Shane McIntosh
Mentoring & Teaching Statement

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Mentoring and teaching are two of the primary reasons that motivate my pursuit of an academic career. From a young age, I have enjoyed helping others to develop new skills and improve existing ones. As a senior high school student, I tutored math students who were struggling with the material. Moreover, as an undergraduate, I took a part-time job as a drumming instructor, where I had the opportunity to help young students to develop basic rhythmic skills, and older students to learn more advanced drumming techniques.

Below, I describe my recent mentoring and teaching experience, as well as my teaching preferences.

Mentoring Junior Students: During the senior years of my graduate studies, I took a leadership role at my research lab (SAIL), which included the opportunity to mentor and advice junior students. An overview of the students that I mentored and the role that I played is shown in Table 1. Five of the students that I have mentored have published papers describing our work in top SE conferences (ICSE'15a, ICSE15b, ICSME'14b, MSR'14b, and MSR'14c), with two of these papers being nominated for best paper awards (ICSME'14b and MSR'14b). These publications will form the basis for their future work and their respective dissertations.

In mentoring these students, I strive to provide them with the tools to become independent researchers. I provide direction, guidance, and positive reinforcement, but motivate students to explore research problems on their own. Furthermore, when providing writing and presentation advice, I encourage students to find their own voice by rarely directly editing their written text or presentation slides.

Teaching Experience: My approach to teaching is much the same as my approach to mentoring research students – I strive to develop lesson plans that help students to connect with the material. During my graduate studies, I have had the opportunity to serve as a teaching assistant for two SE courses. The first was a System-Level Programming course that taught basic UNIX shell environment and C programming skills. The second was an Object-Oriented Design course that introduced students to OO principles through the development of a software system. In addition to grading assignments, I was also responsible for running weekly 2-hour lab sessions, where students worked on hands-on course exercises and assignments.

Students who enrolled in these courses ranged from those who had already applied the course material in an industrial setting to those who had no prior experience with the course material. Thus, a big challenge was to create an engaging lab environment for all of the students to learn in. To overcome this challenge, I connected the weekly exercises with anecdotes from my industrial experience. Those who were already familiar with the material were also welcome to share their experiences. Moreover, this helped the novices in the class to recognize the value of the course material.

Teaching Preferences: Generally, I would like to teach software engineering courses at the undergraduate and graduate levels. I have experience with undergraduate courses that teach OO principles and system-level programming, but would also be comfortable with teaching courses that deliver other SE-related material. At the graduate level, I would like to teach a course about mining software repositories, empirical software engineering, and software release engineering in a rapid release setting.

Table 1: Mentored students.

Degree	Student	Papers	My Role
PhD	Kazuhiro Yamashita	MSR'14b, MSR'14c, EMSE'S2, MSR'S2	RD, RG, EG, PWG, PG
	Daniel Alencar da Costa	ICSME'14b	RG, EG, PWG, PG
	Chakkrit Tantithamthavorn	ICSE'15a	RG, EG, PWG
	Patanamon Thongtanunam	MSR'S1	RD, RG, EG
MSc	Takafumi Fukushima	MSR'14b, EMSE'S2	EG, PWG, PG
	Baljinder Ghotra	ICSE'15b	RD, RG, EG, PWG, PG
Summer intern	Adan Moran-Macdonald		RD, RG, EG, PWG
	Arthur Leung		RG, EG

RD = Research Definition, RG = Research Guidance, EG = Experimental Guidance,
PWG = Paper Writing Guidance, PG = Presentation Guidance