

## Blue Waters Education Allocations Final Report

# BLUE WATERS



As a component of your application for a Blue Waters education allocation, you agreed to provide a report at the end of your project. Now that your project is complete, we would appreciate your submission of the following information within two weeks. Please send this report, and any supporting documents, to Scott Lathrop, [lathrop@illinois.edu](mailto:lathrop@illinois.edu).

This information will be shared with the Blue Waters team and the National Science Foundation. Portions of the report (we will omit names of participants) will be posted on the Blue Waters portal for public access.

### Project Information

Project Name	<a href="#">Scaling in nature and in the machine</a>
Names of project staff (instructors, TAs, etc) and their department and institutions	<a href="#">George Lees Jr. - student</a> <a href="#">Russell Manson - professor</a>
URL for the project	<a href="http://www.shodor.org/petascale/position/143/">http://www.shodor.org/petascale/position/143/</a>
Provide links to or attach materials made available to participants (e.g. slides, articles, exercises, etc.) that may be made publicly available	
Provide links to or attach any photos (with captions to describe activities)	
Start date	<a href="#">07/01/2014</a>
Completion date	<a href="#">07/01/2015</a>

### Information about the Participants

# Participants	# Faculty or staff	# students	# other (e.g. industry)	# under-represented (e.g. women, minorities)	# institutions represented by participants
<a href="#">1</a>	<a href="#">Russell Manson</a>	<a href="#">George Lees Jr.</a>			<a href="#">Stockton University</a>

Please describe the scope and purpose of this project. Also, please indicate if there were any changes implemented from the original proposed plan, and briefly describe why they were made.

The original scope of the project was to scale up a parallel program involving particles flowing in water on the Blue Water Supercomputer. Then use Openfoam to manipulate and test the partial differential equations involved and use ParaView to visualize the simulation. However, OpenFoam was not installed and I was not able to connect to ParaView on BW from my local machine. I tried for two weeks and logged a ticket. Then the ticker was closed because they were not able to duplicate the error. It was a networking issue that probably had something to due with ComCast.

Please describe the learning outcomes of the participants. How did this project enhance the learning of the participants? What did the participants learn as a result of the use of Blue Waters system that they could not have learned using other systems?

I took a class taught by my mentor in the Fall of 2014 called Parallel Computing. Since I had the amazing two-week crash course at BW I was able to not only excel in this course but was also able to use BW to develop a bunch of other MPI and CUDA programs. I was able to develop in the environment which gave me a lot of experience with the Cray OS. Also my PC was not able to run CUDA programs so I was able to learn a lot that I would not otherwise have been able to.

Please describe lessons learned from the project. What would you do differently next time?

If I were to re-do the project I would make a Poster and try to submit a paper so I could go to a Supercomputing conference.

What would you recommend that the Blue Waters team do to enhance the success of education projects in the future?

Probably work harder with the students to setup their individual environments. For example, most of my project was derived from the assumption that OpenFoam would be able to be built on the system. But I was told that it was not going to happen because it was not on there and I did not have the permissions to build it myself. Also it was impossible for me to follow the provided instructions to connect to ParaView.

Please provide a summary of any surveys or evaluations you conducted of the participants. Feel free to attach any related documents.

N/A

Please provide any anecdotal stories we may share with NSF and the public.

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How would you rank the overall experience?

	Excellent	Very Good	Good	Fair	Poor	N/A
Education allocations process	<u>X</u>					
Blue Waters support					<u>X</u>	
Blue Waters computing system	<u>X</u>					
Blue Waters documentation		<u>X</u>				
Blue Waters training	<u>X</u>					

Do you plan to request an education allocation for other future events that will use BW?

Please describe the plans for future events, including the frequency (each semester, yearly, etc.).

No.

Please provide any other comments or suggestions.

Overall, I learned a lot! The training was my favorite part. I actually studied a lot of parallel computing fundamentals before the training but still learned a lot. Maybe add more time to the training process or have remote training after. For example, have a technical contact at BW and have meetups when needed. If I would have been able to contact someone I met there like Omar after I left instead of the ticketing system it would have helped a lot.