Samuel A. Solomon

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My Portfolio   Turtle Pond   Vibrant Life   Mind Network

EDUCATION

California Institute of Technology *(Pasadena, CA)*   **June 2025**
- Candidate for a Doctor of Philosophy (PhD) in Medical Engineering
- GPA: N/A (Weighted on a 4.0 Scale); *National Science Foundation Research Fellow*

Massachusetts Institute of Technology *(Cambridge, MA)*   **June 2020**
- Bachelor of Science in Chemistry-Biology and Physics; Minor in Nuclear Engineering and Computer Science
- *Certificate in Living Machines; Undergraduate Teaching Award in Mathematics; Department of Chemistry Research Award*
- GPA: 4.9 (Weighted on a 5.0 Scale); *Phi Beta Kappa Scholar*

RESEARCH EXPERIENCE

NASA Jet Propulsion Laboratory*: Summer Research Assistant (Pasadena, CA)*   **May 2020 – Present**
- Studying the spread and contamination routes of bacteria (*Bacillus, Klebsiella*) onboard the ISS for planetary protection.
- Examining genetic adaptations in *Klebsiella pneumoniae* during spaceflight using a whole genome sequence analysis.
- Published in the American Society for Microbiology journal for a computational genetics' analysis of ISS exposed Klebsiella.

Hen Lab*: MIT Undergraduate Researcher (Cambridge, MA)*   **February 2019 – May 2020**
- Simulated 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 $500 to present at the American Physical Society's Department of Nuclear Physics' CEU 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.
- 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

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.

LEADERSHIP AND CLUBS

Leadership Positions:
- Multivariable Calculus, Introductory Biology, and Organic Chemistry teaching assistant.   **September 2017 – May 2020**
- Secretary, then Treasurer, of MIT's Marine Robotics Team.   **May 2017 – May 2020**
- High school teacher in Rozzano, Italy (Special Relativity and Wave Dynamics)   **January 2020**

Entrepreneurial Ventures:
- Founder of Turtle Pond – Caltech Course Selector website (https://turtle-pond.com/)   **August 2020 – Present**
- Co-Founder of Vibrant Life – connecting the special needs community in the 21^{rst} century   **September 2019 – Present**
  - MIT 100K Pitch Finalist (November 2019); Awarded $5,000 from MIT Sandbox
- Founder of the online tutoring center *Mind Network* (https://mindnetwork.us/)   **December 2018 – Present**
  - Awarded $1000 in MIT Sandbox + $1000 as 1st place finisher in BetterMIT hackathon
- Co-Founder of *Augmedic* for the International start-up competition Incube (2nd place finisher)   **September 2018 – October 2019**

Athletic Achievements:
- 10-time NEWMAC / 1-time COOP Diver of the Week; 2-time NEWMAC Diver of the Year   **September 2016 – May 2019**
- 6 National Honorable Mention, 3 CSCAA Scholar, All-American titles; Google Cloud Academic All-District Men's At-Large Team

SKILLS

Software	Python, C++, Matlab, SolidWorks, Fusion360, Pymol, HTML, CSS, Javascript, PHP, and basic Java/Android Studio
Laboratory	Cell Culture, Absorption/UV-Vis Spectroscopy, NMR, Column Chromatography, Pangenome, and SNV/SNP