# Saul Vega Sauceda

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## EDUCATION

**Massachusetts Institute of Technology (MIT)** **Cambridge, MA**
Candidate for B.S. in Computer Science and Engineering September 2020 – May 2024
GPA: 4.7/5.0
Relevant Coursework: Modeling with Machine Learning: from Algorithms to Applications, Organic Chemistry, Software Construction, Linear Algebra, Design and Analysis Algorithms

## EXPERIENCE

**MIT - Coley Research Group** **Undergraduate Researcher**
*Valorization of bio-feedstock using computer-aided retrosynthesis* May 2021 – May 2022

- Simulated retrosynthetic and forward steps of chemical reactions to discover synthetic routes from proposed feedstock found in literature
- Analyzed existing literature for potential sources of renewable feedstock
- Developed and modified tools for analyzing and visualizing large datasets containing representations of chemical reactions
- Examined results of a tree builder search of +2000 therapeutic molecules
- Developed graphs and classes to model the data for analysis

**MIT – Kellis Lab** **Undergraduate Researcher**
*Imputation of absolute RNA counts from scRNA-seq performed on neurons* June 2022 – May 2023

- Designed a pipeline to process scRNA-seq data for imputation and deployed in Docker
- Developing a metric to compare sampling distributions from different modalities to combat batch effects such as capture rate.
- Investigated imputation techniques for addressing missing gene expression values in scRNA-seq data.
- Explored non-negative matrix factorization, collaborative, and kNN-imputation methods on gene expression matrices.
- Implemented downsampling and noise introduction for simulation of scRNA-seq methods.

**Flatiron Health** **SWE Intern**
*Developing Molecular Profiling Homepage in OncoEMR* June 2023 – August 2023

- Designed and parsed structure of molecular profiling report for patient data.
- Engineered a robust data integration framework:
    - Designed LAMP (Lab-agnostic molecular profiling DB) API and endpoints via AWS Lambda serverless architecture.
    - Created endpoints in OncoEMR to fetch structured molecular reports from LAMP.
- Utilized standardized Atrium components for UI design, enhancing ease of use.
- Worked closely with cross-functional teams to ensure data accuracy and positive findings.

## ACTIVITES & AWARD

**Biliteracy Award** *(Spanish)* May 2020
**SSP Connect**, *Mentor* September 2020 – Present
**MIT Biotech Group,** *Mentorship Associate* October 2021 – Present
**MIT ESP HSSP,** *Co-Teacher for Intro to CS* June – August 2022

## SKILLS & INTERESTS

**Skills:** AWS, GCP, NET Framework, Python, Jupyter, Docker, scikit-learnRDKit, UNIX
**Hobbies/Interests:** PC Hardware, Reading, Soccer