Teaching Statement

Walter S. Lasecki

I am driven to help people reach their full potential through teaching, research opportunities, and in-depth mentorship. In particular, I aim to cultivate rich skill sets and intellectual independence, which enables students to improve themselves and the world. During my Ph.D., I have taken every opportunity to engage with and mentor students at both the undergraduate and graduate level. The rewarding nature of teaching and mentoring have, in turn, motivated me to pursue an academic career. Furthermore, being Hispanic and having no relatives with technical degrees has also given me a strong interest in encouraging other students from under-represented groups to explore computer science.

Mentoring Experience

I strongly believe in supporting undergraduate research — it allows the most motivated students to discover what their ideas can become with effort, and provides valuable experience whether they go to graduate school or industry. In the last four years, I have advised over 20 undergraduates at the University of Rochester and Carnegie Mellon University, including a vast majority of the female and African-American undergraduate researchers in the Computer Science Department at the University of Rochester. The research that these students have done has resulted in numerous publications, and they have gone on to top academic and industry positions, including Northwestern University and Microsoft.

To make research more accessible to students who may not have otherwise thought about it, I successfully spearheaded an effort to create and advertise a department-wide undergraduate research opportunities webpage. This resource let faculty and graduate students post research summaries for projects that were seeking student involvement. This page was used as a model for other departments, and was later merged into an undergraduate research effort spanning the entire School of Engineering.

Additionally, I have helped guide several Ph.D. and Masters students to find research problems they are excited and prepared to solve. This process is difficult, and unfortunately, most new students typically have minimal preparation. Dedicating time to helping students navigate this stage of their career and then watching them become productive, independent scholars is a highly rewarding experience for me, which I look forward to in a faculty role. I also believe in “leading from the front”, working closely alongside students and making them feel like they are part of a research team.

Teaching Experience

During my time at the University of Rochester and Carnegie Mellon University, I was fortunate to gain significant teaching experience. I served as a teaching assistant twice, helped design two courses, helped train a group of new graduate teaching assistants, and co-taught an all-new course.

In 2011, I helped re-design the University of Rochester’s undergraduate artificial intelligence course when a different faculty member began teaching it for the first time. This gave me experience designing a course from the ground up, helping to select topics, select and order course content, and design projects. I was then able to help iterate on its design after being a teaching assistant during both of the first two offerings. After this, I was invited to mentor teaching assistants at a college-wide workshop for graduate students, and serve on the department’s undergraduate curriculum committee.
When I got to Carnegie Mellon, I then helped design an entirely new course from the ground up, and co-teach the first offering (with Jeffrey Bigham). *Crowd Programming* was one of the first courses in the country to focus on crowdsourcing and its applications, and the first at CMU. I helped design the course layout and topics, create the assignment and grading structure, grade assignments, and create in-class examples that engaged students in part of the lesson. Additionally, I designed one of the major projects in the course, held weekly office hours, and answered student questions via email.

This course also gave me experience preparing and giving a series of lectures on both cutting-edge research topics and foundational material. These lectures focused on topics including dialog systems, game theory (game types, Nash equilibria, applications, etc.), machine learning, games with a purpose, consensus algorithms, voting theory, real-time crowdsourcing, crowd agents, and more.

**Teaching Philosophy and Preparation**

I believe students learn best when they need the concept that they are learning to accomplish a goal that they are interested in, and have tried to include flexible self-directed projects in the courses that I have helped design. My experience working with undergraduate researchers helps me guide the process of selecting projects that both cover the course’s learning objectives and engage students’ interest so that they go beyond the minimum effort required, and create something they are passionate about.

My background prepares me to teach several undergraduate and graduate level courses within Human-Computer Interaction, and Artificial Intelligence. I would be particularly interested in designing and teaching the following courses (preliminary topics provided as examples):

- **Introduction to Human-Computer Interaction**: An entry-level course designed to help teach students the fundamental principles of of human-computer interaction and design. *Topics include*: need finding, design processes, usability, universal design, prototyping, evaluation, and more.

- **Introduction to Artificial Intelligence**: An entry-level course designed to give students working knowledge of key topics in artificial intelligence. *Topics include*: agents, search, heuristics, planning, Markov models, introductory statistical machine learning techniques (e.g., select topics in classifiers and optimization), and more.

- **Crowdsourcing and Human Computation**: A mid-level course designed to give hands-on experience with the design and implementation of crowd-powered systems. *Topics include*: types of crowdsourcing, crowd platforms and APIs, consensus algorithms, game theory and incentives, select topics in machine learning, and more.

- **Prototyping Interactive Systems**: An entry- or mid-level course on how to quickly build prototypes of user-facing software systems. *Topics include*: design processes and methods, paper prototyping, web programming, software tools and frameworks, toolkits, crowd-powered systems, early-stage user study design, and more.

- **Intelligent Systems** (with additional preparation): A mid- or upper-level course on intelligent systems. *Topics include*: agents and agent models, intention and discourse, dialog systems, information retrieval, natural language processing, crowd-powered systems, and more.

As faculty, I look forward to expanding my commitment to teaching, engaging undergraduates in research, and encouraging diversity in computer science research and practice.