

# JACK LEIGHTCAP

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## EDUCATION

**Northeastern University** Boston, MA

August 2018 - May 2023

BSEE Electrical Engineering and Physics · Mathematics and Computer Science, minors · *GPA*: 4.0

Dean's List all semesters · Lawrence Award, highest GPA in year (physics department)

### Relevant Courses

Circuits and Signals: Biomedical Applications*	EECE	2150	Embedded Design: Enabling Robotics*	EECE	2160
Fundamentals of Programming II*	CS	2510	Fundamentals of Networks	EECE	2540
Probability and Statistics*	MATH	3081	Calculus III	MATH	2321
Differential Equations and Linear Algebra	MATH	2341	Cornerstone of Engineering II	GE	1502

\* – *ongoing*

**Cambridge University** Cambridge, United Kingdom

July 2019 - August 2019

Pembroke-King's Summer Programme: Young Global Leaders Scholarship · Northeastern GEO Grant

**Abington Heights High School** Clarks Summit, PA

2014 - 2018

High School Diploma, *GPA*: 4.0

Mathematics Award · AP Scholar with Distinction · PLTW+AP Award · Symphony, Chamber, Honors Orchestra

## PROJECTS

### Classical Scores Project

2017 - Present

- Request-based YouTube channel dedicated to sharing synced scores and recordings of obscure or underappreciated classical music. Grew channel to 3 million total views and 8 thousand subscribers in two years.
- Automation of video editing with ongoing Python project ScrollingScore to prepare images for use in videos.
- Backlog of videos produced into 2022 with automated release scheduling.
- Engraving of published manuscripts in Lilypond, a  $\text{\TeX}$ -derived music typesetting program.

### $\text{\LaTeX}$ Transcriptions

- All notes taken in lecture are transcribed into  $\text{\LaTeX}$  for personal clarity and as a teaching aide for classmates.
- Highly-refined workflow to bring transcription rate close to handwriting rate with vim, vintex, and UltiSnips - later adding TikZ/CircuiTikZ.
- Expanded into shareable and modular  $\text{\.tex}$  templates for Notes transcribing, Homework submissions, dense Cheat Sheets, and Labs.

## ACTIVITIES

### Avant-Garde Piano Series

2017 - Present

- Recorded Erik Satie's *Vexations* (1894). Longest recorded solo marathon piano performance, uninterrupted 34-hour recording. Live-streamed performance using Open Broadcaster Software and ffmpeg.
- Additional recordings include works by Antheil, Cage, Ives, Reich, and Rorem.

### MBTA Speedruns

2019

- Used brute-force Travelling Salesman approach to determine the shortest possible path which visits all stops of the MBTA Green Line, executed path with a personal best time of 3:15.

## SKILLS

### Software

- Proficient: GNU/Linux (Ubuntu, Arch),  $\text{\LaTeX}$ , Git, GIMP, Microsoft Office Suite, Autodesk Inventor, Adobe Premiere, Adobe Photoshop, Lilypond
- Familiar: SolidWorks, AutoCAD, Web Development (Hugo, HTML, CSS)

### Programming

- Proficient: Python, Racket
- Familiar: C++, MATLAB, Wolfram Mathematica, Bash

### Miscellaneous

Classical Piano, Viola, Origami mathematics and tessellations, Electronics, Art History