NRNB Student Profile: Shalin Shah

Brief introduction

I worked with simulation-core library SBSCL, a command-line Java-based library for simulating systems biology models. Working on this interdisciplinary project was an exciting experience let alone learning all the good practices required for maintaining large software. I had a productive summer for which I am thankful to all my wonderful mentors, NRNB community, and Google.

Fun fact: Our weekly meetings at some point were 6:00 a.m. for me because I was traveling. I highly appreciate my mentor bearing with me during those early morning meetings. This experience was one of its kind!

- **Student Project:** https://github.com/shalinshah1993/SBSCL/wiki/SBSCL-wiki-page-for-GSoC-2018
- **Student Project blog**: https://ssdoesgsoc.wordpress.com/

Statement from mentors:

Shalin became an active member of the SBSCL team and produced high-quality code during GSoC while implementing fundamental features including SED-ML support. Communication and interaction with Shalin were excellent, resulting in a flourishing GSoC project for him and the SBSCL Java™ library.

Where did you attend university during Google Summer of Code (GSoC)?

Duke University, Durham, United States

How did you find out about GSoC?

Google search about interesting open-source projects

What factors helped you decide on a GSoC project?

My mentor's enthusiasm, excitement, and willingness in helping me figure things out is probably the most vital factor that leads to me zeroing down on this project.

How did you first hear about the NRNB and the SBML-related project?

I was looking for an interdisciplinary research-based programming project, and that's how I found NRNB and Dräger lab. This API can be used for simulating systems biology models, so it has a direct impact on others research.

What problem did you work on?

I was trying to improve SBSCL framework to reach a professional software standard. Making build process easier using maven and Travis, updating library support with

latest model specifications and removing proprietary library dependencies to promote widespread use of SBSCL.

What was your experience with GSoC? How did it compare to your expectations?

It is a productive and fun experience. Working with an open-source community is very rewarding. I was expecting a summer where I am grilled and micro-managed however it was completely different. I was able to pace work myself and work independently which I highly admire.

Briefly describe your contributions to the project during GSoC.

- Added support for many SED-ML constructs, including repeated tasks and post-processing repeated tasks.
- Added support for simulation graph plots
- Added support for simulating hierarchical SBML models
- Replaced proprietary IBM CPLEX dependency with open-source library SCPsolver (which can still use CPLEX under the hood if a license is available)
- Support for reading OMEX files (a structured archive data format)

How do you participate in the NRNB community?

I will try to use the open-source frameworks to find bugs and fix them. I am also willing to mentor a new student next year as a way to give back to the open-source community.

What happened with your project after the end of GSoC?

After GSoC, we are now working towards a publication with the work I did during GSoC.

What you are doing now and what are your next career goals? What role does free / open-source software play in your work?

I am working on my Ph.D. thesis at Duke and hoping to graduate within the next two years.