Teaching Statement

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I will always be grateful for my teachers’ and professors’ effort in guiding me and others in our search for the ideal vocation. During my stay as a Teaching Assistant at Northeastern University, the University of Connecticut and as a postdoc at Purdue University, I reached the level when, in turn, I consider it as my responsibility now to give my share in the pursuit of this noble effort.

Signs of my passion for describing mathematical ideas were visible already in high school, when I was constantly engaged in explaining solutions to other participants in various mathematical contests and olympiads. After, as an undergraduate student at Babeș-Bolyai University I took classes in pedagogy that introduced me to various teaching philosophies. These I applied at teaching mathematical classes in middle and high school several times. This was required for obtaining the diploma that is necessary to be able to teach in Romania.

On my arrival to the U.S. I was assigned as a lecturer for the course Mathematical Thinking. After overcoming the initial hurdles stemming from the differences from my previous teaching environments, I adjusted to the system readily. Over the next years I continually perfected my teaching abilities, being involved in delivering lectures, instructing discussion sessions, designing and grading exams, quizzes, homeworks, designing syllabi, and using online tools such as Blackboard, Webassign, Piazza, Echo360 (an online video recording software).

We live in a technological era when classrooms are filled with more potential distractions then ever before. Hence the task of stirring students’ curiosity sometimes can pose a real challenge. The strategy I am pursuing in dealing with this issue consists of several steps. Firstly, one has to be fully knowledgeable and confident about the subject in hand. Next, in preparing the lectures I try to add extra comments and remarks such as real-life applications, historical facts, follow-up questions, alternative proofs etc. Further, I try to create an enthusiastic environment in class by asking questions frequently, allowing students to share ideas with each other and giving some personal freedom of thought in problem solving. After all, my main goal in class is not to make the students remember certain computational rules, but to make them think about problems independently and lead them to the correct path with an appropriate level of guidance.

In my graduate years the most interesting and challenging teaching assignment I had was as a lecturer for the course Math Fundamentals for Games at Northeastern University. In this class the students learned what the basic mathematical ideas are pertaining to video games, in particular randomness, motion in space - curves, rotations, reflections, projections etc. The material was unconventional, and it was delivered in the perspective of their needs, as for example dealing with rotations using quaternions. Part of the classes I presented using Matlab, which the students progressively became familiar with. By the end of the semester, they had several projects to choose from, such as rotating a cube or displaying motion along a curve. Overall, I had enjoyed the interaction in the class throughout the semester just as the students had. Moreover, they demonstrated true appreciation for the fundamental mathematical principles behind the flashy graphic designs that we see today.

At Purdue University I have become an expert at teaching various linear algebra courses. Due to the level of abstraction, some of the concepts in this course are particularly difficult to
convey to the students, such as vector spaces, bases, inner product spaces etc. In order to deal with this issue, I try to play a back-and-forth game between abstraction and our usual intuition coming from lines and planes. I recommend them to always draw a small, representative picture. Moreover, I like to give the class various real-life applications of the abstract results as soon as possible, so they can appreciate the material and truly feel they have learned something useful. This course gave me a lot of organizational experience as well. When I taught this class during the summer of 2017, I had over 150 students, most of which took the class online. The class was recorded each day so that the online students could watch the lectures anytime. The course required a lot of effort from my part, but I believe in the end it was a pleasant experience for the students as it certainly was for me.

In conclusion, I am excited to teach any lower- or higher-level mathematical class I'm assigned to. I will continue honing my teaching capabilities and never stop being enthusiastic about teaching mathematics in the years to follow.