

Teaching Statement

Ioannis Konstas

Teaching Experience I have been involved in many different aspects of teaching. I have given an invited lecture on my research at the Aberdeen NLG Summer School (2015). This was a unique pedagogical opportunity for me, to share the most practical aspects of my work with PhD students working on NLP.

I have tutored junior students in small classrooms (10-12 attendees), which involved solving exercises, and programming quizzes both on the whiteboard and on the computer. In that context, I have taught a second-year undergraduate introduction to Natural Language Processing (NLP) course (University of Edinburgh, INF2A, 2012). I have also tutored an introductory course on object-oriented programming (University of Edinburgh, INF1, 2011, 2012). I was particularly enthused to work with freshmen on the fundamentals of programming, as I believe it is very important in setting the foundations and avoiding common mistakes early on. For the same course, I was also responsible for mentoring several groups of 2-3 students to design and implement their own semester project; at the end of the academic year they had to present a demo during a one-day competition.

I have also worked as a demonstrator for an introduction to Java programming project-based course (University of Edinburgh, MSc, 2011, 2012), aimed for MSc students. My duties involved co-designing two large semester projects, and mentoring on a one-to-one basis. I shared a very enjoyable experience with the students while teaching this course, as I was given the freedom to apply part of my research on one of the projects: I introduced the fundamental concepts of Natural Language Generation (NLG), through building a chat-bot. It also allowed me to interact with students from a variety of backgrounds, other than computer science, such as biology, linguistics, physics, and engineering.

Mentoring I find the one-to-one interaction with students to be both one of the most demanding and rewarding tasks for an academic educator. I have co-supervised and collaborated closely with three PhD students, during my postdocs at the University of Edinburgh and University of Washington. We have published the outcome of our research in three papers at top-tier conferences in the NLP community. I also had the opportunity to follow one of them closely until their successful graduation.

Teaching Philosophy One of the most important—and often disregarded—characteristics of teaching is the aspect of **interaction** between the teacher and the student. It is common for lectures to be delivered via *chalk and talk*, a method often not effective enough for programming, data science, machine learning and other more exploratory-in-nature courses. I believe that the course material and resources should be made easily *accessible* by breaking down and delivering in a more interactive environment, e.g., with small videos annotated with content and questions throughout, similar to the successful MOOC paradigm.

I am also a strong advocate of peer-to-peer **feedback**. Students are sometimes the best teachers; I believe it is an important role of the teacher to encourage and promote collaboration, via group projects, and open discussions in course-related forums. The engagement of students can be further stimulated by designing assignments that are inspired by current *research*, or combine more than one disciplines, for example NLP with robotics.

Teaching Interests I feel equipped to teach advanced courses on Artificial Intelligence, Natural Language and multi-modal (e.g., vision, speech, etc.) Processing, targeted at senior CS undergraduate and MSc students. Since I am particularly passionate with writing scalable, well-maintained code, I would be also very excited to teach introductory undergraduate computer science courses on programming and software engineering principles, algorithms and data structures. I am also interested in designing a novel deep learning course, particularly aimed at PhD and MSc students, that will tackle both the theoretical and practical aspects of the current machine learning trend on neural network architectures. The course should focus on best practices for a wide variety of applications, ranging from data science, and robotics, to NLP and vision, and should empower students with knowledge that is currently sought after in the industry too.