Huan Li — Teaching Portfolio

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Teaching Philosophy

Studying and working at universities for a long time has given me a lot of valuable insights into learning and teaching. Combining my thoughts and experience, I have initially developed my teaching philosophy. In a word, my purpose is to **"guide students to address a problem independently, promoting their skills of literacy, learning and application, critical-thinking, communication, and collaboration"**. The guidance for students emphasizes the following aspects:

○ **Interest and Attraction**. Interest is the greatest motivation for active learning. Advisable teaching can attract students' interest in the subject, whereas improper or unimpassioned teaching can destroy students' original intention for a subject. To keep course content engaging and understandable to students, I introduce more real-life cases to the curriculum design.

> Example: *In data science, the maximum entropy principle is obscure. However, we can combine it with a dice game to help students understand its meaning and make students appreciate the charm of this model.*

○ **Differentiation and Diversity**. I agree with Confucius's idea of "teaching according to aptitude". When interacting with students, we should consider different cultures, backgrounds, levels of knowledge, and learning styles. Teaching methods such as student grouping, material grading, and mapping test should be used for a diverse classroom setting.

> Example: *In a software engineering project, students' programming and literacy skills are different, and the places they want to improve are also different. Knowing students' ability and the role they expect to play can better guide them to acquire the skills they need to achieve their desired goals.*

○ **Feedback-based Accessment**. Seeking and receiving feedback from students is more conducive to improving the teaching quality than keeping lecturing students. My feedback-based assessment follows a peer-to-peer paradigm, for which students need to answer my questions and ask questions for me to answer. This paradigm enables me to intuitively understand students' proficiency in the knowledge and helps me find blind spots in teaching.

> Example: *I usually have two processes when meeting with students: First, I ask questions about their report and implementation and they give explanations; Second, they list the current technical difficulties and discuss them with me. This allows us to quickly identify key issues and find solutions.*

○ **Flexible Teaching Management**. Teaching is not forcing students to learn but helping to remove obstacles in their independent learning path. Instead of telling students specifically what to do, the teacher should give students more freedom and make suggestions when students need help. Meanwhile, the teacher should hold each student accountable for his/her learning. My management strictness is based on an ongoing assessment.

> Example: *Before a project, I usually agree with students on how to communicate. In the beginning, I will give them space as they demand. As the regular assessment progresses, I will increase or decrease the frequency of interaction to ensure the quality of their learning.*

○ **More Hands-On Activities**. Combining theory with practice is an efficient way to gain knowledge, especially for computer science — a practice-oriented discipline. Students should gain experience in working through practical problems rather than just a theoretical treatment of the subject. I prefer to make detailed arrangements and provide full support for hands-on activities to consolidate students' classroom learning.

> Example: *As a teaching assistant for Operating System course, I conducted the experiments in advance and marked the steps that involve important knowledge to remind students to practice repeatedly.*

Education and Certification

Courses, Research, and Projects. I was a university student for ten years, including four years for undergraduate courses at Sichuan University, China and six years for master and PhD courses at Zhejiang University, China. **My GPA and academic achievements are always among the best**, and thus, I obtained a lot of awards, such as *China National Scholarship* (for three years in a row) and *Triple-A Graduate Award of Zhejiang University*. I was invited several times by my advisor to share my learning experience with junior fellow students. According to my experience, three actions promote learning. First, keeping *an independent attitude* to identify and analyze the problems. Second, *extracting practical and measurable methodologies* from the sophisticated knowledge in the literature. Third, constructing a viable problem-solving path based on *sufficient justification*.

I have acquired **rich project experience during my PhD study and employment at Alibaba**. I helped my supervisors to apply for and participated in several projects fund by the National Natural Science Foundation of China. I also participated in the development of many major programs of Alibaba. Through these experiences, I have learned how to define and qualify the outcomes, how to make comprehensive plans and periodic summaries for completion, and how to ask for prerequisite resources and collaborate with teammates. The rich project experiences allow me to flexibly and meticulously guide students' course practice, and the project management and personnel organization skills I have acquired can support my classroom management.

Certification. I have taken the following **pedagogical courses**.
- *Problem-Based Learning (PBL)* at Aalborg University.
- *Pitching – how to be convincing!* at Aalborg University.
- *English for Teaching Purposes* provided by UAB Barcelona at Coursera.

My **teaching, presentation, and communication skills in English** have been systematically enhanced by attending these courses. The practice of learned skills through multiple teaching activities makes me more confident to take on future teaching tasks.

Moreover, I have had **a good experience of Danish university culture and education** during my current employment at Aalborg University. I have planned to take Danish language and culture training courses to better integrate myself into higher education in Denmark.

Teaching Experience

I have gained teaching experience in different courses at different levels by playing different roles:
- **Co-supervision** of Bang Van Bui (Prof. Hua Lu's Research Assistant) since Sep 2019, in the topic of *Learning-based Cleansing for Wi-Fi Positioning Data*.
- **Co-supervision** of Tiantian Liu (Prof. Hua Lu's PhD student) since May 2019, in the topic of *Context-based Indoor Routing Queries*.

  responsible for instructing them to conduct literature review and formulate research problems, assisting in building technical routes, and revising the paper. Under my co-supervision, two papers have been accepted (one for full paper and one for poster paper) by ICDE — a top computer science conference.
- **Supervisor** of the Software 5th Semester (SW5) projects at Aalborg University, Autumn 2019, in the topic of *Machine Intelligence and Embedded Systems*.

  responsible for developing project proposals, helping students team up and set problem goals, assisting in solving technical difficulties, guiding report writing, and conducting examinations. So far, both the teams I supervised have had excellent project planning, execution, and collaboration. They were able to identify practical problem under my advice, apply the knowledge learned from related courses, build a fully functional prototype system, and compose a well-organized report.
- **Teaching assistant** for *Operating System* course (undergraduate level) at Zhejiang University, Spring 2014.
- **Teaching assistant** for *Advanced Database Technology* course (graduate level) at Zhejiang University, Autumn 2013.

responsible for checking homework, offering supports on programming, and assessing course projects. Through the experience, I learned how to get closer with students, listen and answer their confusions, and encourage them to complete assignments with better quality to consolidate classroom knowledge.

Teaching Skills

- **Knowledge**. With a **strong background in computer science** and various teaching and project experiences, I can teach a broad set of courses:
  - **Programming Languages, Algorithms, Operating Systems, Databases, Data Mining, and Machine Learning** at the undergraduate level.
  - **Advanced topics in related areas of Data-Intensive Systems, Data Science, and Mobile Computing** at the graduate level.

  In addition, as a senior algorithm engineer at a world-class Internet company, I have **very solid programming and engineering capabilities**. I served as an interviewer for Alibaba. I can give students more specific suggestions to improve their professional skills and obtain job opportunities in well-known companies.
- **Literacy**. I have **proficient reading and writing skills** and have extensive experience in writing proposals, patents, dissertations, and technical reports. I can teach students the experience of reading literature, summarizing arguments, and writing in logical thinking.
- **Presentation**. I have **rich experience of presentations at conferences and seminars**. I attended international conferences and workshops some times. I used to give seminar presentations in my lab and algorithm sharing talks in the company. After a long period of training, I am able to prepare for the presentation with both high quality and high efficiency, and I am able to share the concrete ideas in different forms for different activities.
- **Communication**. I have **good interpersonal skills** to communicate with people. I am good at listening to the opinions of others and I put strong emphasis on the logic of speaking. I enjoy taking suggestions from others and reflecting on myself. My students like to talk to me and make friends with me, and I am proud of it.

Summary

To sum up, my goal as a teacher is to **help students become knowledgeable, independent thinkers and practitioners**. I believe that my teaching philosophy and skills are well adapted to the way in which computer science students are trained in the current era, and I will help the University train more talents in computer science and IT products. I will encourage and challenge my students, develop their ability to think critically and inspire them to pursue learning to an advanced level. I have been striving to improve myself on the way to becoming an excellent teacher.