James Perretta
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Education

Northeastern University, Boston, Massachusetts, USA

- Ph.D., Computer Science, Expected graduation Spring 2025

University of Michigan, Ann Arbor, Michigan, USA

- M.S., Computer Science and Engineering, 2019
- B.S., Computer Science, 2016
- B.M., Cello Performance, 2016

Teaching Experience

Northeastern University, Boston, Massachusetts, USA

Instructor of Record

CS 3520: Programming in C++ **Spring 2023**

- Taught class of 29 students as primary instructor.
- Wrote syllabus, lecture material, and assignments.
- Hired and supervised teaching assistants.

Substitute Lecturer

CS 4530: Software Engineering **Fall 2024**

- Gave lecture on software testing to two class sections of 30 students each.

University of Michigan, Ann Arbor, Michigan, USA

Served as a teaching assistant **15 times**, cumulatively instructing 279 students in discussion and lab sections, resulting in an average evaluation score of **4.8/5**. Made lasting contributions to programming assignments, lecture materials, and automated grading infrastructure.

Substitute Lecturer

EECS 280: Programming and Introductory Data Structures **Winter 2019**

- Gave lecture on dynamic memory management to two class sections.

Teaching Assistant

EECS 280: Programming and Introductory Data Structures **Winter '14, Spring '14, Fall '14, Winter '15, Spring '15, Fall '15, Winter '16, Spring '16, Fall '16, Winter '17, Fall '17**

- Led weekly discussion and lab sections (159 total students enrolled across 5 terms) and held office hours; average evaluation score of 4.8/5.
- Co-wrote course style guide still in use and oversaw style grading of student code. Investigated the effectiveness of existing static analysis tools for evaluating student coding style, resulting in a peer-reviewed conference paper and adoption of static analysis tools by the course.
- Wrote test cases used to evaluate student implementations with respect to learning outcomes such as procedural abstraction, object-oriented programming, and array- and node-based data structures for 5 source modules in 4 programming assignments still in use.
- Wrote up to 2 exam questions twice per term, almost all included on finalized exam versions.
- Developed automated grading system that is now used by up to 5100 students per term across 20 courses (see Professional Experience). Used this system to conduct research on the effects of different types of automated feedback on student learning, resulting in a peer-reviewed conference paper.

EECS 485: Web Systems **Fall 2016**

- Modified automated grading infrastructure to enable migration from evaluating student web application programming assignments by hand to automated grading of those assignments.
- Reduced the total effort required to grade assignments from nearly 20 hours per assignment to less than 1 hour per assignment for 5 assignments total.
- Effort reduction allowed course enrollment to grow from 373 to 678 students in the current term.

EECS 481: Software Engineering **Winter 2018, Winter 2019**

- Wrote and gave lectures on software testing and object-oriented programming design patterns (Lecture slides and content still used by current instructor).
- Led weekly discussion section (37, 42 students enrolled) and held office hours; average evaluation score of 4.9/5.

EECS 490: Programming Languages **Fall 2018**

- Led weekly discussion section (41 students) and held office hours; average evaluation score of 4.7/5
- Wrote 4 exam questions used on finalized exam versions

Publications

Peer-Reviewed Conference and Workshop Papers

James Perretta, Andrew DeOrio, Arjun Guha, and Jonathan Bell. *Instructor-Written Hints as Automated Test Suite Quality Feedback.* Special Interest Group on Computer Science Education (SIGCSE) Technical Symposium 2025.
Acceptance rate: 33%

Bambi Zhuang, **James Perretta**, Arjun Guha, Jonathan Bell. *A Tool for Mutation Analysis in Racket.* 16th IEEE International Conference on Software Testing, Verification and Validation (ICST), April 2023.
Workshop acceptance rate: 55%

James Perretta, Andrew DeOrio, Arjun Guha, and Jonathan Bell. *On the Use of Mutation Analysis For Evaluating Student Test Suite Quality.* International Symposium on Software Testing and Analysis (ISSTA), July 2022.
Acceptance rate: 24%

James Perretta, Westley Weimer, Andrew DeOrio. *Human vs. Automated Coding Style Grading in Computing Education.* American Society for Engineering Education (ASEE) Annual Conference, June 2019.

James Perretta, Andrew DeOrio. *Teaching Software Testing with Automated Feedback.* American Society for Engineering Education Annual Conference, June 2018.

Grants

(In submission) NSF: Improving Undergraduate STEM Education, Engaged Student Learning Track Level 2.

Khoury College Teaching Innovation Grant, 2022. $10,000. Funded undergraduate student researcher on "Mutation Analysis in Racket" project.

Professional Experience

University of Michigan, Ann Arbor, Michigan, USA
CSE Instructional Services Developer **Winter 2017 - present**

- Lead developer of Autograder.io automated grading system, used by up to 5100 students per term across 13 courses at the University of Michigan
    - Supervised and mentored 8 student programmers who subsequently worked at companies including Amazon, Microsoft, Salesforce, and Ford.
    - Courses span from 100/200-level intro courses to 400-level junior/senior electives.
    - Over 40,000 lines of code (99,000 including test cases), 3,366 test cases spread across 3 repositories.
    - Deployed on a cluster of 31 servers storing over 980GB of FERPA-protected data.

- Conducted research on the effective use of automated grading systems and related tools, resulting in several peer-reviewed publications.

Music Teaching

Taught cello and viol students in one-on-one and group settings. Student proficiency ranged from beginner to advanced and ages from elementary school to adult, requiring a wide range of teaching strategies to meet students' needs.

Faculty, Viola da Gamba Society of America Annual "Conclave." **Summer 2023, '24, '25 (upcoming)**

- Taught week-long workshop classes on historical improvisation ('23, and '24), accompanying singers in the *Cantar alla viola* style ('23), and playing from figured bass on the viol ('24).

Faculty, Viola da gamba instructor, Powers Music School, Belmont MA **Aug. 2019 - present**

Private Baroque cello and viola da gamba instructor, Ann Arbor, MI **2017 - 2020**

- One student admitted to the Peabody Institute undergraduate program to study Baroque cello (2020)

Director of the "Sunset Consort," a student-run viola da gamba ensemble, University of Michigan **2017 - 2020**

Chamber music coach for "Cellofest" concerts, St. Louis, MO **Summer 2012 and 2016**

Private cello instructor, students 4th - 12th grade, St. Louis, MO **2008 - 2015**