Teaching Statement
Ziming Zhao

I believe teaching and mentoring is a very important and also very rewarding part of a professor's job. Through teaching and mentoring, a professor gets a chance to work with talented students and also learn from them. Teaching excellence is what I pursue as a teacher, and helping students learn and improve is a key motivation for my pursuit of an academic career.

I believe the most important thing in lecturing is having a good flow that can motivate students to learn 'what is next?'. And, the key of a good flow is to have a logical story that can connect what students learn in class with real-world examples and scenarios. When it comes to solving real-world problems with what is taught in class, I believe hands-on experiments are the best way for them to digest and apply the taught knowledge.

Teaching Experience

I have taught two well-received classes at Arizona State University: CSE 468 Computer Network Security and CSE 469 Computer and Network Forensics. To better help students, I posted recorded lectures online so that they can check whenever they want. I also posted optional reading materials, which are state-of-the-art research papers, to help them get a sense of what is the status of the cutting edge research. I have received good reviews from students for both classes (4.5/5).

CSE 468 Computer Network Security in Fall 2016 was an undergraduate/graduate computer science class with 105 students. To teach this class, I developed a new syllabus based on the previous CSE 468 class by adding many new materials about attack and defense on network and transport layer protocols. This is because I believe it is so important for the students to understand why we need security before we teach them how to do security. For instance, I discussed the details of ARP and IP spoofing attacks and TCP hijacking attacks before I lectured on the countermeasures, such as IPSec and TLS. For students to get more hands-on experience, I also added 4 more lab assignments that were not available to students in this class before. For the homework and exams, I prefer to ask students design questions that they can not simply answer by remembering lecture notes.

CSE 469 Computer and Network Forensics in Spring 2017 was an undergraduate/graduate computer science class with 65+ students. I developed a new syllabus based on the previous CSE 469 class by adding many new materials about memory forensics, malware forensics and mobile forensics, which are close to my own research areas. I designed many in-class exercises so that students can practice what they learned in class.

Mentoring

As a member of the Laboratory of Security Engineering for Future Computing (SEFCOM) and the Center for Cybersecurity and Digital Forensics (CDF) at Arizona State University, I have the privilege to work with a big group of students with various backgrounds and interests. I have co-advised a PhD student and served on the supervisory committee for another, both of which have successfully defended the PhD dissertation at ASU. I am currently co-advising 6 PhD students and serving on the supervisory committee for 7+ PhD students. In addition, I have served on the supervisory committee for 3 master's students and been an undergraduate honors thesis advisor for 2 students. My mentoring experience has resulted in many publications, including top-tier security conferences (IEEE S&P, NDSS, ACSAC, etc), and inspired undergraduate students to further pursue academic endeavors and apply for PhD programs.

Since it is difficult for new PhD students to find good research directions, I help them step by step at the early stage of their PhD journey. I believe all good security problems come from our real-world experience and the systems we use daily, so my mentoring also include leading them to read source code of developed systems, such as the Linux kernel and other open source projects. When they struggle to find a good solution, I help them identify the related work and how we can apply enhanced techniques to our problem. I also help students to solve engineering issues, such as how to implement a kernel module, by discussing and working with them together.

Courses and Teaching Plan

I am interested in teaching any undergraduate and graduate computer security classes. In particular, I am very interested in teaching classes that have strong relationship with my research areas, such as system security, network security, operating system, computer forensics, etc. I am comfortable teaching other system and network classes if there is a need. In addition, I believe there is great merit in offering graduate level seminars on advanced topics, such as trusted computing and usable security, to complement the existing security curriculum.