

Erika S. Mesh – Personal Statement

As I was entering middle school, my parents recognized that it would be critical for children to be technically savvy and strongly encouraged all forms of scientific curiosity and exploration. I had built my own PC and was doing simple programming by the time I was thirteen years old. I refurbished Apple Macintosh computers with my mother to create a computer lab in an at risk New Orleans inner-city school as part of an America On-Line and New Orleans Arts Council grant program. I assisted in, and eventually supervised a summer day camp computer lab. By the time I was fifteen, I'd seen first-hand how computers enabled both learning and collaboration, and I wanted more.

Unfortunately, the high school I was attending didn't offer any advanced computer science electives and the one school in the city that did offer such classes did not accept female students. My parents could have just continued to support my out of school activities and kept me at home, but instead, they allowed me to attend an honors public boarding school. I spent my junior and senior years of high school pursuing a "math/science" focus at Louisiana School for Math, Science, and the Arts (LSMSA).

At LSMSA, I was able to take a wide array of advanced science and computing electives including: AP and analytical chemistry, basic operating system concepts and shell scripting, numerical methods, computer graphics, and programming with Pascal, C, and C++. I completed my required school service by tutoring and grading for computer science classes. By the time I graduated high school, I knew I loved software development as a problem-solving tool, and I knew I wanted to find a way to apply this knowledge on a larger scale. Finding a college program to support these goals proved much more challenging than I expected.

After a number of visits around the country, I was confident of only one thing: wherever I attended college, I refused to sacrifice my goals and be just a number. I visited schools that had impressive computer science programs, but seemed to place minimal value on my own opinions and interests. Eventually, I spoke with someone from Rochester Institute of Technology (RIT). For the first time, someone had a conversation with me about my goals and concerns. Instead of dismissing me, she suggested I change my declared major to their new "Software Engineering" program. I immediately scheduled a visit and fell in love with RIT.

Thanks to a National Merit award and the Kate Gleason Memorial Scholarship for Women in Engineering from RIT, at 17 years old, I enrolled in the nation's first undergraduate Software Engineering (SE) program at Rochester Institute of Technology (RIT). As a graduate of the second class to complete the program, I was in a unique position to see the curriculum develop in front of me, and I have remained invested in the success of RIT SE students ever since. Even after graduating in 2002 and pursuing a career in industry, I was never far from my alma mater. I returned for mentoring activities; I coordinated events to provide SE training for my colleagues; and, in 2007, I joined the department's Industrial Advisory Board (IAB). As a member of the IAB, I participated in reviews of the undergraduate curriculum, mentored students, sponsored senior projects, and stayed informed on the direction of current research.

It was watching my daughter grow into a precocious and adventurous toddler that prompted me to make a change in life. Unhindered by expectations, nothing seems impossible to her, and she finds problem solving to be just another game. Even when she fails, I am inspired by her determination, complete focus and the raw joy she gets from just trying. She reminds me how much I love the *process* of problem solving as much as the solutions themselves. No matter

what the application, the true joy in software development is not in specific tools or techniques, but in how they can be combined to solve real problems – the *engineering* in software engineering.

Just before my daughter's second birthday, an opportunity arose to return to RIT and study the process of software engineering fulltime. A research environment provided the challenges I love, and being a teaching assistant and student mentor fulfilled my urge to spread knowledge about software engineering and instill in others my own love of problem solving. During the course of my M.S. research and work, I experienced firsthand an often-overlooked software engineering domain: scientific software.

Despite the fact that many scientific software programs will never be commercialized, they may be considered the most valuable programs we may develop. Software is more than a convenience or a toy; it is the catalyst that enabled a period of rapid technological, scientific, and cultural change. As the scientific research community leverages this progress, software engineering researchers must keep pace to ensure that an adequate cyber-infrastructure is available and **used** efficiently.

With hindsight, I see how much my early experiences with computers have shaped my view of the role software plays in the world around us. As I progress in my academic career, my primary focus is that each and every step of my work also provides value to the scientific research community and my fellow students. With this in mind, I have joined the Graduate Student Advisory Committee at RIT. While RIT has a strong history of graduate research, coordinated efforts across domains and student-led initiatives are relatively new. My long connection with RIT as an undergraduate, alum, IAB member, M.S. and now Ph.D. student allows me to bring a variety of perspectives to the group and offer valuable contributions to the graduate student community even as I pursue my individual goals.

As Dr. James M. Gentile said in a recent lecture, “Mother Nature doesn't conform to departmental constraints” (2012). The problems faced by scientists today cross boundaries of all kinds. If I want to consider myself a software engineering researcher, educator and role model, my standard of success must include contributions to the scientific, research, and academic communities as a whole.

References

James M. Gentile (President of Research Corporation for Science Advancement), *Solving Complex Questions in Science through Innovation and Interdisciplinary Collaboration*. Rochester, NY: RIT College of Science Distinguished Speaker Series, October 5, 2012.