Luca Pernié

Teaching Statement

Carnegie Mellon University
Assistant professor in experimental high energy physics

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To whom it may concern:

Most of my teaching experience comes by occasionally substituting the tenured professor in teaching undergraduates at Texas A&M University, and by tutoring several undergraduate and graduate students in their academic career.
My first contact with teaching dates back to when I was an undergraduate student. At the time I was still practicing karate at competitive level, and most of the time I was teaching once per week in the kids class. Despite this experience can be seen very distant from teaching in academia, it was at that time that I learned about the importance of decomposing a concept into smaller parts in order to make it easily assimilable. At that moment, I realized that the act of decomposing an idea it is not a trivial task at all, and it actually requires to own a deep understanding of the subject. Effective teaching is thus possible only through deep understanding. Since then, whenever I have to digest complicated concepts, I mentally teach it to an imaginary audience. Being able to communicate my research became a necessity to gain deep understanding of it, helping me to identify the areas which require deeper thinking.

Being a professor is a big responsibility, because you are in a unique position to have a direct impact on students. Fulfilling this responsibility is what makes teaching so gratifying to me.
I believe that the main goal of a professor it is to motivate and inspire students to learn. Teaching does not mean only explaining concepts, but it means also showing how to reason, how to ask the right questions, and how to second our inner curiosity. Curiosity is indeed the main characteristic of physicists, and it must be used to turn the learning activity into an active process.
Physics requires perseverance and a large amount of time to be spent on books. For most people it is impossible to maintain such level of commitment if the subject has been turned into a series of obstacles to overcome. Only the professor has the capability (and the duty) of transforming the study of a subject from a steeplechase to a interesting walk. Luckily, physics is extremely entertaining. I do agree with one of the most popular sentences by Walter Lewin: "Teacher who make physics boring are criminals".

During my experience with Mechanics 201, I learned how to use the right tools in order to reach the goals I set for my lessons. I had a very satisfying experience so far, but I am aware that different situations require different approaches. I generally use slides that are available online for the students. In order to keep the lesson dynamic I complement the slides with the use of the interactive blackboard, especially when I need a more active participation of the class, or I have to

Luca Pernié
4050 Pendleton Drive, Bryan 77802 – Texas, U.S.A.
+19792640374 • luca.pernie@cern.ch • lpernie.github.io

solve exercises. The material written on the interactive blackboard can also be accessed online. Last but not least, I find very useful to use the Classroom Response Systems (clickers). In this way, I make sure that the level of general understanding is constantly high before proceeding to the next concept.

When I interact with few undergraduate or graduate students, the approach is of course different. The goal of a tutor is to make the best of student you mentor. This requires the knowledge of the student's skills and the difficulties he is experiencing. I noted for instance that most of the students struggle to gain confidence in their abilities. This is probably even more accentuated in large collaborations as CMS, where undergraduate students, but often even graduate students, often feel like there is no space for them. Other times what is lacking is the ability to effectively communicate with colleagues or to present their studies; sometimes instead, the biggest challenge is learning to translate a problem to overcome into a sequence of tasks, becoming independent.
The professor should give the student the tools he need to improve himself. Sometimes this means simply to increase their sense of responsibility, for istance by letting them guide more inexperienced students; other times this means to increase the number of their public presentations, giving constant feedback during their preparation.

I believe teaching is the backbone of progress, and I promise I will confront with this challenge with the same spirit I carry in the researches activities I lead. I believe that by learning from people around me, by interpreting correctly the feedback of the students, and by analyzing the outcome of my lectures, I will continuously improve my teaching methodology.

Looking forward to hearing from you soon,

Luca Pernié