Samuel A. Solomon

SolomonS@mit.edu
(301)-785-1844

My Website: Mind Network
My LinkedIn Profile

EDUCATION

Massachusetts Institute of Technology *(Cambridge, MA)* **June 2020**

- Bachelor of Science in Chemistry-Biology and Physics; Minor in Nuclear Engineering and Computer Science
- GPA: 4.9 (Weighted on a 5.0 Scale)
- Diversity of Courses: Inorganic Chemistry II, Organic Chemistry II, Programming in Python, Differential Equations, Relativity, Quantum Physics II, Nuclear Fusion, Radiation Biophysics, Introduction to Machine Learning, and Artificial Intelligence

RESEARCH EXPERIENCE

Hen Lab*: MIT Undergraduate Researcher (Cambridge, MA)* **February 2019 – Present**

- Simulating C++ quasielastic scattering events to probe for signatures of a previously unobserved 30 MeV force-carrying boson.
- Optimized a photomultiplier tube to record the energy deposited in a scintillator bar when hit by a laser or neutron.
- Awarded a stipend to present at the American Physical Society's Department of Nuclear Physics conference in October 2019.

NASA Ames Research Center: *Summer Research Assistant (Mountain View, CA)* **June 2019 – August 2019**

- Chemically modified gold nanoparticles to kill off bacteria when hit by cosmic radiation to sterilize water in cislunar space.
- Developed 3D models of cell incubators in SolidWorks and exposed them to radiation at Brookhaven National Laboratory.
- Accepted to present my work at the International Conference on Environmental Systems in Lisbon, Portugal in July 2020.

New Engineering Education Transformation*: MIT Undergraduate Researcher (Cambridge, MA)* **September 2017 – May 2019**

- Manufactured a quad-cultured gut on a chip to simulate the human intestine and replace unreliable/unethical animal models.
- Evaluated villi-like structure formation + MUC2 expression. Quantified diffusion of lucifer yellow through membrane channels.

Oak Ridge National Laboratory: *Nuclear Engineering Science Laboratory Synthesis (Oak Ridge, TN)* **June 2018 – August 2018**

- Isolated and scaled up a deuterated CSI1 protein for biofuel synthesis and determined its structure via neutron scattering.
- Performed cavity diagnostics on a linear particle accelerator in semi-real time for neutron scattering structure determination.

Plasma Science and Fusion Center: *MIT Undergraduate Researcher (Cambridge, MA)* **January 2017 – February 2018**

- Simulated proton beam radiotherapy by modeling the particles' trajectories in a superconducting cyclotrons' magnetic field.

National Institutes of Health: *Summer Research Assistant (Bethesda, MD)* **May – August (2016, 2017)**

- Awarded an honorable mention at the National Center for Advancing Translational Sciences' conference (presented 2 posters)
- Published in the Biotechnology Journal for developing a novel high throughput acetylcholinesterase inhibitor detection assay.
  - Xia, Menghang *et al.* (2017). Biotechnol. J., 12: 1600715; PubMed ID: 28294544 1.
- Optimized and tested spheroid forming HepG2 cells for a 3D high throughput albumin detection assay.

LEADERSHIP AND CLUBS

Leadership Positions:

- Multivariable Calculus, Introductory Biology, and Organic Chemistry teaching assistant. **September 2017 – Present**
- Secretary, then Treasurer, of MIT's Marine Robotics Team. **September 2017 – Present**

Entrepreneurial Ventures:

- Co-founder of Android Studio app: ViLi – connecting the autistic community in the 21^{rst} century **September 2019 – Present**
  - Finalist for the MIT 100K Pitch competition in November 2019
- Founder of the online tutoring center *Mind Network* (https://mindnetwork.us/) **December 2018 – Present**
  - Awarded $1000 from MIT Sandbox + $1000 as 1st place finisher in BetterMIT hackathon
- Co-creator of *Augmedic* for the International start-up competition Incube (2nd place finisher) **September (2018, 2019)**
- Co-inventor of MindPalace (memory game app) for HackMIT **September 2016**

Community Outreach:

- Alternative Spring Break: youth-proposed community service projects/documentaries **March – April (2017, 2018, 2019)**
- Boston Medical Center's Parent Leadership in Autism Network (PLAN) program **January 2018 – February 2018**

Athletic Achievements:

- 10-time NEWMAC / 1-time COOP Diver of the Week; 2-time NEWMAC Diver of the Year **September 2016 – Present**
- 6 National Honorable Mention, 3 CSCAA Scholar, All-American titles; Google Cloud Academic All-District Men's At-Large Team

SKILLS

Software	MATLAB, Python, C++, ChemDraw, Pymol, SolidWorks, Fusion360, basic HTML/Java, and basic Android Studio
Laboratory	2D/3D cell culture, absorption/UV-Vis spectroscopy, NMR, electrophoresis, Size Exclusion/Affinity Chromatography