

# Teaching Statement

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I have been in teaching position in multiple roles: as a peer-coach, teaching assistant and mentor. As an undergraduate at Nanyang Technological University, Singapore, I was a peer-coach for helping peer students to overcome obstacles in their course study. During 2012~2013, I was elected as “best peer-coach” for helping my coaches significantly improve their GPAs and more importantly raise their interest in study. As a PhD student at National University of Singapore, I was a teaching assistant for winter school 2018 and the Lecturer was Prof.Bingsheng He. I have prepared the lecture slides and gives part of the lecture. I was also a tutor for a course module of database system at the same university 2019 summer and the Lecturer was Prof.Xiaoxiao Kui. Finally, as a research assistant at NUS-Grab AI Lab, I was mentor and co-supervisor of one two undergraduate students and one Ph.D. student.

“ Give a man a fish and you feed him for a day. Teach a man to fish and you feed him for a lifetime”.

I strongly believe in teaching rigorous fundamentals that transcend the ad-hoc technological fads of the moment. There are many fancy techniques nowadays, just taking data processing systems as an example, there are Apache Storm, Flink, Spark-streaming, Heron, Google Millwheel etc. Beginners often struggle with which one to pick up. I always emphasize to people who seek help from me that the specifics of which software, libraries, programming languages are evolve at a rapid pace, and they can be easily pick up on the job once they have developed strong foundations. Taking myself as an example, I analysis fundamental design decisions of popular data stream processing systems and summarize them into three key aspects [1]. With those analysis, I know how those systems works and even how they may evolve.

## Mentorship

Helping students fulfill their potential to become producers of new knowledge is an indescribably wonderful feeling. I first learned to mentor as a research assistant at NUS, where I worked closely with two undergraduates on their trajectory query processing and visualization projects that could form their undergraduate final-year-project. I have also learned to supervise one Ph.D. student under Prof. Bingsheng He, working on time-series data management project that may form the basis for his dissertation.

**Example Courses** I look forward to teaching courses related to database, software engineering, and large scale data processing system in general.

I would like to create new courses related to my research focus, such as:

1. big data processing system design and implementation
2. hardware-conscious algorithms and systems.

## References

- [1] **Shuhao Zhang**, B. He, D. Dahlmeier, A. C. Zhou, and T. Heinze. Revisiting the design of data stream processing systems on multi-core processors. In *Data Engineering (ICDE), 2017 IEEE 33rd International Conference on*, pages 659–670. IEEE, 2017.