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## Teaching Statement

MARIA L. PACHECO

My goal as an educator is to create an open, welcoming environment where all students can thrive. I strive to balance my role as a facilitator of knowledge and principles, with fostering curiosity, empathy and critical thinking. As human progress increasingly relies on computational methods, I believe that future scholars and practitioners need to have a solid understanding of fundamental concepts and algorithms, and to think critically about their applications in the real world and the effect they have on individuals and society at large. Curiosity plays an important role in this process, as it drives us to continuously ask questions and foresee the potential limitations of computational solutions, and to identify opportunities for improvement. Empathy, on the other hand, not only allows us to care about the impact of our work, but to successfully navigate diverse collaborative environments. I want to bring this perspective to the classroom and to my advising practice, helping students become well-rounded, responsible professionals.

**Teaching Philosophy and Experience** My teaching philosophy is centered around four key strategies: 1) providing a variety of tools and resources to reach different types of learners, 2) connecting concepts and principles with real-world, practical problems and/or relevant research opportunities, 3) adopting an active learning approach that engages students through group discussions, collaborative problem solving and peer review, and 4) creating an inclusive classroom where all voices are heard, and student concerns and feedback are taken into consideration.

I have put my philosophy into practice as a teaching assistant and instructor in the past. For two years, I worked as a TA for the first CS course for incoming undergraduate students at Purdue, “Problem Solving and Object Oriented Programming”. This is a challenging course for both students and instructors, given both its size (400+ students), and the differences in background among students. There are students with no programming experience, students who have taken CS courses in high school, and students who have practical programming experience. With a class so big and diverse, the main challenge was to provide students with the right resources to succeed. We offered a combination of lectures, guided lab sessions, office hours for one-on-one interactions, individual and group assignments, and collaborative discussion boards. This allowed all students to actively engage with the instructors, their peers, and the course material. I found that guiding collaborative discussions, and allowing students to work together to solve problems in a low-stakes environment improved student engagement. In addition to this, understanding background differences was key to communicate effectively with students. I paid special attention to students that were struggling in the class, making myself available for questions and listening to their concerns. I found that sharing my own experiences helped students realize that it is okay to encounter challenges, and that it does not mean that CS is not for them.

After receiving good performance reviews, I was asked to serve as Course Coordinator, and worked closely with the Department Head and other professors to restructure the course, improve the quality of the assignments and the grading procedures, and find better ways to coordinate the large TA team. When developing grading guidelines, I emphasized the students’ thought process, and improved overall student satisfaction. To foster curiosity, I provided opportunities for students to contribute their own ideas to the assignments, and exposed them to broader areas of computer science, such as computer networking, game and mobile development, and AI. **I received the Teaching Academy Graduate Teaching Award** for my contributions to this course.

In addition to my classroom experience, I have developed teaching materials and organized several tutorials on DRaiL, a declarative neural-symbolic modeling framework that I developed during my PhD. In these tutorials, I reviewed the foundations of neural representations and probabilistic graphical models, and presented modeling examples for real-world applications. In the Summer of 2021, my advisor and I prepared and taught a tutorial on neural-symbolic NLP at IJCAI 2021. We proposed a new iteration of this tutorial for the 2022 ACL/NAACL/EMNLP/COLING joint call for tutorials.

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**Advising Experience** I have been fortunate to work with several talented undergraduate and Masters students, including two visiting student researchers. In all of these cases, I worked with my advisor to help the students refine their interests into a research project, and met with them weekly to assess their progress, listen to their concerns, give them concrete feedback, and work together to come up with actionable items for the next meeting. The work with the two visiting research students resulted in **publications in top conferences and workshops**, including the NeurIPS 2018 Workshop on Relational Representation Learning, the EMNLP 2020 Workshop on Structured Prediction, and EACL 2021. In addition to this, I have co-advised six undergraduate students in their honors research projects and independent studies.

My previous experience has taught me effective ways to work with students. My main advising goal is to help students grow into independent researchers. To do this, I start by sharing my working style and introducing some initial structure to help students keep track of their progress. For example, I encourage students to prepare a short presentation that summarizes the progress made since the last meeting, one or two key insights or concerns, and a tentative list of to-dos for the next meeting. This way, they can set the agenda and guide the discussion, and we can work together on refining the to-do list for the following meeting. I also allow space for some unstructured, brain-storming sessions to discuss new ideas and research directions. While not all students will share my preferences, I expect that sharing some of these strategies, keeping an open channel of communication, and allowing students to take the lead will help us find the best way to collaborate successfully.

**Teaching Interests** At the undergraduate level, I am interested in teaching general courses in artificial intelligence, machine learning, data mining, natural language processing, information retrieval, and probability and statistics for computer science. I would also be interested in leading project-based classes in these areas, data science capstone projects, and undergraduate research seminars. With preparation, I could teach undergraduate courses on foundations of programming and computer science, algorithms and data structures, introductory discrete mathematics, and other core courses in computer science.

At the graduate level, I would like to teach courses in natural language processing, general machine learning, data mining, probabilistic graphical models, and deep learning. I am interested in developing new courses and leading research seminars in emerging trends in artificial intelligence, machine learning and natural language processing, such as neural-symbolic AI, machine learning with graphs, human-centered and interactive NLP, and NLP for computational social science.