Maxie Dion Schmidt
Teaching Statement

I aim to interact with students by an active learning approach that includes combining new technologies into the classroom. I also seek to promote a flexible, friendly and open learning environment for students coming from diverse backgrounds to engage with me as the instructor from within. While working on computational geometry projects funded by Prof. Jayadev Athreya at the University of Washington from 2016–2017, I was offered an unforgettable opportunity to take part in mentoring advanced undergraduates in mathematics by teaching a self-created junior-level topics course. The course outline focused on getting students hands-on experience with experimental mathematics, gap distributions and spatial statistics by visualizing substitution tilings of the plane in the Python programming language while practicing standardized agile software development methodologies. My enthusiasm for teaching students has grown as I have developed more techniques to overcome shyness in large groups. I was promoted to be the first head TA of *Integral Calculus* in the Fall of 2018 at GA Tech. I accepted the opportunity to teach a section of integral calculus as the instructor of record over the summer of 2021. This is an exciting learning experience for me to administer a large course and to expand my CV with more expansive requisite professional experience in academia.

I feel that I will be able to more broadly contribute to initiatives in mathematics and other STEM fields as a postdoctoral fellow. As woman working within my areas of study, I will continue to promote new learning and research mentorship opportunities to encourage diversity and help to bridge the gender gap for the under-represented talented women in these fields. I also reflect positively on having benefited over the years from my undergraduate research experiences with Prof. Bruce Reznick and mentoring experiences with Prof. Bruce Berndt who was influential in developing my mathematical writing style. Personally having been considered seriously as an undergraduate pursuing original research was encouraging to me through my mentors that has been mission critical to my academic success and development over the years. I plan to pass on the wisdom I have learned by talking with these experienced career mathematicians to young motivated researchers as my own professional career moves forward. This especially applies to offering advice and influencing talented women in mathematics to develop their own early original research work as undergraduates and onward.

I am an active user of the *open source software* (OSS) based platforms Linux and OpenBSD since my teenage years. I was exposed to the availability, education, superior documentation and freely available source to high-quality production software that runs the backbone of all large computer networks early on by teaching myself how to use these systems. This experience provides me insight, grounded philosophy and a great passionate love for OSS. I have gone to significant efforts to donate time to developing publicly available OSS. This work on OSS is both as an extension of my formal studies as a graduate student and is utilized to grow my skill set as a professional software engineer. I actively develop and maintain over a dozen public cross-platform OSS projects on *GitHub* written in the C/C++, Java, Python and assembly languages, among others. I strive to contribute high quality open source software, educationally literate publicly available source code advancing STEM areas, and to grow myself as a professional software developer. I will continue to pursue stimulating research problems with cross-disciplinary applications in mathematics, computer science and OSS. I intend to publish the results of my research on these topics in peer-reviewed journals, present the results through talks at professional conferences, and make the research broadly available for education, teaching, and other purposes in venues such as the web.