Patrick Stach

pat.stach@gmail.com — 224-659-2334 — patstach.io

Education

University of Illinois at Urbana-Champaign **May 2021**
B.S. in Electrical Engineering GPA 3.58/4.0

Work Experience

Milwaukee Tool **June 2021 - Present**
Firmware Applications – Firmware Engineer

- Developing for and integrating the firmware platform for M18 & M12 power tool products
- Documenting and maintaining template guides for integrating API's for application-specific usage
- Supporting adaptation of platform into new products and migrations between version updates
- Driving alignment on codebase configuration management practices for controlling life cycle of code changes

Texas Instruments **May 2020 - August 2020**
Clock & Timing Solutions – Test Engineering Intern

- Created error-checking script to validate 3000+ register map bit-fields in an Excel file in under 20 seconds
- Automated 20 minute setup of ATE pattern generation tool by generating config files from user input in a GUI
- Developed program that verifies 8 clock buffer IC's are defect-free in under 280ms on the ETS-364 ATE

Northrop Grumman Corporation **May 2019 - July 2019**
Power Conversion Technology – Technical Intern

- Validated buck converter circuit meets specifications by modeling worst-case statistical analysis in LTspice for output ripple, transient response, and startup time
- Cross-verified analysis by reproducing results in lab, validating data through scope captures and measurements

Projects

Electric Longboard Safety Suite **January 2021 - May 2021**
Senior Design patstach.io/electric-longboard-safety-suite.html

- Developed system to automatically detect wheel slip and regain traction without rider intervention
- Designed mechanism to detect if rider has fallen off, and cut throttle to prevent board hitting nearby pedestrians
- Implemented feature to alert the rider and safely coast the board if remote has lost connection
- Awarded best overall project for Spring of 2021 out of 72 total projects

FPGA Space Invaders **November 2019 - December 2019**
Final Project– Digital Systems Lab patstach.io/FPGA-space-invaders.html

- Developed adaptation of Space Invaders game in SystemVerilog for Altera DE2-115 FPGA board
- Designed modules and state machines for game behavior and verified operation through testbench simulations

Skills and Knowledge

Programming Languages – C, C++, Python, VBA, SystemVerilog, MATLAB

Software – IAR Embedded Workbench, LTspice, Intel Quartus, EAGLE

Methodology and Tools – Agile/Scrum, Git, Jira, Azure DevOps