

# 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.
- 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 measure 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 computer 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