

# Roy Rinberg

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## Education

2014-Present	<b>New York University</b> (NYU, 2018)	GPA: 3.70
	Majors: <b>Computer Science; Physics</b> Minor: <b>Math</b>	
2010-2014	Thomas Jefferson High School for Science and Technology	GPA: 4.22

## Skills

Software:	Extensive Experience: C/C++, Python, Java, Raspberry Pi Moderate Experience: Mathematica, MATLAB, OpenCV, OpenMP, Arduino, R, CAD
Technical:	Extensive Experience: Physics Lab (particularly Optical work) Moderate Experience: Electronics Lab; Metalsmithing; Woodworking; 3D printing and Laser Cutting; Bio Wet lab

## Internship and Work Experience

**NYU**, General Physics I and II Tutor Fall '17 – Spring '18

**NYU**, funded by Research+ and DURF grant. Computational Linguistics. Jan '17- Present

**Independent research** alongside CS PhD. Investigating the creolization of natural languages through topological data analysis (TDA), with Prof. Bud Mishra. Currently working to publish a paper on simulating the process of convergence on a vocabulary within a population.

**RIPS-IPAM**, HKUST & ePropulsion. Signal Processing, Information Theory. Summer 2016

**Team Lead.** Led team of 2 Chinese and 1 other American to develop a robust, underwater, acoustic communication system to communicate in noise-prone channels. Worked in tandem with start-up ePropulsion and Hong Kong University for Science and Technology. We did not have access to adequate hardware for testing, and pivoted by using extensive physical simulations. Met weekly with company CTO and prepared weekly plans for the team. Developed engineering specifications for full communication in wide variety of environments – to be implemented in upcoming production of underwater drones.

**HHMI**, Janelia Research Campus, Scientific Computing Group. Software Engineering, GPU algorithms. Summer 2015

**Independent research.** Developed GPU Cluster algorithm to stitch multi-terabyte ssTEM image data for mapping neural connectome. Communicated with neuroscientists and software engineers daily. Implemented algorithms that incorporated OpenCv and OpenMP on high performance compute cluster. My project decreased time to stitch images together from 13.7 seconds, to 1.8 seconds per image pair.

**Weizmann Institute**, International Summer Science Institute. Quantum Mechanics. Summer 2014

**Internship.** Developed data analysis program to study strontium atoms at ~0.001 K in a laser-cooled Magneto-Optical Trap.

**TJHSST**, Independent research, Microelectronics Research Lab. Analog to Digital Interface. 2013-2014

**NIH, NICHD**, Neuroscience Research Lab. Experimental Sensory Neuroscience. Summer 2013

## Leadership

**Project BEST** (Building Excitement for Science and Technology). Education. 2011-2014

**CFO and Co-founder.** Project BEST is a non-profit organization with the goal of helping middle school students become interesting science and technology. Organized 2 full-day events for >100 students each; led team of 20; organized 4 lectures by local STEM and business leaders. During my 3 years, we directly helped over 3,000 students. (www.theprojectbest.org)

## Awards and Recognition

Sigma Pi Sigma (Physics Honor Society) Inducted 2018

Dean's List 2014-Present

Dean's Undergraduate Research Fund (DURF) and Research + 2017

Housing (3 months) and living stipend for work on computational linguistics

High Performance Computing For Undergraduates (SC '17) November 2017

Week-long conference in Denver, all expense paid (32 accepted, 437 applied)

NYU Presidential Honors Program 2015-Present

Published in Scientific American July 1, 2014

## Hobbies and Projects:

Projects:	Programmed Raspberry Pi to act as Smart Home; Variety of Arduino Projects Computational Physics Simulations; Built Mock Operating System
Extracurriculars:	Society of Physics Students (SPS), Squash, Ultimate Frisbee
Languages:	English; Russian