

Sean Bozkurt Ballinger

27 Alden Road, Andover, MA 01810
(617) 800-3048 ♦ s.ballinger@columbia.edu

EDUCATION

Massachusetts Institute of Technology Cambridge, MA Ph.D in Nuclear Science & Engineering	<i>Starting September 2016</i>
Columbia University New York, NY B.S. in Applied Physics Minor in Computer Science Overall GPA: 3.72, Dean's List Major GPA: 3.76	<i>May 2016</i>
Phillips Academy Andover, MA Honor Roll, 2008–2012	<i>June 2012</i>

RESEARCH EXPERIENCE

MIT Plasma Science and Fusion Center <i>Researcher funded by the Columbia University Egleston Scholarship</i>	May – August 2015 Cambridge, MA
<ul style="list-style-type: none">· Operated a high-speed camera imaging plasma turbulence in the X-point region· Created tools in Python to subtract video background, filter image data, and perform Fourier, bicoherence, and correlation analysis· Gave a Contributed Talk, “Fast Imaging of X-point Turbulence in Alcator C-Mod,” at the American Physical Society Division of Plasma Physics (APS-DPP) 2015 conference	
General Atomics DIII-D <i>Department of Energy National Undergraduate Fellow</i>	June – August 2014 San Diego, CA
<ul style="list-style-type: none">· Added a feedback plasma control system to a Matlab simulation of the KSTAR tokamak· Automated the tuning of PID controller gain settings for plasma control systems· Poster, “Optimizing Plasma Control in Superconducting Tokamaks,” received the Outstanding Undergraduate Poster Award at the APS-DPP 2014 conference	
Columbia Plasma Physics Laboratory <i>Researcher funded by the Columbia University Egleston Scholarship</i>	January 2013 – Present New York, NY
<ul style="list-style-type: none">· Machined and assembled parts of a capacitor bank power supply for a magnetic coil· Created an axisymmetric code in Python to reconstruct the plasma current in the High-Beta Tokamak experiment from magnetic sensor data and eddy current eigenmodes	
Stony Brook University MRSEC <i>High school researcher</i>	June – August 2011 Stony Brook, NY
<ul style="list-style-type: none">· Characterized the effect of a gold nanoparticle catalyst for hydrogen fuel cell stacks· Named a semifinalist in the 2011 Intel Science Talent Search competition	

WORK EXPERIENCE

NASA Ames Research Center

Intern funded by New York Space Grant

June – August 2013

Moffett Field, CA

- Created fluid simulations of the D8 “Double Bubble” aircraft concept
- Validated the new Launch Ascent and Vehicle Aerodynamics fluid code with wind tunnel simulations
- Used Star-CCM+, Pointwise, and Overflow; ran simulations on NASA’s Pleiades supercomputer
- Wrote a 10-page report and gave a closing talk to the department

AWARDS

- National Science Foundation Graduate Research Fellowship Honorable Mention, 2016
- APS-DPP Outstanding Undergraduate Poster Award, 2014
- Robert Gross Scholarship in Applied Physics, 2014–16
- NASA Aeronautics Scholarship Undergraduate Awardee, 2013–15
- Columbia University Egleston Research Scholar, 2012–16
- Intel Science Talent Search Semifinalist, 2012
- National Merit Scholarship Finalist, 2012
- Massachusetts Regional Science Bowl Semifinalist, 2012

COURSEWORK AND SKILLS

Physics and Mathematics	Quantum Mechanics, Plasma Physics, Partial Differential Equations, Applied Electrodynamics, Thermodynamics, Mechanics, Electrical Engineering, Making and Breaking Codes, Statistics
Computer Science	Advanced Programming (C, C++), Data Structures in Java, Computer Science Theory
Programming	C, C++, Python, iOS Objective-C, Java, JavaScript, Bash, \LaTeX , HTML, CSS
Software	Matlab, Mathematica, Autodesk Inventor, Star-CCM+, Pointwise
Hardware	Arduino, Raspberry Pi, breadboards, soldering, welding

FOREIGN LANGUAGES

Speak, Read, Write	French, Italian, Spanish, German
Speak, Read	Turkish, Japanese

ACTIVITIES

- **Columbia Undergraduate Science Journal:** Editor in Chief (2015–16), Associate Editor (2012–15)
- **Columbia Portal 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)

LINKS

- Projects and papers: <http://sball.in>
- Bio: <http://engineering.columbia.edu/sean-ballinger>
- GitHub: <http://github.com/sballin>
- LinkedIn: <http://linkedin.com/in/seanballinger>