Nguyen (Rachel) Ton

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EDUCATION

- **Ph.D. in Physics,** GPA 3.51/4.00, University of Virginia, Charlottesville, VA — Dec 2019
- **B.S in Physics**, GPA 8.60/10.00, Hue University's College of Education, Hue, Vietnam — Aug 2007 - Jul 2011

SKILLS

- Languages: C/**C++** (6+ years), Fortran (6+ years). Familiar with **Python**, HTML, CSS, JavaScript, Shell script, SQL, Geant4, ROOT(data analysis framework based on C++), Mathematica.
- Other: Experimental Physics, Statistical Modeling, Monte Carlo Simulation, Optimization, Signal Processing, Neural Network, Data Visualization.

EXPERIENCE

- **Machine Learning Researcher at Wolfram Science Summer School** (Bentley, MA) — June 2018 - July 2018
  - Identify the rotation of an image using Neural Networks.
    - Implemented an efficient model to process image from MNIST, ImageNet, and Google Street View dataset.
    - Applied LeNet training model to train MNIST data, and reach 98% accuracy.
    - Adapted Ademxapp net with transfer learning on the above dataset, and achieved an accuracy of ~90%.
    - Presented result in community post http://community.wolfram.com/groups/-/m/t/1378660.
- **Research Assistant at University of Virginia** (Charlottesville, VA) — June 2012 - present
  - Particle tracking for electron scattering experiment at Jefferson Lab:
    - Created a particle tracking model using C++ to solve a detector problem, existed since 2003, which saved 3 TB useful experimental data.
    - Improved a C++ package to decode raw signal from largescale experimental data (~10 TB) using computer clusters (*one of the world's fastest 500*).
    - Optimized data trace patterns with a limited set of calibration data.
    - Received the comment from research committee "*Great effort to make an impossible analysis working*".
  - Fine-tune a signal processing system for new experiments:
    - Built a robust signal processing system utilizing LabView, which improved the measurement precision 3 times.
    - Developed the dynamic programming algorithm to extract the ^{3}He polarization.
  - Guide undergraduate students in summer research projects.
- **Computational projects** (Charlottesville, VA) — 2013
  - Shortest distance puzzle and image manipulation:
    - Developed a C++ engine to search the shortest distance among N-cities for UPS delivery under any geological constraints using the anneal optimization and Metropolis algorithm.
    - Applied the above algorithm for color-quantized image manipulation and restoration.

AWARDS

- Department Fellowship — 2015, 2017, 2018
- Jefferson Lab/JSA Graduate Fellowship (awarded to top 8 students from 60+ universities annually) — 2016, 2017, 2018
- 1st place female in Jefferson Lab Run-A-Round — 2017

COMPUTATIONAL COURSEWORK

- Fundamental of Scientific Computing, Computational Physics — University of Virginia
- Data Structure and Algorithm, Introduction to Python for Data Science, The Web Developer Bootcamp — Online