

STATEMENT OF PURPOSE

I am applying to University of Houston for admission to the Ph.D. program in Computer Science. My research major is the field of Network Management and Sensor Network. More specifically, I am interested in Network Security Management, Anomaly and Intrusion Detection and Sensor Network. Besides my major, other areas that interest me are Software Engineering, System Database and Information Security.

My long-term professional ambition is to pursue a successful research career in an area that I love, either as a teaching faculty member, or in an R&D department in industry. A Ph.D. in one of the aforementioned research fields would be the crucial first step towards this goal.

My love for computers all dates back to the time when I first touched my uncle's computer. As I was a school boy at that time, little did I know about the complexity of a computer or what "Windows 95" meant. To me, a computer was a very smart device that could play music, show movies and display pictures. I still clearly remember how I surprised that the cursor could move around the screen as I touched the mouse. It still seems like magic or rather, a grand adventure – one that I most certainly want to be a part of.

Having a love for and a strong background in computers, I chose the Computer Science department in Vietnam National University (the best school in Southern Vietnam) for my undergraduate study. The excellent facilities, courses and faculty provided me a firm background of fundamentals in Computer Science. My major as an undergraduate student was Software Engineering, since I always earned maximum grades in courses such as Programming Language, Object-Oriented Programming, Advanced Software Engineering, Data Structures and Algorithms. Even though I managed to be one of the best students of the department, I believe that formal education and self study are never enough. That's the reason I became a software developer of Viet Tech (VT) and ELCA Vietnam even before I graduated.

My first projects at VT required me to develop commercial websites and desktop applications for customers. Success on these projects gave me confidence to provide software solutions to real-life problems. Although I liked the job, software development at VT was just a support function. I therefore switched to ELCA, a Swiss company providing software solutions in wide-ranging fields. I had been involved with project SECUTIX, an online system allowing customers to order tickets on the Internet and print them at home. Working on this project had helped me hone my programming skill on enterprise software solutions. I developed an appreciation of 'the big picture', and conversely, how important details were. I also discovered leadership skill in myself, and frequently assisted colleagues who had little or no background in our field. As an outcome of this, the company asked me to teach occasional seminars on Programming Techniques and System Security for my incoming colleagues.

While my job at VT and ELCA had helped me develop a through insight into software development and project management, the industry environment that I was in could not support my desire for research. Therefore, after a good deal of self-evaluation and

consultation with my manager and my academic advisor, I decided to return to the academic world for further growth. Working on e-commerce projects familiarized me with the importance of the network infrastructure. Also, with a lot of network developments at that time in my country, I could not help but feel excited about the potential for new research in this area. Since network facilities in Vietnam do not have what it takes for graduate-level research, I decided to go to Korea and apply for Chonnam National University (CNU) for Masters-level study in a new major: Computer Networks.

I was offered a Research Assistant position at the Advanced Network Lab (ANL), under the guidance of Professor Deokjai Choi. A new major, a new environment and a new job brought me huge challenges at the beginning. At ANL, I took coursework, did research and worked on projects for industrial organizations at the same time. My first project with Korea Telecom was to develop a new method for Network Anomaly Detection by monitoring network flows (IPFIX or NetFlow). My research outcome was highly evaluated by the company. I also gave seminar on this work at HIJK International Workshop and published the results at the WOCN08 conference. My second project required me to work in cooperation with CNU Computing Center to discover a new Network Bandwidth Allocation Scheme. This work is currently undergoing its final phase, and I also published some of the research outcome at the ACIIDS09 conference. After two years doing research as a Master student, I managed to have 8 publications (6 of which for international conferences). I therefore also discovered in myself the most important skill I ever have: the research skill.

Since my Master study is coming to the end, a doctoral program is a natural next step towards my big goal, to pursue a successful research career. As a Ph.D. student, I plan to carry out extensive research on Advanced Networking focused on the topics such as QoS, Traffic Engineering, Future Internet, Protocol Optimization and Applications of Sensor Networks.

I have selected University of Houston (UH) for my Ph.D. education having discovered that your Graduate Program in Computer Science suited my needs perfectly. Members of the faculty at UH have been doing a lot of significant work in Networking areas to date. I read some publications of Professor Albert M. K. Cheng during my research process and especially enjoy the idea of ANDES. The structure of ANDES proved to be extremely useful in solving the problem of Anomaly Detection, which is the topic of the research project that I had been working on with Korea Telecom. I also checked out the home page of Dr. Rong Zheng and believe that my research interest matches her projects on Wireless Systems. I find them to be fascinating, and would like to work with them on my future research projects.

My decision to apply to UH was further strengthened when I contacted Dr. Rong Zheng to express my wish to join her research group; and she strongly encouraged me to apply. I am aware of the kind of dedication, perseverance and resolve I need to have for a fruitful career in research and/or teaching. I believe my background has not only qualified me technically but also given me the right attitude for such a career.

I am eagerly looking forward to a long and mutually profitable association with the Computer Science Department of University of Houston.

HUY ANH NGUYEN