Tal Scully

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Education

Massachusetts Institute of Technology, Class of 2018 – GPA: 4.4/5.0
Candidate for Bachelors of Science in Physics and Theater Arts, Concentration in Chemistry
Selected coursework:

Physics: Classical Mechanics I & II, Electricity and Magnetism, Waves and Oscillations, Relativity, Quantum Mechanics I II & III, Statistical Mechanics, Junior Laboratory

Chemistry: Principles of Chemistry, Organic Chemistry, Thermodynamics and Kinetics, Biochemistry

Computer Science: Mathematics for Computer Science, Engineering Computation and Data Science

Brookline High School, Class of 2014 – GPA: 3.9/4.0

Research Experience

Research Intern, Klein Lab, Harvard Medical School Dept. of Systems Biology — June 2017 – Present
PI: Dr. Allon Klein. *Mentors:* Caleb Weinreb and James Briggs. — Boston, MA

- Analyzed and identified gene orthologs between Xenopus and Zebrafish embryos using inDrops single cell RNA sequence (scRNA Seq) data.
- Developed a computational method for comparing the expression patterns of genes between species using scRNA Seq data.
- Currently analyzing potential drawbacks of linear dimension-reduction methods such as principle component analysis (PCA) when applied to scRNA Seq data.

Undergraduate Researcher, Field Group, MIT Dept. of Chemistry — June 2016 – Mar 2017
PI: Dr. Robert Field. *Mentor:* Alex Hull. — Cambridge, MA

- Investigated the mechanism of a reaction to make diatomic phosphorus through laser induced fluorescence and microwave spectroscopy.
- Improved and refined the experimental set-up of the microwave spectroscopy components.

Undergraduate Researcher, Buchwald Group, MIT Dept. of Chemistry — Feb 2015 – June 2016
PI: Dr. Stephen L. Buchwald. *Mentor:* Dr. Rana Kashif Khan. — Cambridge, MA

- Developed a synthesis for unnatural amino acids for use in new drugs.
- Discovered the existence of an intermediate reaction step; adjusted conditions and greatly improved synthesis yield.
- Work resulted in a paper, to be submitted soon.

Teaching Experience

Teaching Assistant, Junior Laboratory, MIT Dept. of Physics — Sep 2017 – Present
Cambridge, MA

- Overseeing students in the Junior Laboratory (8.13) class, which covers fundamental experiments of modern physics.
- Teaching students on how to approach error analysis, paper drafting, and oral presentations on technical data.

Volunteer Teacher, SPLASH, MIT Educational Studies Program — Every Nov 2014 – 2017, Cambridge, MA

- Taught classes on physics, chemistry, and biology to high school students visiting MIT for a weekend-long program of classes taught by MIT students.
- Classes included topics on Crystal Field Theory, Entropy in Statistical Mechanics, Special Relativity, Computational Biology, and Improv Comedy.

Leadership and Extracurricular

Awarded the Emerson Scholarship for Private Music Study — Sep 2014 – Present

- Taking private weekly flute lessons with Sue-Ellen Hershman-Tcherepnin.
- Performing in a final concert each semester with other Emerson Scholars.

President and Officer-at-Large of the MIT Shakespeare Ensemble — May 2015 – Present

- Leading an effort to revitalize touring of Shakespearean productions.
- Coordinated and ran Scene Nights and other events.
- Organized an alumni reunion performance in June, 2017.
- Chaired the Bylaws Committee to reorganize the group's Constitution.
- Acted in several productions, including playing the title roles in *Hamlet* and *Macbeth*, as well as Prospero in *The Tempest*.

Vice President of MIT Comedy Improv Troupe "Roadkill Buffet" — May 2017 – Present

- Scheduling practices throughout the semester.
- Running practices and working with members to improve their communication and scene work.

Received the Ragnar and Margaret Naess Award — May 2017

- Awarded by the MIT Music and Theater Arts Dept. in recognition of exceptional talent and commitment to performance at MIT.

Publicity Chair of the MIT Symphony Orchestra — May 2015 – May 2017

- Coordinated with the MIT Concerts Office to advertise orchestra concerts.

Skills

Python, MATLAB, LaTeX, LabVIEW, JavaScript, HTML, CSS, Microsoft Excel.
Web Design: website portfolio can be found here: http://web.mit.edu/tals/www/portfolio/
Public Speaking and Voice Training