

Mason J. Stoecker

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"The limits of my language mean the limits of my world.."- Wittgenstein

Education

V.T.(Virginia Polytechnic Institute and State University)

B.S. IN PHYSICS AND MATHEMATICS

Blacksburg, VA

Graduated: Dec 2020

Thomas Nelson Community College

ASSOCIATE IN SCIENCE

Hampton, VA

Graduated: May 2018

- Graduated Cum Laude and wrote capstone on recent searches for beyond standard model particles.

Skills

LaTeX Utilized for major assignments

Python/MATLAB

Monte Carlo Simulations, BeautifulSoup, Numpy, Scipy, rewrote code for java and C++ based classes, and utilized for data acquisition of the muon detector

Java/C++

Understanding of OOP, data structures and Algorithms, Used in Research on Penrose Tiling, Root used for SULI research

Mathematica

Utilized in research on recoil energies of beyond standard model particles

Labview

Used to establish input data to a DAQ module for rotating, ramping, and intermittent rotating of a magnetic field

Barista

Can make a killer cappuccino

Experience

Researcher

DETECTION OF PARTICLES BEYOND THE STANDARD MODEL

Blacksburg, Virginia

Aug. 2020- Dec. 2020

- Focused on previously unexplored recoil energies
- Attempted to distinguish between neutrinos and unknown particles in experiments

Researcher

MONTE CARLO SIMULATIONS OF PREDATOR-PREY MODELING

Blacksburg, Virginia

Aug. 2019-Aug 2020

- Performed simulations on lattice structures to obtain information about the behavior of n-species systems.
- Simulations for on non-lattice structures specify modifying predator and prey dynamics in terms of optimization.
- Performed through a combination of matplotlib, bash script and C++.

Jefferson Lab

SULI AT JEFFERSON LAB

Newport News, Virginia

May. 2019 - Aug 2019

- Created a paper and poster detailing findings that were on display
- Computed the Bremsstrahlung of the LINAC sections at CEBAF
- Determined the effect of ionization on the electrostatic of the beam

Virginia Tech Math Department

UNDERGRADUATE MATHEMATICS RESEARCH

Blacksburg, Virginia

Jan. 2019 - May 2019

- Understanding the Erdős distinct distances problem through unperiodic point distributions
- Has applications in Quasicrystals and all unperiodic graphs.
- Seeking a nontrivial graph of distances greater than $\ln(\sqrt{N})$

Thomas Nelson Tutor Zone

TUTOR

Hampton, Virginia

Jan. 2018 - Exp. Aug. 2018

- Responsible for tutoring in introductory material in Physics, Math, Statistics, and Philosophy in 1-1 sessions.
- Welcomed people to the Zone and helped create appointments.

V.I.M.S (Virginia Institute of Marine Science)

SUMMER INTERN

Gloucester, Virginia

May. 2016 - Nov. 2016

- Utilized G.I.S. data to assist with the Comprehensive Coastal Inventory Program

Extracurricular Activity

Virginia Tech Transfer Mentor Program

Blacksburg, Virginia

MENTOR

Aug. 2020 - Dec 2020

- Guided transfer students in the field of engineering, mathematics, computer science and data science.
- Oversaw approx 4 new students every semester
- possessed weekly commitments to the roll as well as optional assistance in formulating programs and involvement activities

SOVT (Sub-Orbital Launch at Virginia Tech)

Blacksburg, Virginia

MEMBER & AVIONICS SUBTEAM

Jan. 2019 - Aug 2020

- Gained expertise in software applications relating to rocket systems.
- Utilized different metrics to determine rocket location
- Responsible for the implantation of the IMU and Temperature systems

Mars Madness Design Club

Blacksburg, Virginia

WHEEL DESIGN SUBTEAM

Aug. 2018 - May 2019

- Insight into mechanics and non pneumatic tires
- Presented information about terrain difficulties and rough calculations
- Reviewed Final Design for Wheel

Society for Physics Students

Blacksburg, Virginia

MEMBER & TREASURER(2019-2020)

Aug 2016 - Dec 2020

- Participated in Physics outreach at local high schools
- As treasurer re established guidelines for the position and handled monetary policy and fund disbursement

Transfer Experience LLC

Blacksburg, Virginia

VICE PRESIDENT

Aug 2018 - May 2020

- Organized activities and events for both the LLC Transfers and the larger class of incoming transfers
- Responsible for the agenda of a majority of the meets and the coordination for the events

BSA (Boy Scouts of America)

Yorktown, Virginia

EAGLE SCOUT

Aug 2016 - PRESENT

- Completed all requirements to obtain the rank of Eagle Scout
- Final project was the construction of a mediation garden that is still maintained

Personal Projects

2020 Mathematical Contest in Modeling

Blacksburg, Virginia

MAJOR WRITING CONTRIBUTOR

Feb 2020

- Participated in a 96 hour event with 2 other people seeking to model climate change effects on the Scottish fishing industry
- Determined models for how the movement of fish populations would effect boat capacity
- Modeled the effect of unsustainable total allowable catch will have in the upcoming decades
- Wrote a majority of a 13 page document in the timespan

Muon Detector

Blacksburg, Virginia

TEAM LEAD

Jan. 2019 - May. 2019

- Coordinated and organized a group of 4 people for the final project of Intermediate Lab
- Acquired parts and supplies of the implementation of the design of the detector
- Assisted with the soldering and coding of the Arduino