Benjamin Livney

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Education

Boston University College of Engineering, Boston, MA

Bachelor of Science in Electrical Engineering (3.88/4.00), Dean's List — Expected May 2021

Relevant Coursework

Electric Circuits, Analog Electronics, Power Electronics for Energy Systems, Physics of Semiconductor Devices, Signals and Systems, Control Systems, Programming for Engineers, Intro to Software Engineering, Electromagnetic Systems, Engineering Design

Experience

Applied Electromagnetics Lab: Boston, MA — November 2019 – Present

Undergraduate Research Assistant

- Designed multiple high-voltage DC/DC converters in a team environment for 1.5kV three-phase AC generation used for self-cleaning solar panels.
- Reworked high-voltage power supply PCB layouts in Altium for easier production.
- Eliminated the need to reorder malfunctioning boards by finding a simple jumper solution through debugging PCBs.
- Created a diagnostic field tool to safely measure short-circuit current of solar panels without short-circuiting for use in remote testing stations using a microcontroller.

Ultrafast Optics Lab: Boston, MA — February 2019 – Present

Undergraduate Research Assistant

- Developed an experiment to test dispersion of novel photonic crystal fiber in pursuit of an all-fiber 700nm pulsed laser source.
- Constructed a power amplifier for a carbon nanotube mode-locked ring laser for supercontinuum generation.
- Designed and constructed a novel 3D-printed camera attachment for BU Anthropology that utilizes parallel laser photogrammetry to remotely study Indonesian orangutan limb lengths.

Boston University Rocket Propulsion Group (BURPG): Boston, MA — October 2017 – August 2018

2017-2018 High-Powered Rocket Competition Team 3, Electronics Leader

- Led a team of four to design and build a high-powered rocket to both measured how the Earth's magnetic field affects safe altitudes for astronauts and how cultures of bacteria reproduce at different rates at different altitudes and G-forces.
- Mounted team-made onboard AVR computers systems on PCBs to record data from sensors and make calculations.

Projects

Solar Energy Challenge Design Project — November 2019 – December 2019

- Designed and built an interface circuit to harness maximum power from a solar panel and convert it to a 120V AC sine wave.
- Used a BJT to simulate the IV curve of a solar panel, transformed its impedance with a 95% efficiency boost converter, and converted to 120V AC with an H-bridge with a high-side driver and a transformer.
- Final project for Power Electronics class, completed extra credit by implementing maximum power point tracking algorithm using a microcontroller.

WiFi-Controlled LED Lamp — September 2019 – October 2019

- Created an RGB LED lamp controlled by an Android smartphone over WiFi using an ESP8266 microcontroller.
- Designed a three-channel switching constant-current driver to efficiently and safely drive a high-power RGB LED.

Technical Skills

Software/Programming: MATLAB/Simulink, C/C++, Linux, Microsoft Office, Creo Parametric

Electronics: Altium, Bench Equipment (Oscilloscopes, Function Generators), LTspice, PCB Design, Soldering

Involvement

Boston University Pep Band

Tenor Saxophone Section Leader — September 2017 – Present

Boston University Scarlet Band

Tenor Saxophone Section Leader, Common Ground Trio Student Musical Director — May 2018 – Present