

Teaching Statement

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Teaching and research are the quintessence of the academic life. One's enthusiasm for her field of research should be shared with students, through teaching and advising. As a teacher, one's purpose should go beyond reciting a textbook. Through continuous dialogue with the students, a teacher should raise enthusiasm for acquiring knowledge and incite independent thinking. The teacher should encourage constant feedback from students, which is a key element for ensuring teaching proficiency.

All of the above ideas about teaching have been inspired by my own teaching experience over the years, which brought me a lot of satisfaction. The following is a detailed description of my teaching experience and my teaching interests.

Teaching Experience

My experience as a teacher began in 1997, after I graduated with an M.S. degree in electrical engineering from Electronics and Telecommunications Department, Polytechnic University of Bucharest, Romania. I was the instructor for an undergraduate class entitled "Fundamentals of Information Theory". My duties included designing the class, giving weekly lectures, preparing the exams, grading, designing laboratory experiments, and meeting with students for tutorial sessions.

Around that time my research interests were in speech processing and machine learning methods applied to speech recognition. Because of my interest, I gladly accepted the teaching assistantship for the graduate course "Speech Signal Processing". This teaching assignment was at the same university. My duties were to prepare weekly recitations which presented students with the challenge of solving practical problems. Also, I was involved in designing weekly assignments, and assisting students during laboratory experiments. Moreover, I co-authored the new class textbook: "Elements of Synthesis and Recognition of Speech". Currently, this book continues to be part of the bibliography for the course.

In the fall of 1998, I have began my graduate studies in the Computer Science Department, at Rutgers University. For two years, I have been a teaching assistant for several classes. I have been a java instructor for 18 months for an undergraduate class called "Introduction to Computer Science". This course is designed to develop programming and problem solving skills for students majoring in computer science. My duties included designing weekly recitations to assist the student in getting familiar with the concepts introduced during lectures, and with the programming language. During this assignment I had the opportunity develop teaching skills which allowed me to transfer my knowledge of programming languages and programming techniques to students with a large range of qualifications.

During fall 1999 I had a teaching assignment for another core topic for computer science: "Design and Analysis of Computer Algorithms". The course objective is to study a variety of useful algorithms and analyze their complexity, as well as to gain insight into principles and data-structures useful in algorithm design.

During the spring of 2000 I was a teaching assistant for the class "Numerical Analysis and Computing". The objective of this class is to expose the student to the development, application, and analysis of basic numerical algorithms. My duties included preparing weekly recitations and designing assignments. Also, I had the opportunity to be a guest lecturer for this class, on the topic "Gaussian Elimination". My performance as a teaching assistant for this class was especially appreciated by the coordinator of the class, Prof. Gerard Richter, who invited me to be the course instructor for the fall 2000 semester. Although I would have enjoyed the assignment, my research duties did not allow me to accept the appointment.

Starting September 2000, I have been appointed as a research assistant with the Computer Vision Laboratory, under the supervision of Dr. Kristin J. Dana. Since then I was occasionally involved in teaching. Specifically, my research advisor invited me to be a guest lecturer for the computer graphics graduate course of the Electrical and Computer Engineering Department. The teaching topics were related to texture research, i.e. texture mapping, 3D texture measurement and modeling. Although it was a brief teaching experience, it reminded me of the satisfaction I get from teaching.

Teaching Interests

Given my dual education, as an electrical engineer as well as a computer scientist, I have the ability of teaching a large range of classes, at both graduate and undergraduate level. I have extensive knowledge of electrical engineering topics, such as digital signal processing, information theory, statistics. Also, as a computer scientist, I am able to lecture on subjects like programming languages and techniques, algorithm design, data structures, numerical analysis, machine learning, computational geometry, computer architecture.

The vast arsenal of knowledge I have obtained during the years gives me the opportunity to do my research work. Moreover, it also inspires me to share this knowledge with the students. I envision myself teaching an interdisciplinary course for a pool of students with interests in computer science, electrical engineering and biomedical engineering. I learned from my own experience that crossing boundaries between electrical engineering and computer science is very prolific. It is of great benefit to expose computer science students to tools usually available to electrical engineers, such as digital signal processing or information theory. At the same time, by exposing electrical engineering students to computer science concepts, such as algorithm design and data structures, could bring significant advances in their future work.

Aside from teaching, advising students will be an important part of my life as a professor. I view the interaction with graduate students as a collaboration, where the advisor's role is to challenge the student to ask questions, and to encourage the student to pursue his own ideas.

As a future university professor, I welcome the prospect of teaching undergraduate and graduate courses on regular basis.