

Teaching Statement

My most enjoyable years are learning and teaching computer science in my graduate school. When I am learning, I feel happy and my mind becomes sharp. Students' insightful questions often give me different perspectives to understand the topics. What I really believe in is student-centered teaching philosophy. Teaching is two-way communication between instructor and students. Teaching a class is like guiding students in a wonderful trip of best scene. An excellent tour guide is always know where to go and what to do, and what tourists are looking for. To teach a class, my first step is to understand the students, their existing knowledge, learning styles and their goal to taking this course. It is key to get this information early, through consultation with experienced instructors, or set up survey and questionnaires with students. The syllabus will be designed considering their existing knowledge, interests and learning styles. During lecture, I invite question after deliver of each module. I believe doing so not only engage students to think, but also get feedback from students. I also ask students question along one lecture to get them think about the content. Then delivery of lecture content will center around answering the questions. it is also important to motivate students and provide roadmap from the beginning of the journey to the end. Let them aware of the importance of the course (for example, it is foundation course that has application in many other courses, or it is introduction course, or it is a class that angle more advanced study in a certain area of computer science). During entire course, I believe it is key to know how students are doing at each step and prepare to adapt the teaching.

I gained my first teaching experience when I served as a teaching assistant (TA) in the Department of Computer at University of Georgia. I was a teaching assistant for Introduction to Computing and Programming for three years. Before the course start, I met with professor to understand the course design including lectures, labs, and projects. I tried to put myself into professor's shoes and imagine it was me to design the course and teach it myself. This course was introductory course for students whose major might not be computer science. Therefore, an interdisciplinary approach is taken to teach the course. Specifically, the labs and projects drew many practical problems from wide range of subjects, such as personal finance, biology, math, physics, economics and so on. During labs and office hours, I show students that computer programming is a tool that can help us solve many problems. In addition to guide students through labs and help students with questions about finishing the projects, I often briefly started with some background about formulating lab/project problem from real life. Once introduced to thinking and formulating problem in computing way, most students got very excited knowing that they could solve many other problems in their majors. They also developed intuition about computers and programming languages with analogies to human language and get more natural feeling learning the course material.

Another course I have assisted to teach for two years is algorithms. I showed Algorithms to students that can be everywhere, from operating systems, network, database design, AI to

machine learning. As a tourist guide of the algorithms, beside carefully prepared the common algorithms and their applications to help them to see the road map, for students that have strong interests and prior experiences, I expanded their understanding with more related application of each algorithm. When a student applies the same algorithm to different but same category of problems, he would get better mastery of the algorithm. For students that consider algorithms course too mathematical and hard to understand, I present them with simplified problem and simplified visualized procedures that's representative of the basic form of algorithm. When their feedback was receptive, I started to show them how to improve the algorithm, for example, adding consideration for corner cases and find ways to optimize its time and space complexity.

During my years of work at AT&T Labs, I have grown from apprentice to a master, I have designed and provided a series of training on current topics such as data analytics and network optimization.

- Large scale data processing and analysis with Apache Hadoop and Spark, live demos are provided drawing work projects of mobility network data batch analysis
- Real time mobility network analytics with apache Kafka
- Applying data science to network optimization and analysis with Anaconda python. Live demos have been drawn from work projects that use jupyter notebook, pandas, matplotlib, seaborn, scikit-learn, keras and tensorflow

In addition, I have also mentored many new and junior employees at AT&T Labs, sharing my R&D experience and helping them work as a team in projects. Going back to academia from industry, I would love to bring industrial experience to college students to benefits their career development.

In summary, I believe my passion in computer science learning, teaching and industrial research and development experience set up foundation to act as an excellent advisor for students to learn computer science and an excellent mentor for their future career development.