Derek Rodriguez

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Education

Northeastern University (NU)
Ph.D. Student in Computer Engineering *September 2019 - Present*

- **Awards:** NSF STARS Fellow
- **Research Interests:** GPGPU performance, Performance Metrics, Hardware Security, Interpretability of Machine Learning Models
- **Selected Courses:** Computer Architecture, Applied Probability and Stochastic Processes

Clemson University (CU)
B.Sc. in Computer Science *August 2015 - May 2019*

- **Awards:** Palmetto Fellows Scholarship, Presidential Scholarship, School of Computing Best Undergraduate Research Project
- **Selected Courses:** Computer Organization, Game Engine Architecture, Data Science, Advanced Algorithms, Operating Systems, Linear Algebra, Multivariate Calculus

University of Aberdeen (UA)
International Exchange Program Student *September 2017 - December 2017*

- **Selected Courses:** Computational Intelligence, Robotics, Natural Language Processing, Computer Security

Publications

Learning Page Access Patterns for [...] GPU UVM **SC19 (Poster)**
Bennet Cooper, ***Derek Rodriguez*** *November 2019*

- Developed convolutional neural network model of forecasting virtual page addresses that appear in the memory access patterns of CUDA programs that use Unified Virtual Memory

Maximizing Throughput on Power-Bounded HPC Systems **IEEE CLUSTER**
Pengfei Zou, ***Derek Rodriguez****, Rong Ge* *July 2018*

- Developed job orchestration system for distributed computing model that minimized application interference while enforcing a power-bound.

Project Portfolio

NU Computer. Architecture Course: Dynamic Branch Prediction *December 2018*

- Designed and implemented evaluation framework for dynamic branch prediction methods in Python

Game Engine Architecture Course: Top Down 2D Survival *December 2018*

- Used SDL2 and C++17 to write a game engine for a course final project.

CU Directed Independent Study: Deep Learning *December 2018*

- Optimized ETL pipeline for noise-cancelling convolutional neural network.

SURE Program: Data Visualization Methods in Cybersecurity *July 2018*

- Designed visualizations of malware network activity for Apiary
- Augmented functionality of Apiary, by implementing visualizations designs using Plotly
- Produced poster and presentation for SURE research symposium

CU Senior Capstone Design: Perceptron Server *May 2018*

- Deployed container-based stack for executing deep learning workloads at CU School of Computing.

References provided upon request

Hackathon: A Sharp *March 2018*

- Small programming toolkit for visualizing music theory on a guitar fretboard.
- Won 1st place in data visualization category at CUHackit 2018

UA Computational Intelligence Course: PyPelt *October 2017*

- Tsukamoto Fuzzy Model implemented in Python

UA Robotics Course: Linear Quad Trees with Level Differences *October 2017*

- Python 3 implementation of *A Constant-Time Algorithm for Finding Neighbors in Quadtrees* by Aizawa and Tanaka
- Optimized map storage by >90% and optimized map cell retrieval from $O(n^2)$ to $O(1)$

Positions Held

NU Computer Architecture Research Lab (NUCAR)
Graduate Research Assistant *May 2019 - Present*

CU Scalable Computing and Analytics Laboratory (SCALAB)
Undergraduate Research Assistant *May 2017 - May 2019*

Georgia Tech Research Institute, CIPHER Lab
SURE Program Intern *May 2018 - July 2018*

CU Network Systems and Control Group
Undergraduate Research Assistant *March 2016 - August 2016*

References provided upon request