

Data Management Plan

1 Plans for sharing the products of research

The PI will pursue stimulating research problems with cross-disciplinary applications in mathematics, computer science and open source software (OSS). The PI strives to continue to contribute high quality open source software, educationally literate publicly available source code advancing STEM areas, and to grow herself as a professional and academic software developer. The PI intends to publish the results of her 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. This includes plans of the PI to widely disseminate her research and make it freely available to others via preprint manuscript servers such as *arXiv* and on public open source software repositories including *GitHub*.

The PI plans to publish software contributions to support her work in pure mathematics including releasing files, scripts and other programs that were key in motivating new discoveries and conjectures in print publications online in open venues. Other STEM supportive software contributions made while an active recipient of the NSF fellowship award, including extensions of the projects referenced from the bibliography section of the *Project Description* statement, will continue to be made widely available to the general public online. The PI's experience with open source software provides her with insight, grounded philosophy and a great passionate love for OSS. As such, unless pre-existing license agreements for derivative software sources prevent her plans, the PI intends to release all software she writes related to her work funded by the NSF fellowship as OSS under a permissive license such as the *GNU Public License* (GPL-V3) or a *Creative Commons* (CC) license variant.

2 Plans for data management

The bulk of the work proposed for the fellowship project is to conduct research in pure mathematics. For work of this type, the PI does not require the collection of data from external sources nor subjects. That is to say that while she may use experimental mathematics to motivate and explore new topics in her work, saving the results on her personal computers in the process, there is no need for a rigorously structured data management methodology for her work in these areas. Likewise, the PI does not plan to develop software funded by the NSF that relies on privileged, confidential, government classified, nor otherwise sensitive data sets. The PI similarly has no plans to create software that relies on the interplay of personally identifiable information of human subjects nor participants in the development process of these works, such as general users and pre-release beta testers. Hence, the PI requires no extensive plans nor statements of protocol for data management in the software type work within her proposed project. The PI will of course strictly adhere to any guidelines or mandated requirements by her sponsoring institution, Penn State University, in handling her own private information and maintaining the computer systems she uses to conduct her research.