Contents

PERSONAL STATEMENT
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Personal Statement

Since arriving at the Department of Computer Science (CS) of the University of Houston (UH) in June 2007, I have taught and mentored **more than 7426** students (**3253** enrolled students in my classes from 2013 -2018) and actively contributed to university life through professional service and engagement, specifically the last three years as a **Director of Undergraduate Studies**. **I have received several awards for teaching excellence from both the department and the university** to recognize my teaching and mentoring achievements. I have also established a successful research laboratory "Educational Data Mining" and contributed to innovations in student retentions-based research. This statement briefly summarizes and highlights some of these noteworthy achievements. The detailed list is provided in the documents following this statement.

Teaching

Thinking about my own experience in education, I appreciate the incredible impact that teachers have on the lives of young people. I know that teachers provide skills and knowledge used by young people throughout life. Therefore, as a teacher, my greatest aim is to be a role model. I want to cultivate open minds, the knowledge and ability to look at the world critically, and students' belief in their own capacity to make positive contributions to society.

My teaching philosophy reflects my interests in creating an atmosphere that fosters learning and facilitates student discovery, supporting and challenging them both inside and outside of the classroom. I am highly in favor of peer learning, which is a powerful method for sharing knowledge, ideas, and experience, and it influences student-learning outcomes in a positive, measurable way. My other approach of efficiently implementing my teaching philosophy is gamifying the classroom, which strongly increases student engagement and motivation.

In Fall 2012, I reorganized and created the course materials of two important courses in computer science, Computer Organization (COSC 2410) and computer Architecture (COSC 3330) making students first exposure to hardware pleasurable. In Fall 2016, I developed a new undergraduate course "Computer Organization and Architecture" (COSC 2440). The challenge was of integrating the new advances in hardware technology that meet functional and performance goals and to keep up with the advances in education. Recently, I designed the new data science course (COSC 3337), and I am in the process of writing a textbook "Building Skills for Data Science" as a result of a **two consecutive awards from the Alternative Textbook Incentive Program** (2018 & 2019). In addition, I have been regularly teaching all computer science courses (1xxx and 2xxx levels) for sophomores and juniors. My teaching activities were rewarded by receiving the departmental **Teaching Excellence Award (2012)** and **University of Houston Teaching Excellence Award (2017)**. I was also nominated for the NSM Butler Teaching Award.

Teaching is central to my past and future as a computer scientist. Face-to-face instruction has continually challenged me to make lessons fresh, effective and specifically up-to-date in an era where technology has dramatically changed the teaching and learning process. Finally, watching my students grow academically is exciting, personally rewarding, and most importantly, keeps bringing me joy. I will always love my profession.

Services

As a **Director of Undergraduate Studies**, I proposed changes to requirements for the undergraduate major and minor and implement changes approved by University of Houston undergraduate committee such as the gaming capstone, the data science capstone and the data science minor.

I implemented the "*undergraduate research program*" by introducing students to scholarly inquiry by engaging them in the research process and facilitating the discovery of new knowledge through mentorship and collaboration through handling info sessions about the undergraduate research program. The aims of this program are: to provide peer support for undergraduates seeking a faculty mentor, to continue support throughout undergraduate research projects, to organize and promote the annual showcase of undergraduate scholars, to hold colloquia for undergraduates currently involved in scholarly research and inquiry and to educate undergraduates about available research-related academic resources as well as scholarships opportunities. I implemented a "*peer mentoring program*" that addresses the retention and success of students in computer science, particularly but not exclusively those who are under probation. I have organized *"Skill-building Workshop"* series to give the students the chance to develop leadership, intercultural communication, and professional skills while gaining valuable experience to put on their resume.

I have served in multiple committees at the university level, the college level as well as at the department level. I was a member of the two highest-level awards committee: **Esther Farfel Award committee** and **University of Houston Teaching Excellence Award**, which I chaired. At the university level, I am still serving as a committee member of the teaching excellence award, **the Student Fees Advisory Committee (SFAC) committee, and the International Education fee scholarships. At the college, I served as a member of the advance Task force committee, NSM Undergraduate Committee, and as a chair to the NSM Grievance Committee, I am still a member of the last two committees. At the department level, I served as a member of** the search committee, and as ex-officio for the undergraduate committee at CS. I have attended multiple open houses and recruitment events. Over the last two years, I have also taken on a full advising load and have helped undergraduate students complete their programs. I continue to advise nearly **1240** undergraduate students per year, which shows a significant increase in the last couple of years.

Outside the university, I serve as a member of the editorial Board on the Egyptian computer science Journal, I am an external reviewer for a Ph.D. thesis. I have served as a program committee member for numerous conferences and held technical seminars about educational data mining. I have served as a Judge at the Gulf Coast Undergraduate Research symposium at Rice University.

Research

Throughout my employment experiences, I have developed a broad spectrum of skills and responsibilities that enabled me to blend the academic research results with existing leadership skills as **Director of Undergraduate Studies** to help in identifying the factors that are causing students to drop a course, and that determine student performance in a course. My preproposal "**NSM Digital Storytelling**" is accepted as a Multicultural Student Success Initiative. The goal is to encourage students through interaction with diverse professionals in industry and through the

digital stories of undergraduate students in the College of Science and Mathematics Department at the University of Houston. Culturally unique students from the college of Natural Science and Mathematics representing difference departments will prepare their digital stories, tailored to the audience and represented in different languages.

Despite a strong and intensive effort by colleges and universities to improve student retention and academic performance over the past three decades, retention rates remain flat. My research interests focus on enhancing student performance and lowering the drop rate as well as increasing student retention. With the collaborations of some colleagues, I submitted a proposal of around one Million and four hundred dollars, I am still working on other two proposals.

I have been working as a Reviewer for the Egyptian Computer Science Journal (ECS) since the beginning of 2018. I am selected as an external reviewer for the student "R.Senthilkumar(11260631062) "**Performance analysis on machine learning and cryptographic techniques for secured data storage and communication in cloud**", pursuing Ph.D.(Computer Science) from Anna University - Chennai, India. I have been a member of the organizing committee of many conferences in data science, data mining and data analytics.

I have published in the field of educational data mining about applying different techniques on educational data sets such as applying clustering algorithms to identify students who estimate their knowledge correctly in any skill tested in exams from my courses as well as the ones who overestimated or underestimated what they knew. My latest publication in the International Journal of Education and Information Technologies "*Real-Time Skill Assessment Data Mining Model to enhance students' performance*", tested a real time model that provides students with a clear and understandable vision of the learning target. It offers regular descriptive feedback and teaches students to self-assess and set goals, and eventually identifies high-risk students and provide the support they need before they leave school due to failure or social adjustment problems. My latest publications in conference proceedings are "*Using Data Science Algorithms to Enhance Student Group Performance*", ICERI, Spain and "*A Recommendation System for Student Academic Progress*", ICDMKE,USA.

Finally, I supervised several undergraduate students and I look forward to continuing to be involved in an investigation that will examine how students, who have a realistic and accurate sense of their own achievements, perform well academically. Helping low performing students and direct their studying in productive directions is my continual goal.

Future.

My position as **Director of Undergraduate Studies**, allows me to take advantage of many opportunities to advise students, motivate them to pursue graduate study and to track the success of those who prefer to tackle the workplace, through building a strong relationship with the industries. In the short-term future, I would like to develop a community course (which will be a bridge between UH students and the community). This course would be developed to meet the practical needs of companies, to enhance the academic presence in service-learning, and to

encourage females to join the program. I would like to design a framework for team building in classroom and for enhancing recruitment and retention of women in STEM.

In the long term, I would like to implement a yearly showcase of undergraduate research program (SUS), to engage student in the research process and to facilitate the discovery of new knowledge through mentorship and collaboration, to hold colloquia for undergraduates currently involved in scholarly research and inquiry, and to share with undergraduates information about available research-related academic resources.

In brief, I want to help transforming the concept of teaching to learning through collaboration at many levels such as research, service learning, interventions across cultures and societies. My previous and future accomplishments in teaching, service, and research will always be dedicated to inspiring students, ensuring their success, and encouraging them to fulfill their potential.