

My passion for teaching over the last 14 years has led me from serving as a high-school tutor to lecturing undergraduate and graduate classes with hundreds of students. I regard it as a privilege to help educate a diverse student body and equip them with the **skills and knowledge to address pressing societal challenges**.

As a TA, I always aimed not only to give students the necessary tools to complete the assignments at hand, but to instill in them **general strategies** to break difficult problems into more tractable subproblems, and to **develop practical intuitions** of when complex methods and theoretical assumptions apply. My office hours were regularly attended by well over a dozen students at once, so I would cluster them into small groups and encourage them to discuss their ideas with each other. Students connected with my approach; their evaluations reported my clear communication, clarification of materials, and thorough feedback. This taught me that encouraging students to help each other is often the most effective way of teaching.

At Stanford I was **Head TA and TA for two of the department's largest classes**: *Mining Massive Data Sets* and *Social and Information Network Analysis*. On top of regular TA duties such as grading and office hours, I coordinated all course logistics, instituted feedback processes to improve lectures and assignments, and designed homeworks and final exam problems that effectively assessed understanding. With over 300 students enrolled and eleven other TAs reporting to me, this taught me how to efficiently manage a large class and how clear learning goals and targeted feedback create good learning experiences.

LECTURING & TEACHING

I experience lecturing and teaching as incredibly rewarding and have seized this opportunity whenever possible, lecturing on topics as diverse as submodular optimization and computational psycholinguistics. Beyond lectures as a TA, I have given multiple **guest lectures** including in University of Erlangen-Nürnberg's *Digital Sport Science* and Stanford's undergraduate *From Languages to Information* courses. In the latter course, I demonstrated to students how the course material had equipped them to make a difference in society, using the example of mental health care. In engaging with students within and beyond the classroom, I found that women in particular appreciated **connecting their knowledge, skills, and passions to pressing societal challenges**. This helped me understand how connecting computational science fundamentals to applications of social impact, can help us **diversify our field and departments**.

I love the challenge of adapting my teaching to my audience. While for undergraduates I highlight applications, in graduate classes I emphasize methodological breadth and interrelationships. Constantly seeking to improve my teaching, I leveraged Stanford's resources including **teaching classes and video assessments** from pedagogical experts. This has helped me become an effective teacher, as evidenced by an offer to become a graduate teaching consultant myself to help others improve their teaching as well.

Research can inform teaching and serve as a bridge to longer-term student interest in the area. In Stanford's *Social and Information Network Analysis* course, I **designed and mentored course projects for over 30 students**. These projects were distilled versions of real research problems in order to help students gain experience in tackling open problems. I intentionally seized this opportunity to also teach students effective communication skills and technical writing, which will serve them beyond the class and academic setting.

I believe that reaching out across the campus and beyond will benefit our universities and society. Therefore, I have given seminars in the psychiatry, sport science and bioengineering departments to teach non-computational scientists about the promise of data science methodology within their own research contexts. Further, I deliberately connected with general audiences on national television (*BBC*) and radio across four countries to **educate the public about the positive impact of computer science on their lives**.

MENTORING & ADVISING

Part of the reason why I am excited to become a professor is how much I have enjoyed mentoring and advising students. Over the course of my doctorate I have **mentored four students**: I instructed two undergraduate students on senior thesis and research projects, and managed two master's students who worked in our group as research assistants. In these cases, I was involved during the entire process, from interviewing and selecting candidates, to choosing projects for them, to guiding and supporting their work. Through research rotations in our group, I additionally worked with six junior PhD students and a visiting researcher. These collaborations resulted in three publications in top-tier computer science venues (*WWW*, *WSDM*, *TACL*) and another three under review. Each student is unique and it has been a rewarding challenge to learn how to best support each individual. I seek to let their strengths shine while striving to develop their skills in all areas. Some are strong on the theoretical, others on the practical side, informing whether I will leverage structure and abstraction or hands-on examples to help them learn. Regardless of the student type, I consider advising a two-way street: just as I have helped my students grow as researchers, they have taught me many things from shell hacking to heat transfer physics.

DIVERSITY & BUILDING COMMUNITY

Diversity is a crucial aspect of my teaching and advising. I aim to design my classes so that they engage students from a diversity of backgrounds. For example, research shows that emphasizing social impact could help **engage more women in engineering** [Nilsson, NYT 2015]. This enables me to leverage my research on human well-being to promote gender diversity in my classes. Furthermore, the interdisciplinarity of my research affords me the unique ability to attract students from outside computer science. I believe that a vibrant community plays a critical role in developing research ideas. Therefore, I took on responsibilities of engaging prospective students, organizing group meetings, setting agendas, hosting guest speakers, and organizing a workshop focused on innovating our lab's research process. I further co-organized two interdisciplinary workshops, where we specifically worked towards diversifying the program committee. All these activities made me realize that I thrive on tasks akin to those on a professor's daily agenda.

EXAMPLE CLASSES

As my research spans multiple areas of computer science, I can teach a broad spectrum. I would be happy to teach any introductory computer science class, as well as advanced undergraduate and graduate classes on **data science, data mining, social network analysis, natural language processing, and computational social science**. I am also excited to design new data science classes, as sketched below:

Hands-on Data Science. This project-based class will familiarize advanced undergraduate students with all steps of data analysis: data collection and cleaning, exploratory analysis, data visualization, hypothesis testing, choice of data mining and machine learning algorithms, system evaluation, etc. While many of these topics may be offered as separate classes, I believe that a unified introduction using socially impactful applications will teach students a broad skill set that is highly sought-after in academia and industry.

The Science in Data Science. Teaching and advising, I noticed that students often struggled to understand which questions can and cannot be answered with a given dataset and methodology. Unaware of the dangers of unobserved confounds, biases, and violated assumptions, they were prone to draw unjustified conclusions. Therefore, this graduate-level class will focus on the science of data science through (1) contextualizing the scientific method; (2) understanding of methodological assumptions; and (3) principled design of experimental and observational studies. I believe that deeper theoretical understanding coupled with practical explorations of how statistics can lie will help students become better scientists.

I see teaching and advising as integral parts of my research career and look forward to becoming a professor.