Nicholas Wulf 336 Chamberlin Rd, Myrtle Beach, SC 29588 | 352-213-7314 | nickwulf1@gmail.com

*Inactive TS/SCI Security Clearance*

EDUCATION

Doctor of philosophy | University of florida May 2016

* Department: Electrical and Computer Engineering
* Dissertation Title: Framework for Optimizing FPGA-Based Space Systems

Master of Science In Electrical Engineering | University of Florida May 2010

* Major: Electrical and Computer Engineering GPA: 4.0/4.0

Bachelor of Science In Electrical Engineering | University of florida May 2008

* Major: Electrical and Computer Engineering GPA: 4.0/4.0

EXPERIENCE

Full-stack Web Developer | inner confidence december 2020 – november 2022

* Designed website using Python-based Django framework running on Linux OS on a Google Cloud virtual private server
* Used NGINX/uWSGI for reverse proxy, PostgreSQL/PostGIS for database, Redis/Celery for asynchronous tasks, discord.py for Discord community integration, and CSS/Javascript for frontend design

senior Analyst/Designer | l3Harris Corporation September 2016 – October 2021

* Designed and implemented novel CNN FPGA architecture that was 2x faster and 5x smaller than originally proposed design
* Worked on Agile teams to design FPGA architectures for connected-component labeling, erosion/dilation, polygonal masking, and other image-processing applications that were significantly higher throughput and used lower resources that their predecessors
* Discovered and designed innovative low-resource solution to correct fine frequency-shift error in existing FPGA architecture
* Updated/optimized several features of FPGA design powering the SeaSmart SW-defined radio satellite system
* Prepared designs/procedures and performed heavy-ion radiation SEU/SEL testing and analysis on next-gen FPGA devices
* Automated spectrum generation and playback using MATLAB, TestStand, and GNU Radio for full orbit simulation on hardware
* Coded in Sigasi, performed linting and coverage, automated TB verification, static-timing analysis and resource utilization in Vivado

Research assistant | university of florida (CHREC research lab) August 2008 – May 2016

* Developed webtool for SQL database storage/retrieval of device data and analysis using linear programming
* Redesigned Tcl-based tool for automatically measuring operations implemented on Xilinx FPGA devices

PUBLICATIONS (Not Exhaustive)

* **N. Wulf**, A.D. George, A. Gordon-Ross. 2017. Optimizing FPGA Performance, Power, and Dependability with Linear Programming. *ACM Transactions on Reconfigurable Technology and Systems* 10, 3, Article 23 (June 2017), 23 pages.
* **N. Wulf**, A.D. George, A. Gordon-Ross. 2016. A Framework for Evaluating and Optimizing FPGA-Based SoCs for Aerospace Computing. *ACM Transactions on Reconfigurable Technology and Systems* 10, 1, Article 1 (September 2016), 29 pages.
* **N. Wulf**, A.D. George, A. Gordon-Ross, “Memory-aware optimization of FPGA-based space systems,” *2015 IEEE Aerospace Conference*, Big Sky, MT, 2015, pp. 1-13.
* **N. Wulf**, G. Cieslewski, A. Gordon-Ross, A.D. George, “SCIPS: An emulation methodology for fault injection in processor caches,” *2011 IEEE Aerospace Conference*, Big Sky, MT, 2011, pp. 1-9.

COURSEWORK

**HARDWARE DESIGN –** Digital Logic, Digital Design, Digital Integrated Circuits, Intelligent Machine Design Lab, Reconfig. Comp.

**COMPUTER PROC. –** Microproc. & Applications, Comp. Arch., Parallel Comp. Arch., Embedded Systems, Fault-Tolerant Comp.

**OTHER –** Error Correction Coding, Digital Signal Proc., Electric Energy Systems, Electromagnetic Fields, Solid State Electronics

CERTIFICATIONS & SKILLS

CERTIFICATIONS

* Amazon Web Services (Cloud Practioner), Python Certified Professional (PCEP, PCAP, and PCPP-1)

Technical

* VHDL, AWS, SystemVerilog, UVM, MATLAB, Python, CSS, JavaScript, C++, TestStand, Excel VBA, Tcl, Java, Django, PostgreSQL, HTML, jQuery, Git, SVN, Linux, Bash
* Experienced in digital signal processing (DSP), convolutional neural networks (CNN), linear programming

LeaderShip/Communication

* Created helpful VHDL libraries to enhance my own work and mentored new-hires in their use to improve their own efficiency
* CHREC group leader for F5 group (device metrics) and F6 group (space computing)