

OTMAR HILLIGES | TEACHING STATEMENT

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I enjoy teaching and the challenge of finding ways to help students to acquire deep technical knowledge and a solid understanding of a subject. I believe that it is important for students to study theoretical foundations, yet also understand how to apply these techniques to solve practical problems, and finally to be able to discuss and argue their choices when solving problems.

Whenever I teach a class, I try to lay the foundation for independent and informed problem solving through thorough preparation and explanation of fundamental theory and important concepts. Furthermore, the knowledge being conveyed needs to be made tangible by concrete examples and connections to real-world implications. I am convinced that “doing” is the most promising path to learning; therefore I always assign students practical and realistic tasks that have to be solved independently – alone or in small groups. And finally, I believe that being able to reason about one’s choices is the best way to improve one’s chances of succeeding in professional life. To train reasoning skills and the ability to accept and phrase criticism, every student has to present his or her work to the group and explain key decisions at least once in every course (for graduate-level courses). Furthermore, many of the courses I teach and have taught in the past have a project component of some sort.

Furthermore, I truly believe that real-learning only happens when students are engaged. To achieve this engagement I always invest extra effort in designing in-class activities that allow students to gain new viewpoints and insights into a particular topic. For example, an important part of my “machine perception” class is a multi-week project phase in which students form small teams and work on challenging real-world problems. To motivate students further and to close the gap between what is taught in class and what is considered in the larger research community, the projects are always constructed such that the students can directly compare their results to the current state-of-the-art. In several instances, students from this class have continued to work on their projects and have submitted their work to international symposia and conferences.

Similarly, all seminars that I teach are designed as “role-playing” seminars. This is an alternative to the standard one-presenter-per-class graduate-level paper-reading seminar and is dramatically more interactive, informative, and fun. Students take on different roles including that of the author or presenter, reviewer or that of a graduate student new to that field. All students read the same paper each week but fulfill different roles and hence prepare with different viewpoints in mind. In my experience this leads to much better engagement and learning outcomes.

A full list of teaching activities and syllabi can be found at: ([🔗 ait.ethz.ch/teaching](https://ait.ethz.ch/teaching)). I currently am engaged in the following teaching activities:

Machine perception, Graduate Course, 150-200 Students, 8 ECTS: An advanced course on learning-based machine perception and computer vision problems. I have developed this course from scratch as at the time of inception no textbook on this subject existed and few comparable courses were being taught elsewhere.

Human Computer Interaction, Undergraduate Course, 80-100 students, 6 ECTS: An introductory course which initiates students to the basic aspects of Human-Computer Interaction, the course is unique in that it also introduces students to the computational design of user interfaces.

Seminars: I currently offer two graduate level seminars. One on advanced topics in human-centric computer vision and one on computational interaction and haptics.

ETH Teaching Fellow: To pass on my enthusiasm for interactive and research oriented teaching, I serve as an “ETH teaching fellow”. In this role I help junior faculty members to try-out and integrate interactive elements into their teaching in the context of a teaching program for incoming faculty run by didactic specialists at ETH (LET).