17th International Conference on Artificial Intelligence Applications and Innovations,* Greece, 2022.

M. Byers, V. Metsis, "Text analysis for understanding symptoms of social anxiety in student veterans," in *The Thirty-Fifth AAAI Conference on Artificial Intelligence proceedings of the Undergraduate Consortium,* virtual, 2021.

PRESENTATIONS

Conference Talks

M. Byers, B. Kirkpatrick, N. Skillin, E. Bradley, "Topological Data Analysis of Myoblast Self-Assembly" in *SIAM Conference on Applications of Dynamical Systems (DS23),* Portland, OR, 2023.

M. Byers, V. Metsis, "The Hidden Shape of Data: Topological Data Analysis for Stress Detection in Text," in *Texas State University Honors Thesis Symposium*, San Marcos, TX, 2021.

Poster Presentations

M. Byers, B. Kirkpatrick, N. Skillin, E. Bradley, "Topological Data Analysis of Myoblast Self-Assembly" in *Dynamics Days 2023,* virtual, 2023.

M. Byers, V. Metsis, "Understanding Anxiety: Detecting Stress Factors through Text Analysis," in *The NSF Research Experiences for Undergraduates Poster Session,* virtual, 2020.

HONORS AND AWARDS

Academic Excellence Award – Computer Science	Spring 2020, Spring 2021
Dean's List	Spring 2018 – Spring 2021
First place, REU poster competition	August 2020
Outstanding Undergraduate Award – Mathematics	Spring 2020
Ross & Sarah Wayment Endowed Scholarship Recipient	Spring 2020
Carr Excellence Scholar	Fall 2017, Spring 2018