

# James Skripchuk

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<b>EDUCATION</b>	<b>PhD in Computer Science</b> <span style="float: right;">2020 – Present</span> <i>North Carolina State University</i> Concentration: Computer Science Education
	<b>Honors B.S. in Computer Science</b> <span style="float: right;">May 2020</span> <i>University of Delaware</i> Magna Cum Laude Concentration: Artificial Intelligence and Machine Learning GPA: 3.92 Minors: Electrical & Computer Engineering, Physics, Mathematics

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<b>RECOGNITION</b>	<b>NSF Graduate Research Fellowship Program (GRPF)</b> <span style="float: right;">2021</span> Fellowship <i>A \$102,000 stipend given over three years to pursue the student's own graduate-level research agenda. Given to less than 2,000 of the 13,000 submitted applications from PhDs in varying STEM fields across the entire US, and considered one of the most prestigious scholarships offered through the NSF.</i>
	<b>North Carolina State University</b> <span style="float: right;">2020</span> Provost's Doctoral Fellowship <i>Designed to help in college and departmental efforts to recruit outstanding new doctoral students to NCSU. Prospective students cannot apply directly for these fellowships, but are nominated by their respective colleges.</i>
	<b>University of Delaware</b> <span style="float: right;">Fall 2016 – Spring 2019</span> Dean's List
	Computer and Information Sciences Outstanding Senior Student Award <span style="float: right;">2019</span>
	Steven Geracimos Memorial Award <span style="float: right;">2018</span> <i>A monetary award to an outstanding computer science major who has demonstrated both interest and aptitude for the subject as characterized by Steven Geracimos.</i>
	General Honors Award <span style="float: right;">2018</span> <i>Recognizes a student's pursuit of Honors challenges and enrichment opportunities during the first two years of university study</i>
Trustee Scholarship <span style="float: right;">2016</span>	

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**RESEARCH INTERESTS**      Computer Science Education, Digital Education, Data-Driven Instructional Design, Educational Data Mining, Academic Motivation, Self-Efficacy in Computer Science, Data Literacy, Non-Traditional Education, Quantum Computing Education, Sound & Music Computing

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<b>RESEARCH PROJECTS</b>	<b>Machine Learning Education</b> <span style="float: right;">2020 – Present</span> <i>Supervisor: Dr. Thomas Price</i> Studying how we can effectively teach Machine Learning by taking advantage of data-driven techniques.
	<b>Investigating Data-Driven Course Design</b> <span style="float: right;">Aug 2019 – 2020</span> <i>Supervisor: Dr. Austin Bart</i> Studying student learning outcomes in introductory computing courses and the effectiveness of data-driven course design via analyzing programming assignment snapshots.

- Performed exploratory data analysis on ProgSnap2 programming snapshot data.
- Developing a general pipeline to process, analyze, and visualize the ProgSnap2 data towards an end goal of generated end-of-year reports to emphasize key learning objectives.

### Computational Thinking in Music

Jun 2017 – Present

*Supervisors: Dr. Lori Pollock and Dr. Jennifer Shafer*

Developed a general education course to teach basic computational thinking (CT) principles as a response to NSF’s call for “computer science for all students”. This course naturally aligns CT principles (data, decomposition, algorithms, abstraction) with music theory topics for an authentic learning experience.

- Posed ideas for CT modules, and provided feasibility estimates on whether specific computational exercises were right for learners’ skill levels.
- Designed a Python module for the students to use during assignments.
- Served as a TA for the class and helped explain common computational misconceptions.

## PUBLICATIONS

### Papers

W. Wang, A. Kwatra, **J. Skripchuk**, N. Gomes, A. Milliken, C. Martens, T. Barnes, T. Price. *Novices’ Learning Barriers When Using Code Examples in Open-Ended Programming*. ITiCSE ’21. Paderborn, Germany. June 26 - July 1, 2021.

### Posters

J. Shafer, **J. Skripchuk**. *Computational Thinking in Music: A Data-Driven General Education STEAM Course*. SIGCSE ’20. Portland, OR. March 11-14, 2020.

### Workshops

A.C. Bart, T. Rutherford, **J. Skripchuk**. *Evaluating an Instrumented Python CS1 Course*. 4th Educational Data Mining in Computer Science Education (CSEDM) Virtual Workshop. July 10th, 2020

## TEACHING EXPERIENCE

### Code in Place (Stanford)

Spring 2021

*Instructor*

Served as a weekly instructor for a CS1 summer MOOC to a private section of a dozen students from across the world. Compared to traditional MOOCs, Code in Place’s use of small weekly labs with a dedicated instructor increased course completion rates ten-fold.

### Artificial Intelligence (AI) Academy

Spring 2021 – Present

*Instructional Designer*

Developed slides, exercises, homeworks, and hands-on workshops for NCSU’s AI Academy professional development course. AI Academy serves as “a pathway to industry credentials... to individuals interested in entering or advancing in the emerging field of AI”.

### University of Delaware

*Teaching Assistant*

Courses:

CISC108 - Introduction to Computer Science I

Fall 2019

CISC320 - Introduction to Algorithms

Spring 2020

## INDUSTRY EXPERIENCE

### JPMorgan Chase & Co.

*Software Engineer Intern*

- Corporate Finance Sector Jun 2019 – Aug 2019
  - Developed a machine learning model for a natural language interface to business intelligence databases. The model constructed natural language responses from the natural language queries, and would also return data and figures predicted to be related to the user’s search.
  - Designed and prototyped an internal notebook style web application that interfaced with the machine learning model. Applied HCI principles based on iterated feedback from real clients.

- Infrastructure Sector Jun 2018 – Jun 2019
  - Maintained large cross-platform virtual machine network and switched IT automation configuration managers to an open-source alternative, promoting a continuous integration pipeline.
  - Designed various Splunk dashboards for real-time analytics of network health and security status.

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**PROFESSIONAL AFFILIATIONS**      **Phi Kappa Phi**      2019  
*Honor Society*

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**CAMPUS ACTIVITIES**      **Association for Computing Machinery, University of Delaware**      Aug 2018 – Present  
*PR Manager*

- Organized meeting contents and contacted professors for potential talks.
- Organized the first “CS Freshman Social” in an effort to increase community in the UD Computer Science Department, which had a large turnout of over 40 people.

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**VOLUNTEER WORK**      **Newark Charter Middle School**      2015 – Present  
*First Lego League Robotics Coach*

- Coach a small team of seven middle-school students in nationwide robotics competition
- Mentor scientific thinking and engineering skills through mentoring practical project design and small robot construction
- Won “Best Project” in 2019 state championships, and won 2nd place overall. Team was invited to the the nationally competitive Carolinas Open Invitational.

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**PERSONAL PROJECTS**      **thispatchdoesnotexist.com**      Summer 2020  
Developed and deployed a machine learning model that generates preset sounds for the digital synthesizer instrument Synth1. Reported on in multiple popular music production websites and forums.

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**SKILLS**      Python, PyTorch, Java, C, C/C++, ARM, HTML, JavaScript, SQL,  $\LaTeX$