Benjamin Newell

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Summary/ Objective Senior Electrical Engineering student at Iowa State University pursuing a full-time position starting the summer of 2022. Knowledge of industry practices/procedures, physical and software-based circuit/IC design, testing with equipment such as multimeters, oscilloscopes, and function/signal generators. Focused on applying technical and interpersonal communication skills to work with team members and customers.

Education

Bachelor of Science in Electrical Engineering *Expected May 2022*
College of Engineering, Iowa State University, Ames, IA

Skills MATLAB/Simulink | PLCs | HMI | SolidWorks Electrical | Multisim | ModelSim | Cadence | SPICE | ADS
Verilog | C | Soldering | Control Systems | Debugging | Technical Writing | Windows/Linux | Office 365

Relevant Coursework Digital Logic | Embedded Systems | Electrical Circuits | Signals & Systems | Integrated Circuits/Electronics
Electronic Circuits & Systems | Energy Systems & Power Electronics | Engineering Economics | Marketing

Projects

Photodiode Bias Module
Helped design a device in a small package that could apply a bias to photodiodes, allowing for viewing of nanosecond laser pulses on external measurement devices. Worked with IPG Photonics to develop, test, certify, and produce the device with the purpose of verifying production quality/consistency.

High Speed Magnetic Pulse Generator
Led a team of talented electrical engineers to design and fabricate a fast, compact, and powerful circuit with a coil capable of pulsing magnetic fields with amplitudes of 500 Gauss in 100 nanoseconds. Responsibilities included client communication, Multisim & ADS design/simulation, research and understanding of magneto-optics, electromagnetics concepts/modeling, component models, and parasitic elements.

Macro-pad
Designed and built a miniature keyboard to speed up workflow. The device contains an ATmega32U4 microcontroller, six mechanical switches, two rotary encoders, a 128x32 OLED display, and is hand wired inside a 3D printed case.

Mars Rover Roomba
Programmed an iRobot (Roomba) to autonomously complete a randomized obstacle course. The TM4C123GH6PM microcontroller was programmed to make decisions based on relayed data measurements and calculations using IR, ping/sonar, bump, reflectivity, and cliff sensors. Used timers, PWM servos, interrupts, and A/D conversion for accurate collection and relaying of data.

RC car controlled with android app
Built and programmed a smartphone-controlled RC car using the ATmega328P microcontroller. Made use of Bluetooth, motors, servos, a motor driver, and a 3D printed frame.

Experience

Electrical Controls Engineering Intern – IPG Photonics *May 2021 – Jan 2022*
Worked as a team member to support the development of multi-axis laser systems. Responsibilities included electrical/motion control, schematic design, EE commissioning/testing, procedure writing, machine assembly, further development of internal software tools, hardware projects, and test fixture development.

Grounds Care/Maintenance Worker – Minneapolis Parks & Recreation *Jun 2019 – Aug 2020*
Led a team of four individuals challenged with timely completion of tasks and building responsibilities. Responsible for the safe operation and care of heavy equipment necessary to complete work.

Referee – Upper Midwest Lacrosse Officials Association *Mar 2015 – Jun 2020*
Refereeing helped to build great confidence, communication, and conflict management skills.

Customer Interface Relations – Punch Neapolitan Pizza *Jun 2017 – Aug 2018*
Customer service helped build my quality focused work ethic and interpersonal skills.