OMAIR SHAHZAD ALAM
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EDUCATION

University of Richmond, Richmond, VA, Expected Graduation Class: May 2017
Bachelor of Science in Computer Science with a double major in Physics; *Minor: Mathematics*
Overall GPA: 3.93; Major GPA: 3.95; Minor GPA: 4.00

RESEARCH EXPERIENCE

Jefferson Lab – Newport News, VA May-August 2014
Software Development Researcher
Improved the simulation software being used to characterize the internal structure of electrons by the following modifications,

- Redesigned the format of the output file of an event generator in order to make it universally acceptable input for all standard physics event simulation software.
- Added an option to simulate a target object to extract the dependence relation between electrons and the target structure, a relation that is crucial for statistically accounting for any loss of electrons during the experiment.
- Rewrote the Makefile for the event generator software to reorder the 6 locally developed libraries into one comprehensive library, making the program more robust and accessible.
- Submitted an abstract entitled "A Deuteron Quasielastic Simulation of CLAS12" to The American Physical Society's conference in Hawaii, based on research done in Computational and Nuclear Physics regarding the properties of quarks in nuclei.
- Presented a research poster for alterations made to a software simulating an experiment to find the Neutron Magnetic Form Factor, one of the most fundamental properties of an atom.

PROJECT EXPERIENCE

Arbitrary Integer Calculator (C++) November, 2014

- Implemented arithmetic operations for user-specified precision hexadecimal numbers for an in-class project, employing overloading, exceptions and unit testing.
- Created an algorithm for storing the value of hexadecimal numbers in binary using a vector of long integers.

Bubble Game (Java) November, 2013

- Implemented an arcade style bubble popping game for an in-class project using Java Thread, Timer, Graphics Classes and Swing Framework.
- Manually implemented animations by writing an algorithm to control resizing and refresh rates of individual objects.
- Used event driven programming to operate asynchronous threads for individual bubbles, each with its own lifespan and score value.

LANGUAGES

- Proficient in Java
- Familiar with C++
- Familiar with MIPS