

David M. Riser

RESEARCH ASSISTANT · GRADUATE STUDENT

2011 Genevieve Trail, Williamsburg VA, 23185

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Research Interests

- Nucleon Structure** I am interested in extracting Transverse Momentum Dependent Parton Distribution functions from SIDIS data.
- Machine Learning** I am interested in applying techniques from machine learning to analysis of physics data.

Education

University of Connecticut

MASTERS OF SCIENCE, PHYSICS

Storrs, Connecticut

August 2015

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

Delaware State University

BACHELORS OF SCIENCE, PHYSICS

Dover, Delaware

May 2013

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

Skills

Programming and Software	C++, Java, Python, \LaTeX , Mathematica, ROOT, TMVA
Operating Systems	Windows, OSX, Linux
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 equation 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

Schools & Awards

Summer 2016	National Nuclear Physics Summer School , Massachusetts Institute of Technology	<i>Cambridge, MA</i>
Spring 2016	Hampton University Graduate Studies Program , Thomas Jefferson National Lab	<i>Newport News, VA</i>
Spring 2015	Teaching Excellence Award , Office of Provost	<i>University of Connecticut</i>

Presentations

CLAS Collaboration Meeting, Deep Processes Working Group

Jefferson Lab, Newport News, VA

UPDATE ON SIDIS AND DIS CROSS SECTIONS FROM E1-F

March 2017

- Recent results for the inclusive cross section extraction from E1-F were shared.

CLAS Collaboration Meeting, Deep Processes Working Group

Jefferson Lab, Newport News, VA

CLAS12 BEAMLINE BACKGROUND STUDIES WITH GEMC

February 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”