SaBra A. Neal, PhD

Computer science and engineering professional

Analytical, inquisitive computer science and engineering specialist with a solid foundation in research, math, programming, and modeling and simulation of Dynamic Data Driven Application Systems (DDDAS). Uses advanced information technology to address a variety of engineering and scientific encounters.

Personal Information

Phone: 803.240.0363

Email: sabra.a.neal@gmail.com

Web: www.sabraneal.com

Programming Languages:

C, C++

Python

SQL

Java

JNI Framework

Unix shell script

Version Control:

SVN

Git

Design and Architecture:

Object-Oriented Analysis & Design

Relational Design

UML

Honors and Awards:

ACM SISGSIM WSC Student Travel Award (2016, 2017)

Google Research Summit (2017)

Facebook Women in Research (2017)

Grace Hopper Grant (2015)

Grad Cohort Workshop (2015)

Presidential Fellowship (2013-17)

Deans List (2009-13

NSF Scholar (2009-13

Dowdy Scholarship (2009-13)

Conferences/ Workshops

Winter Simulation Conference

Grace Hopper Women in Computing

Computing Research Association

Experience

8/2013 – 5/2018 **Georgia Institute of Technology – College of Computing: School of Computational Science and Engineering (Georgia Tech)**

Graduate Research Assistant

- Researched power consumption of traffic simulators to predict overall throughput time on mobile devices/
- Researched power consumption of HLA Data Distribution Management Grid-Based Method during communication/
- Presented findings at Georgia Tech's Big Data Industry Forum.

5/2011-8/2016 (seasonal) **US Army Corps of Engineers Research and Development Center ITL**

Intern

- Developed a discrete event simulation model for Joint Logistics Over the Shore operations in an austere environment.
- Developed a discrete event simulation model for Offshore Petroleum Discharge System.
- Developed a technique to combine output from an Army Logistics simulation system to measure time under different conditions and scenarios.
- Manipulated existing terrain data to create realistic, computer-generated scenes to improve the ability to sense remote targets of interest.

5/2013-8/2013 **CRUISE Program, Georgia Institute of Technology**

Intern

- Conducted research on crowdsourcing.
- Compiled literature that helped to identify various uses of crowd sourced data to drive a DDDDAS focused on transportation.
- Presented findings at the CRUISE Symposium.

8/2011-5/2013 **North Carolina Agricultural and Technical State University – Dept. of Computer Science**

Undergraduate Research Assistant

- Conducted research in bioinformatics in Identity Sciences
- Developed genetic and evolutionary feature extraction techniques for facial recognition and biometric-based access control protocols.
- Developed novel feature extraction/ selection techniques that could recognize device users based on mouse usage.

Education

Georgia Institute of Technology - Atlanta, GA

- PhD, Computational Science and Engineering (2018)
- Thesis Title: Energy Efficient Data Driven Distributed Traffic Simulations
- Advisor: Richard M. Fujimoto

North Carolina Agricultural and Technical University - Greensboro, NC (2013)

- B.S. Computer Science
- Summa Cum Laude

Principles of Advanced and Discrete Simulation

Activities & Honor Societies

Black Grad Students Association

Society of Women Engineers

National Society of Black Engineers

NCA&T Honors Program

Phi Kappa Phi

Upsilon Pi Epsilon Computer Science Honor Society

Alpha Kappa Mu Honor Society

Teaching Experience

Computational Problem Solving
Modeling and Simulation: Fundamentals and Implementation
Introduction to Computer Programming
Computer Programming Design
Data Structures

Publications and Presentations

- **Neal, S.,** Fujimoto, R.M. "Power Consumption of Future Event List Implementations in Discrete Event Simulations", Spring Simulation Conference, April 2018.
- **Neal, S.,** Fujimoto, R.M. "Energy Consumption of HLA Data Distribution Management Approaches", Winter Simulation Conference, December 2017.
- R.M. Fujimoto, M. Hunter, A. Biswas, M. Jackson, **S. Neal**, "Power Efficient Distributed Simulation," Principles of Advanced Discrete Simulation, May 2017.
- **Neal, S.,** Fujimoto, R.M., Hunter, M. "Energy Consumption of Data Driven Traffic Simulations", Winter Simulation Conference, December 2016.
- Fujimoto, R.M., Guin, A., Hunter, M., Park,H., Kannan, R., Kanitkar, G., Milholen, M., **Neal,S.**, Pecher, P., "A Dynamic Data Driven Application System for Vehicle Tracking," 2014 International Conference on Computational Science, Dynamic Data Driven Application Systems Workshop, June 2014
- **Neal, S.,** Kanitkar, G., Fujimoto, R.M., "Power Consumption of Data Distribution Management for On-line Systems", Principles of Advanced and Discrete Simulation, May 2014.
- Shelton, J., Adams, J., Alford, A., Venable, M., **Neal, S.,** Dozier, G., & Bryant, K. (2012, July). Mitigating replay attacks using Darwinian-based Feature Extraction. In *Computational Intelligence for Security and Defense Applications (CISDA), 2012 IEEE Symposium on* (pp. 1-7). IEEE.
- Adams, J., Shelton, J., Small, L., **Neal, S.**, Venable, M., Kim, J. H., and Dozier, G. "Darwinian-based Feature Extraction Using K-Means and Kohonen Clustering," The 23nd Midwest Artificial Intelligence and Cognitive Science Conference (MAICS), Cincinnati, OH, April 21-22, 2012.
- Shelton, J., Venable, M., **Neal, S.**, Adams, J., Alford, A., and Dozier, G. (2012). "Pixel Consistency, K-Tournament Selection, and Darwinian-Based Feature Extraction." The 23nd Midwest Artificial Intelligence and Cognitive Science Conference (MAICS), Cincinnati, OH, April 21-22, 2012.
- National Science Foundation Presentation
  Michigan State University
  BEACON Center for the Study of Evolution in Action
  Lansing, MI
  December 2012
  Presentation on Darwinian Feature Extraction