Sean B. Ballinger

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Education

Columbia University
May 2016 | New York, NY
B.S. in Applied Physics
Minor in Computer Science

GPA: 3.72, Dean's List
Major GPA: 3.76
Egleston Scholar: 1% of entering engineering student body

Phillips Academy
June 2012 | Andover, MA

Links

Projects: http://**sball.in**
Bio: engineering.columbia.edu/**seanballinger**
github.com/**sballin**
linkedin.com/in/**seanballinger**

Coursework

Physics and Mathematics
Quantum Mechanics, Plasma Physics, Partial Differential Equations, Applied Electrodynamics, Thermodynamics, Mechanics, Electrical Engineering, Making and Breaking Codes

Computer Science
Advanced Programming (C, C++), Data Structures in Java, Computer Science Theory

Skills

Programming
C, C++, Python, iOS, Java, Bash, Matlab, Mathematica, LaTeX, HTML, CSS

Software
Autodesk Inventor, Star-CCM+, Pointwise, Overflow

Hardware
Arduino, Raspberry Pi, breadboards, soldering, welding

Foreign Languages
Speak, Read, Write: French, Italian, Spanish, German
Speak, Read: Turkish, Japanese

Research

MIT Plasma Science and Fusion Center | Egleston Scholar
May – August 2015 | Cambridge, MA

- Operated a high-speed camera imaging plasma turbulence in the X-point region and created tools in Python to analyze image data
- Contributed Talk at the November 2015 American Physical Society Division of Plasma Physics (APS-DPP) conference, publication forthcoming

General Atomics DIII-D | National Undergraduate Fellow
June – August 2014 | San Diego, CA

- Characterized plasma control in superconducting tokamaks and helped create a Matlab model to automate plasma control system configuration
- Received the Outstanding Undergraduate Poster Award at the American Physical Society Division of Plasma Physics conference in 2014

NASA Ames Research Center | New York Space Grant
June – August 2013 | Moffett Field, CA

- Created simulations of the D8 "Double Bubble" aircraft concept and used NASA's Pleiades supercomputer to validate the new LAVA fluid code
- Used Star-CCM+, Pointwise, and Overflow

Columbia Plasma Physics Laboratory | Egleston Scholar
January 2013 – Present | Columbia University, NY

- Machined and assembled parts for a magnetic coil power supply
- Analyzed spectrometer data to detect impurities in plasma
- Writing Python code to reconstruct plasma and eddy currents on the High-beta Tokamak using magnetic sensor data

Stony Brook MRSEC | High School Researcher
June – August 2011 | Stony Brook University, NY

- Performed tests on a gold nanoparticle catalyst for hydrogen fuel cells
- Presented at the International Conference for Sustainable Energy Technologies in Istanbul and became a semifinalist in the **Intel Science Talent Search**

Awards

2014 APS-DPP Outstanding Undergraduate Poster Award
2014 Robert Gross Scholarship in Applied Physics
2013 NASA Aeronautics Scholarship Program
2012 Egleston Research Scholar
2012 Intel Science Talent Search Semifinalist

Activities

- **Columbia Undergraduate Science Journal:** Editor in Chief (2015–present), Associate Editor and board member (2012–15)
- **Columbia Engineering Student Council Project:** Leading the development of a platform for distributed collaborative art around Columbia (present)
- **Society of Physics Students:** Member (2012–present)
- **Euler Friends:** Math circle dedicated to solving Project Euler problems (2012–14)
- **Columbia SAE:** Intake and Exhaust Systems Engineer (2012–13)