# Teaching Statement

Teaching is in my blood. My mother has been a teacher for nearly thirty years and I have seen first hand how teaching has not only shaped her students but also shaped her as a person. Because of my upbringing and personal experiences, I view teaching as a central component of a faculty member's job. Not only does teaching allow the instructor to shape the minds of the students but also allows instructors to continuously develop and grow as effective communicators and critical thinkers.

I believe there are two key teaching tasks: (i) mentoring, advising, and training students to become independent researchers, and (ii) teaching and communicating complex ideas to students through courses. I have developed my philosophy for both of these tasks through TAing thirteen different courses, mentoring three Masters students, and developing and running my own course at University of Saarland. As a faculty member, I am qualified and enthusiastic to teach both graduate and undergraduate courses on systems, broadly construed.

## Mentoring & Advising

I have been privileged enough to be mentored and advised by multiple amazing advisors during my M.Sc. and PhD. The fundamental attribute I have noticed that is common to all the successful advisors is that they care about the technical and personal development and growth of their students. I have developed my mentoring style centered around this key attribute, and I plan to center my advising style around this key attribute.

During my PhD, I have had the pleasure of mentoring three M.Sc. students, two of whom I am continuing to mentor. My mentoring style includes regularly checking in with the students and ensuring that I am always available in case the students are facing any technical issues. Based on my experience as a mentor, I noticed that students working on their first research project require more mentoring as they need to not only develop the required technical solution but also need to learn basic research methodology and the fundamentals of hypothesis-driven scientific method.

To formalize my mentoring and advising style, I developed an advising plan that focuses on three key learning goals for my future students. I believe these three learning goals are the three critical skills required for students to successfully become independent researchers by the end of their doctoral degrees. I outline my plan below.

> **Learning Goal 1: Scientific Communication.** The learning goal for the student is to learn the basic fundamentals of the research. This includes two sub-goals: (i) learning the right process of doing research, i.e., hypothesis-driven scientific method, and how to incorporate this in their daily research oriented tasks; (ii) learning how to communicate their research. The students must learn how to give effective presentations about their own research, have discussions about their research with other researchers, and coherently communicate the contributions of their research through research papers.
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> **Learning Goal 2: Developing New Solutions.** The learning goal for the student is to learn to develop new solutions from scratch for a given research problem. This will allow students to improve their technical skills and develop critical thinking skills to learn how to use their creativity for developing novel solutions.
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> **Learning Goal 3: Formulating New Research Question.** The learning goal for the student is to learn how to formulate and develop a research question from scratch. This will help students develop their own research agenda for carrying out their independent research in the long run.

I expect my students to make progress on each of these learning goals throughout the duration of their PhD. Having been through this process myself and seen multiple other students go through this process, I am cognizant of the fact that different students have different strengths and weaknesses and will progress through each of these learning goals at different speeds. I believe the plan I have developed allows me to identify where my students might be struggling — and then to flexibly focus on individual needs of the students without deviating or compromising their eventual goal of becoming an independent researcher.

## Teaching

During my undergraduate and graduate studies, in addition to being a Teaching Assistant multiple times, I recently developed and taught a seminar course titled "Reliability in Modern Cloud Systems" [1]. My

teaching style is based on two different principles: (i) "Know Thy Audience", and (ii) "Practice Makes Perfect". I discuss both principles in detail below.

**Know Thy Audience.** This principle refers to structuring and explaining the course content specifically for the type of student audience to maximize their learning. For example, consider the seminar course I recently developed. While traditional seminar courses are typically paper-reading seminars, I purposefully deviated away from that structure and instead opted for a lecture-discussion-reading structure because not all students had taken a distributed systems course as part of their undergraduate program of studies and as would likely struggle with research papers. Instead, by opting for a lecture component, I introduced background concepts before moving to advanced topics. Combining the lecture component with a discussion and paper reading component allowed students to dive deeply and critically think about the complexities of the course content. The success of this structure was reflected in the course evaluation, where the course was rated at 1 (on a scale of 1 to 5, with 1 being the highest) by more than 90% of the students, 20% higher than the 70% department average for other seminar courses. Due to the success of this course, I am convinced that structuring course content based on the needs and the background of the students is the right way to develop and teach courses to minimize student frustration and to maximize student learning.

**Practice Makes Perfect.** This principle ensures that students get ample opportunity to do assignments and projects that are closely related to the content of the course. This requires structuring assignments that reinforce the content that was covered in the lecture material and developing projects that allow students to dive deeply into one or more specific topics covered in the lecture material. I believe this is important for the development of the students, as providing students with hands-on practical experience significantly improves their problem solving skills and allows them to learn the course material at a deeper level. Thus, I plan to continue building my courses with assignments and projects closely related to the course content and lecture material.

## Teaching Interests

I am eager to teach a graduate cloud systems course with a particular focus on reliability. Ideally, I would like to convert my course "Reliability in Modern Cloud Systems" into two different courses — (i) a graduate-level paper reading seminar with a research project; and (ii) an undergraduate fourth year course on cloud systems that introduces students to the fundamentals of modern cloud systems.

Moreover, I am prepared to teach undergraduate courses on operating systems, distributed systems, and computer networks. I am also excited about creating new courses in the field of systems based on the needs of the students and the department.

## References

[1] Vaastav Anand, Matheus Stolet, and Antoine Kaufmann. Reliability in modern cloud systems. Course Website: `https://cms.sic.saarland/cldrel_25/`, 2025.