

# Nguyen (Rachel) Ton

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## EDUCATION

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- ♦ **Ph.D. in Physics**, University of Virginia, Charlottesville, VA Aug. 2012 – Dec. 2019
- ♦ **B.S in Physics**, Hue University's College of Education, Hue, Vietnam Aug. 2007 – July 2011

## SKILLS

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- ♦ Languages C++ (6+ years), **Python** (2+ years), Fortran.
- ♦ Web development HTML, CSS, JavaScript, Node.js, Express.
- ♦ Libraries, Frameworks Tensorflow, Keras, Scikit-Learn, ROOT (data analysis framework based on C++), Mathematica, Shell script, SQL.

## EXPERIENCE

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- ♦ **Intern at Inpher** (New York, NY) May 2019 – Aug. 2019
  - Performed privacy preserving machine learning over sensitive data by utilizing differential privacy approach to preserved data. Studied various techniques to achieve privacy during training process with Tensorflow and IBM open sources.
  - Analyzed differential privacy performance with other cryptographic techniques: Fully-homomorphic Encryption and Secure Multi-Party Computation.
  - Research results are being actively utilized by Business Development team to educate customers.
  - Github: [https://github.com/nguyenton68/differential\\_privacy](https://github.com/nguyenton68/differential_privacy)
- ♦ **Machine Learning at Wolfram Science Summer School** (Bentley, MA) June 2018 – July 2018
  - Implemented a neural network model to identify the rotation of an image. Benchmarked the model with MNIST, ImageNet, and Google Street View datasets.
  - Presented result in community post <http://community.wolfram.com/groups/-/m/t/1378660>.
- ♦ **Research Assistant at University of Virginia** (Charlottesville, VA) June 2013 – present
  - Created a particle tracking model using C++ to solve a detector problem, existed since 2003, which saved 3 TB useful experimental data. Received the comment from research committee “*Great effort to make an impossible analysis working*”.
  - Optimized data trace patterns with a limited set of calibration data using chi square minimization.
  - Improved a C++ package to decode raw signal from largescale experimental data (~10 TB) using computer clusters (*one of the world's fastest 500*).
  - Developed the dynamic programming algorithm utilizing C++ to extract the  $^3\text{He}$  polarization.
  - Organized group weekly meeting and guided undergraduate students in summer research projects.
  - Github: <https://github.com/nguyenton68/Analysis>

## AWARDS

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- ♦ Department Fellowship 2015, 2017, 2018
- ♦ Jefferson Lab/JSA Graduate Fellowship (awarded to top 8 students from 60+ universities) 2016, 2017, 2018

## COMPUTATIONAL COURSEWORK

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- ♦ Fundamental of Scientific Computing, Computational Physics University of Virginia
- ♦ Data Structure and Algorithm, The Web Developer Bootcamp Online