Luke Zambella

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Education

The College of New Jersey (TCNJ), *Ewing NJ*
Bachelor of Science (B.S.) in Computer and Electrical Engineering 2017 - Present
GPA: 3.30/4.00
Coursework: *Computer Architecture and Organization, Electronics, Signals and Systems, Control Systems, Linear Algebra, Differential Equations, Software Engineering*

Ocean County College, *Toms River NJ*
Associate of Science (A.S.) in Mathematics 2015 - 2017
GPA: 3.90/4.00

Skills

Programming: C/C++, Python, MATLAB, Verilog, ROS, C#, Java, Ruby, Node.js, React.js
Software: LTSpice, Visual Studio, Inventor, Linux, Git, Vivado, Microsoft Office, Docker, Azure, AWS
Hardware: Oscilloscope, Soldering, Breadboard, Arduino, FPGA, Robotics

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Projects

- **Checkers playing robot (Python):** Developed a checkers game utilizing computer vision to showcase robot interaction with physical objects. The robot is able to parse a video feed in real time to locate the game board and subdivide the playing squares. A checkers engine was modified to send movement commands to the robot and users could interact with the game.
- **ARM CPU (Verilog):** Created an ARM-based CPU using a finite state machine method and tested by writing a simple multiplication program in machine code. The CPU contains modules for data and instruction memory, control lines, and arithmetic.
- **Mechanical Computer Keyboard (C)**: Reinforced circuits and firmware development knowledge by engineering a PnP keyboard from scratch with an Arduino microcontroller interface.
- **Rotary Inverted Pendulum (MATLAB):** Researched and implemented pendulum swing-up and self-balance control with Simulink by calculating input gain through pole placement. Communicated findings by presenting a large informational poster to an audience.
- **GrowStuff Module (Ruby):** Programmed a brand new model for a small online farming community that enables members to quickly view the most popular harvests in a chosen area.
- **Personal Website (C#, React.js):** Created a personal website using ASP.NET Core and React.js that showcases skills and projects in a unique way. Utilized Heroku to automatically build and host new commits from GitHub.
- **Music Player (C#):** Developed user-interactive music software for a small community integrated with a VoIP and instant messaging service.

Involvement

TCNJ Robotics Club 2017 - Present
- Worked with a group of 3 and successfully built an Arduino powered robot that solves mazes.
- Designed brand new parts that club members could 3-D print and incorporate into their own designs.

TCNJ SIGGRAPH 2017 - Present
- Collaborated with a group of 10 on ideas for an interactive public art exposition and realized the best ones that gave the audience an unforgettable experience.

Employment

Freelance Illustrator, *Self Employed* 2018 - Present
- Communicated professionally with over 50 clients on required specifications and ensured their ideas were brought to life through a digital medium.

Photographer, *TCNJ Center for the Arts, Ewing NJ* Fall 2018
- Responsible for capturing moments at 20 important faculty and guest speaker seminars.