Noah Paladino

Curriculum Vitae

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Education

Expected May 2021 — **Bachelor of Science**, ***Rutgers University Honors College***, New Brunswick, NJ
Major: Physics
Minor: Math
GPA: 4.0
Relevant Coursework: Classical Mechanics, Classical Electromagnetism, Modern Physics, Graduate Quantum Mechanics, Graduate Particle Physics, Graduate Quantum Field Theory, Thermal Physics, Mathematical Physics, Differential Equations, Partial Differential Equations, Linear Algebra, Digital Logic Design

June 2017 — **High School Diploma**, ***Middlesex County Academy for Science, Mathematics, and Engineering Technologies***, Edison, NJ
Concentration: Electrical and Computer Engineering
Rank: Top 5 in graduating class
Relevant Coursework: Digital Logic Design, C++ Programming, DC Circuit Analysis, Computer Architecture, Digital Communication Systems, AC Circuit Analysis, Capstone Project

Research Experience

2018 – Present — **Rutgers University Physics**, *Prof. Stephen Schnetzer*
I work on analyzing data from the Compact Muon Solenoid (CMS) experiment at CERN. Through studying proton-proton collisions at a center of mass energy of 13 TeV produced by the Large Hadron Collider (LHC), I search for evidence of bottom-type vector-like quarks (VLQ's) present in many models involving a composite Higgs boson. A preprint version of one of the analyses I worked on is available on arXiv as arXiv:2008.09835.

Summer 2019 — **Purdue University Physics**, *Prof. Andreas Jung*
Through the REU Program in Physics at Purdue University, I worked on planned hardware upgrades for the CMS detector at CERN. In particular, I focused on thermal conductivity testing for the carbon fiber mounting system for the forward pixel tracker. I also designed and built the monitoring system for a testbench for the tracker's mixed-phase CO_2 cooling system.

2018 – 2019 — **Rutgers University Physics**, *Prof. Jacquelyn Noronha-Hostler*
I worked with hydrodynamic simulations of quark-gluon plasma that resulted from heavy ion collisions. My involvement was focused on performance optimization by increasing computational efficiency and other technical work. A paper is currently in review for publication. A preprint version is listed on arXiv as arXiv:1905.13323.

Summer 2017 — **Rutgers University Wireless Information Network Laboratory**, *(WINLAB)*
I worked with a team of students and developed an effective means of safely taking control of WiFi-enabled drones to prevent them from posing a public safety hazard.

Summer 2016 — **Rutgers University Wireless Information Network Laboratory**, *(WINLAB)*
I collaborated with a small group of students to design a drone capable of pinpointing sources of wireless interference, specifically in the cellular band of the spectrum, using software defined radio and adaptive flight planning.

Work Experience

Summer 2017 **Rutgers Old Queens Technical Support**, *Help Desk*
I provided general computer support for the Rutgers Old Queens campus administrative buildings and performed maintenance work for the network. I also helped set up new computers and managed the safe disposal of hard drives containing sensitive information.

Summer 2014, Summer 2015 **Rutgers Old Queens Technical Support**, *Intern*
I gained experience with computer networking as well as set up and managed Linux servers. In addition, I restored decommissioned backup servers to working order.

Awards

2020 **Goldwater Scholar**, *The Barry Goldwater Foundation*
I was selected as a 2020 Goldwater Scholar, a national undergraduate scholarship in the sciences, mathematics, and engineering.

2019 **Robert L. Sells Scholarship**, *Rutgers University Department of Physics and Astronomy*
I was selected as a recipient of the Robert L. Sells Scholarship, awarded to high-achieving physics students at Rutgers University.

2017 – 2021 **Rutgers Presidential Scholarship**, *Rutgers University*
I was awarded the highest level of merit scholarship offered by Rutgers University upon admission.

2017 – Present **Dean's List**, *Rutgers University*
I was included on the Dean's List every semester since my enrollment in Fall 2017.

Talks

19 April 2020 **A Combined Search for Pair-Produced Vector-Like Quarks in 13 TeV pp Collisions Using CMS Data**
APS April Meeting 2020, 19 April 2020, Washington D.C.

Publications

CMS Collaboration. A search for bottom-type, vector-like quark pair production in a fully hadronic final state in proton-proton collisions at $\sqrt{s} = 13$ TeV, 2020.

J. Noronha-Hostler, N. Paladino, S. Rao, Matthew D. Sievert, and Douglas E. Wertepny. Ultracentral Collisions of Small and Deformed Systems at RHIC: UU, dAu, $^{9}BeAu$, $^{9}Be^{9}Be$, $^{3}He^{3}He$, and $^{3}HeAu$ Collisions, 2019.

Skills

Programming Languages C++, C, Python, Mathematica, Matlab, MPASM Assembly, Java, C#, JavaScript, HTML/CSS, PHP, Markdown, LaTeX

Frameworks ROOT, MatPlotLib, Numpy, Jekyll, Flutter, Windows Presentation Foundation, Android SDK

Linux Server Administration, Shell Scripting, High-Performance Computing Administration, Metal as a Service (MAAS) Deployment

Hardware FPGA Development, Digital Logic Design, DC Circuitry, Microcontroller Programming

Leadership Positions

Rutgers Society of Physics Students

2020 – Present *President*

2019 – 2020 *Secretary*

2019 – Present *Lead Cluster Administrator*

2018 – Present *Webmaster*

Rutgers Astronomical Society

2018 – 2019 *Webmaster*

Projects

2019 – Present **Rutgers University SPS Cluster**, *High Performance Computing*
I am in charge of the formation, development, and administration of the computing cluster initiated by the Rutgers Society of Physics Students. With the assistance of the physics department and a university grant, the cluster is being constructed as a teaching and research resource for student, featuring the largest GPU computing capability accessible to physics students at Rutgers University.

2019 – Present **py2700**, *Python Package*
The py2700 Python package provides a simple way for Python scripts to interact with Keithley 2700 series digital multimeters, popular in physics applications. The package is published in the official Python package repository, the Python Package Index (PyPI).

2020 – Present **RAC Sound Study**, *Physics Outreach Initiative*
The py2700 Python package provides a simple way for Python scripts to interact with Keithley 2700 series digital multimeters, popular in physics applications. The package is published in the official Python package repository, the Python Package Index (PyPI).

2016 – 2017 **VICTR**, *Capstone Project*
VICTR is a voice-activated virtual assistant for racquetball. It provides a projected scoreboard and game management system programmable via a mobile app. Live scores can be viewed remotely by tournament organizers and fans via the web or the mobile app.

2015 – 2017 **Kaldersvell OS**, *Linux Distribution*
Kaldersvell OS was a Linux-based operating system and companion Windows application for Raspberry Pi that creates a simple way for students to remotely write and run their Python code. The project has been discontinued but older versions are still accessible via GitHub.