David M. **Riser**

Research Assistant · Graduate Student

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Research Interests

Nucleon Structure 1-Dimensional Structure Functions in DIS, Transverse Momentum Distributions from SIDIS, Generalized Parton Distribution functions from DVCS

Education

University of Connecticut — *Storrs, Connecticut*

Masters of Science, Physics — *August 2015*

- General Exams & Coursework Completed August 2015
- Relevant Coursework - Electrodynamics, Relativistic Quantum Mechanics

Delaware State University — *Dover, Delaware*

Bachelors of Science, Physics — *May 2013*

- Relevant Coursework - Undergraduate core physics classes, Scientific programming, Optical electronics

Skills

Programming and Software C/C++, FORTRAN, JAVA, PERL, tcsh, LaTeX, Mathematica

Operating Systems Windows, Macintosh OS, Linux (Ubuntu, RHEL7, Mint)

Hardware Basic electronics & circuitry, Frequency stabilization systems

Languages English (Fluent), Spanish (Intermediate-Advanced)

Experience

Thomas Jefferson National Accelerator Facility & University of Connecticut (Dr. Kyungseon Joo) — *Newport News, VA*

Research Assistant - Experimental Nuclear Physics — *June 2015 - Present*

- Monte Carlo Simulations of CLAS12 background, optimization of beamline shielding
- GEMC Detector factory development → implementing detectors into geometry database
- Analysis of SIDIS process in E1F run, construction of absolute cross section

University of Connecticut (Dr. Phillip Gould) — *Storrs, CT*

Summer Research Assistant - Experimental Atomic Physics — *June 2014 - September 2014*

- Construction of high voltage power supply
- Construction of photodetector circuits

Delaware State University (Dr. Gour Pati) — *Dover, DE*

Undergraduate Research Assistant - Experimental Atomic Physics — *January 2012 - August 2013*

- Construction & optimization of rubidium vapor cell based frequency standard using a pulsed Raman-Ramsey technique
- Utilization of various electronic components including infrared diode lasers, oscilloscopes, photodetectors, lock-in amplifiers (SRS) , various other electronics used in frequency locking/stabilization circuits

Delaware State University (Dr. Essaid Zerrad) — *Dover, DE*

Undergraduate Research Assistant - Theoretical & Computational Atomic Physics — *August 2011 - January 2012*

- Numerical solutions to the integro-differential Schrodinger equstion which arises in low energy electron scattering from Hydrogen and Helium atoms
- Extended Singular Value Decomposition (SVD) technique to improve convergence with fewer iterations
- Used FORTRAN 77 with IMSL package

Honors & Awards

Spring 2015 **Teaching Excellence Award**, Office of Provost — *University of Connecticut*

Presentation

CLAS Collaboration Meeting, Deep Processes Working Group

Jefferson Lab, Newport News, VA

CLAS12 Beamline Background Studies with GEMC

Spring 2016

- Shared results from a Monte Carlo study aimed at increasing operating luminosity for CLAS12 by reducing background coming from beamline elements.

Emerging Researchers National Conference

Washington DC

Optical Squeezing Based on a 4 Wave Mixing Technique

Spring 2013

- Presented details of an experimental setup under construction to produce “squeezed light”