

Arpad Attila Voros

Curriculum Vitae March 23rd, 2021

CONTACT INFORMATION

Address: 8308 Blue Blossom Ct., Waxhaw, NC 28173

Phone: +1 (704) 620-2023

Email(s): arpadav@gmail.com | aavoros@ncsu.edu

Website: <https://arpadav.github.io/>

SKILLS

- **Computer Languages** — C, C++, Python, MATLAB, Verilog, Java, JavaScript, R, NodeJS, Perl, SQL, VBA
- **Computer Skills** — LTSpice, PSpice, KiCad SolidWorks, Autodesk Fusion 360 & Inventor, Adobe InDesign
- **Hands-On Skills** — rapid prototyping, extensive electronics laboratory experience
- **Relevant graduate courses** — ECE 542: Neural Networks, ECE 513: Digital Signal Processing, ECE 560: Embedded Systems Architecture, ECE 514: Random Processes, ECE 763: Computer Vision, ECE 592: Introduction to Satellites, MA 405: Linear Algebra, ECE 498: Special Projects in ECE
- **Interests** — analog circuit design, signal processing, digital signal processing, embedded systems, FPGA & HDL, deep learning, applied machine learning, data analytics & visualization, precision engineering, optics, acoustics
- **Languages** — English (fluent), Hungarian (fluent), German (conversational proficiency)

ACADEMIC HISTORY

North Carolina State University

Bachelor of Science in Electrical & Computer Engineering

Major GPA: 4.00/4.00 Cum. GPA: 3.79/4.00

Raleigh, North Carolina

August 2017 - May 2021

North Carolina State University

Masters in Electrical Engineering

Accelerated Masters/Bachelors Program at NCSU

Raleigh, North Carolina

August 2020 - December 2021

PROFESSIONAL EXPERIENCE

Senior Design Team Lead

North Carolina State University ECE Department, U.S. Army Research Office

Raleigh, North Carolina

August 2020 – Present

- Designing, simulating, and prototyping an acoustic deterrence device for the U.S. Army Research Office to prevent African elephants from impinging sub-Saharan African farmland to decrease human-elephant conflict.
- Acoustic simulations in MATLAB. Circuit, system, modulation techniques, and hysteresis accommodation simulated using LTSpice. Designed all circuits. Designed all PCBs using KiCad
- Developed predistortion of digital audio executable to minimize error of demodulated versus input audio

Undergraduate Researcher & Student

Reutlingen Hochschule

Reutlingen, Germany

January 2020 – March 2020

- Optimized Simulink and MATLAB simulations of a hybrid energy system, consisting of energy storage devices (batteries & TES) and energy transfer units (PVs & heat pumps), according to the Klucher weather model
- Ensured Simulink and MATLAB simulations were identical by finding mistakes of both models

Transmission Engineering Summer Intern

Duke Energy Carolinas

Charlotte, North Carolina

May 2019 – August 2019

- Created tool using VBA in MS Access which autogenerates SQL queries to find delta in external modeling data, consisting of 5 of the major neighboring energy distributors with thousands of line-connections each.
- Used said VBA tool to automate update of Duke's modeling system.
- Wrote a script in Perl which generated over 100 clean one-line displays for unmodeled 230kV-500kV lines.

Winter Break Intern

Bravo Team LLC

Charlotte, North Carolina

December 2018 – January 2019

- Worked on translating VB shot peening simulation for aerospace product manufacturer to Qt to be furthered in development on mobile platforms.
- Selected precision parts for pick-and-place SCARA robot, commissioned by same aerospace product manufacturer
- Constructed CAD models multiple variations of said SCARA robot in SolidWorks

Undergraduate Researcher

North Carolina State University & Duke University Department of Physics

Raleigh, North Carolina

September 2017 – August 2018

- Worked on the nEDM intercollegiate experiment for the DOE. Worked at NCSU and Duke under ORNL.

- Utilized multi-axis translational stage to displace position of a wavelength shifting fiber relative to SiPM to determine precision installation requirement of “fiber-SiPM” coupling. Maximum tolerance of mounting to be used in Monte-Carlo simulation to estimate rigidity specifications of sensor containment unit used in the nEDM experiment at ORNL.

Undergraduate Researcher & Team Member

University of North Carolina at Charlotte

Charlotte, North Carolina

May 2017 – August 2017

- Designed a desktop CNC milling machine for high speed machining.
- Utilized polar coordinates opposed to Cartesian in machine design. Precision rotary table was used to reduce bed size.
- Created CAD models, conducted stress tests using Autodesk Inventor, and partook in thousand-dollar decision-making.

Independent Researcher & Team Lead

Intel International Science and Engineering Fair

Waxhaw, North Carolina

November 2016 – May 2017

- Lead an independent research team of 3 to reduce the cost of conventional muon scattering tomography by 96%.
- Acquired provisional patent for novel approach, which utilizes volumetric scintillators and a trilateration algorithm.
- Built a semi-functional prototype. Sensing provided by SiPM arrays coupled with scintillating. Created Monte-Carlo and signal-processing simulations using Java, MATLAB, and LTSpice.
- Responsible for thousands of dollars’ worth of equipment. No external funding of project was provided.

PROJECTS

For a full list with descriptions, figures, and interactivity, please see:

<https://arpadav.github.io/projects/>

PRESENTATIONS

- Voros, Arpad., Daino, Trevor., Kronovet, Michael. (2017, May). *PHYS024T – Muon Scattering Tomography: Utilizing Silicon Photomultiplier Arrays to Trilaterate Muon Multiple Coulomb Scattering Events*. Intel International Science and Engineering Fair. Los Angeles, California.
- Voros, Arpad., Cook, Hunter., Alamro, Nwaf., Fitts, Greyson. Pyrtle, Morgan. (2020, November). *Senior Design Day Team 21 – Vectorized Acoustic Deterrence of Elephants Research*. North Carolina State University. Raleigh, North Carolina

AWARDS & HONORS

Perfect Pitch Award 1st Place Winner

North Carolina State University – November 2020

- Senior design team received first place of over 140 students in having the best poster and best three minute pitch in describing their project

ASPE 32nd Conference NSF Grantee

ASPE - September 2017

- Received grant from National Science Foundation to cover attendance costs for the 32nd Annual ASPE (American Society for Precision Engineering) Conference at Charlotte, NC in November 2017

Third Award, Physics and Astronomy, Intel ISEF

Society for Science & the Public – May 2017

- Third Award at Intel ISEF for \$1,000 in the Physics and Astronomy category

Intel Excellence in Computer Science Award

Intel Foundation – February 2017

- Received recognition and a prize of \$200 for the original development of a Monte Carlo simulation in the Java and MATLAB languages to model the efficacy of a novel approach to conducting muon scattering tomography. The simulation modeled the propagation of muons, their angular distribution, through scintillating prisms, and through high-Z material cross-sections, real-time electronic signal read-out of SiPM, and thermal noise characteristics of SiPM

1st, UNC Charlotte Excellence in Physics

Physics Department at UNC Charlotte – February 2017

- Received 1st place distinction and a prize of \$100 on behalf of the demonstration of sound physics concepts in the design, construction, calibration, and simulation of a novel technique for conducting muon scattering tomography

Region 6 NCSEF 2017 1st Place Winner, ISEF Finalist

The Center for STEM Education – February 2017

- Received nomination and named finalist for the Intel International Science and Engineering Fair 2017 at Los Angeles, California.

PROFESSIONAL ASSOCIATIONS

American Society for Precision Engineering

October 2017 – October 2018

Science National Honors Society

September 2014 – June 2017

Mu Alpha Theta

August 2014 – June 2017

German Honors Society

August 2013 – June 2017

REFERENCES

Available upon request