Personal Statement for Doctoral Dissertation Mentoring Award

Prabhat Mishra, *Ph.D.*, *IEEE Fellow*, *AAAS Fellow, ACM Distinguished Scientist*
Professor, Department of Computer and Information Science and Engineering

Teaching and mentoring have been an integral part of my life for the last three decades. I have worked as a private tutor to support my high school as well as undergraduate studies. After working five years in the industry, I realized my true passion for research and started my academic journey. Mentoring the Ph.D. students is the most rewarding experience in my life. It is exciting when a bright and talented student joins my group ignoring offers from top schools. It is always a pleasant journey for four to five years to brainstorm ideas on cutting-edge research problems, publish papers in the premier journals in my field, and watch a doctoral student grow as a mature and successful researcher. A statement I heard from my high school teacher can summarize my mentoring philosophy: *a great mentor brings a student to the threshold of knowledge and ignites the interest to cross the threshold*. I have been with UF since 2004 and mentored thirteen Ph.D. students who are successful in their careers, as outlined in the following table. Currently, I am advising four Ph.D. students (another two Ph.D. students will join in Spring 2025).

Tenured/Tenure-Track Faculty		Technical Lead	
Dr. Mingsong Chen	East China Normal University	Dr. Heon-Mo Koo	Apple
Dr. Farimah Faramandi	University of Florida	Dr. Yuanwen Huang	Google
Dr. Kanad Basu	University of Texas at Dallas	Dr. Xiaoke Qin	Nvidia
Dr. Subodha Charles	Univ. of Moratuwa, Sri Lanka	Dr. Weixun Wang	Stripe
Dr. Yangdi Lyu	Hong Kong Univ. of Sc. & Tech.	Dr. Hasini Witharana	Intel
Dr. Zhixin Pan	Florida State University	Dr. Kamran Rahmani	Asana
		Dr. Daniel Volya	HRL Labs

I have a well-funded research program involving multiple Ph.D. students, a few MS students, and several undergraduate researchers. My primary research area is the design automation of trustworthy and intelligent systems. The research activities in my group have been sponsored by both federal agencies (NSF, AFRL, ARO, AFOSR, and DARPA) and industry (SRC, Raytheon, Intel, Cisco, Harris, IBM, Edaptive, and Synopsys). The Ph.D. dissertations from my group are comparable (in terms of quality of publications, awards, and citations) with the ones from the top five US universities. Each Ph.D. dissertation from my group results in at least four premier journal articles and six premier conference publications. My students publish only in top-tier conferences and journals. In my field, it is common to publish in conferences due to fast technological innovations. It is harder to publish in some of these top conferences compared to the top journals in my field, which is a typical trend in many computer science programs. The fundamental contributions made by these Ph.D. dissertations have resulted in 9 books, 35 book chapters, 30 patents, and more than 250 publications in premier journals and peer-reviewed international conferences. The following table shows awards received by the Ph.D. students. These students have also received numerous awards after graduation, including the NSF CAREER Award (Dr. Farahmandi and Dr. Basu), Endowed Professorship (Dr. Farahmandi), etc.

Ph.D. Student	Awards	Sponsors
Dr. Heon-Mo Koo	KUSCO-KSEA Scholarship	Korean-American Sc. & Eng. Association
Dr. Kanad Basu	VLSID Best Paper Award	International Conference on VLSI Design
Dr. Yuanwen Huang	CODES+ISSS Best Paper Award	Intl. Symp. on Quality Electronic Design
Dr. Subodha Charles	Outstanding Achievement Award	Herbert Wertheim College of Engineering
Dr. Zhixin Pan	Outstanding Dissertation Award	European Design Automation Association
Dr. Daniel Volya	Invention of the Year Award	UF Innovate, University of Florida

While mentoring the Ph.D. students, I always make sure that each Ph.D. graduate from my group has developed the following eight attributes that would make them successful in their careers after graduation.

Motivation and Diligence: I utilize various avenues to motivate students – joint group activities, explaining the importance of a topic and its societal impact, sending students to conferences, and collaborating with international researchers. When a student observes that I am working longer hours to help them, they get motivated to work harder. I meet with each student at least twice a week to brainstorm and discuss their research progress and guide them when they cannot proceed. They also have my cell phone for academic emergencies.

Communication Skills: Each Ph.D. student is required to present their ideas and findings during our weekly group meetings. My view is that each Ph.D. student should be able to communicate their ideas effectively to the public. I conduct a dry run of any upcoming conference presentation and advise the student on how to change the presentation slides or delivery to clearly convey the ideas. I encourage Ph.D. students to teach in discussion sections and interact with students as a teaching assistant to improve their communication skills.

Publication Record: I explain to my students in the very first meeting that they should believe in themselves and set their standards high to achieve more and have an impact. I suggest them to work hard, target only high-quality venues, and publish at least four premier journal articles and six premier conference papers before their graduation. Each Ph.D. student tries to break the record of their predecessors, and most of them also co-author books, book chapters, and patents. Each student tries to build a resume that is competitive for a tenure-track faculty position as well as employment in a top industry research lab.

Research Collaboration: While each Ph.D. student in my group works independently on a different topic, I encourage them to collaborate with the members of my group as well as researchers worldwide. My Ph.D. students have published with researchers from industry (AMD, IBM, Intel, NXP, Cisco, Raytheon, Texas Instruments) as well as academia (NTU Singapore, ECNU China, UC Irvine, TU Munich, Univ. of Tokyo, UCF). These collaborations also help them in obtaining summer internships and full-time job offers.

Technology Transfer: I emphasize the importance of cutting-edge research as well as industrial collaboration to ensure that their research results have practical significance. I encourage Ph.D. students to go for summer internships to apply their methods on industrial designs. This experience is valuable for them to understand the complexity of industrial designs as well as how to improve their research to solve real-world challenges.

Mentoring Activities: I ask each Ph.D. student to mentor at least one junior Ph.D. student and one minority undergraduate (REU) researcher. I monitor their interactions and suggest changes when I see any conflict between the mentor and mentees. This experience enables them to become a great mentor and effective collaborator in their career. In fact, most of these mentoring activities have resulted in joint publications.

Proposal Development: I always ask for help from my Ph.D. students to write certain parts of a proposal. This activity has two positive outcomes. First, they learn how to develop and package new ideas to receive funding. It also increases their confidence and sense of ownership when the proposal gets funded, and they start working on those fundamental challenges. In fact, each Ph.D. student leads at least one funded project.

Awards and Achievements: I encourage my Ph.D. students to apply for any relevant awards, fellowships, and scholarships. Once they receive an award, it adds not only to their resume but also to their motivation to work harder and achieve more. My students have received numerous internal (department/college level) as well as external awards during their Ph.D. Even after a Ph.D. student graduates from my group, I stay in close touch and encourage them to apply for any upcoming awards or sign up for professional services, including associate editor positions in reputed journals or program committee roles in international conferences.

In conclusion, I am grateful to UF for giving me the opportunity to mentor bright and talented Ph.D. students. It has been a rewarding experience in the last twenty years. I am very proud of the achievements of the thirteen Ph.D. students who have graduated from my research group and are very successful in their careers.