

# SEJAL DUA

Tufts University Class of 2021  
Data Science & Biomedical Engineering

## EXPERIENCE

### IBM Research

#### Machine Learning Research Intern • Jun 2020 – Sep 2020

- ❖ Built initial model within Drug Repurposing for Cancer NLP pipeline by performing scientific document corpus filtering through heuristic rules and statistic modeling.
- ❖ Applied Snorkel binary classifier on 127,000 clinical PubMed articles and a labeled test set of 1,400 documents; Achieved 83% accuracy, sufficient for scalability to other domains.

### Textbook Exchange Network

#### Director of Data Analytics • Jan 2019 – Present

- ❖ Gathered data-driven insights from 6000+ API exchanges representing textbook transactions that have saved students \$300,000 compared to campus bookstore prices.
- ❖ Calculated Key Performance Indicators (KPIs) via SQL queries and Python statistical methods to measure the health and wealth of the organization.
- ❖ Generated a price recommendation algorithm to inform user pricing decisions.

### LEGO Education Research & Development Lab [Tufts CEEO]

#### Software Development Intern • Jun 2019 – Aug 2019

- ❖ Developed a Python software package which enables bidirectional communication between a LEGO SPIKE Prime hub and various microprocessors.
- ❖ Improved LEGO image recognition functionality by implementing a smile detection neural network demonstration using the sklearn package.

### Oregon Center for Aging & Technology

#### Software Engineering Intern • May 2018 – Aug 2018

- ❖ Facilitated and executed a research validation experiment designed to obtain gait speed data from an elderly cohort of participants with Alzheimer's or dementia; engineered laser trip beams and 3D-printed sensor enclosures for passive infrared sensing virtual hallway.
- ❖ Sifted through 20 years of passive infrared sensing data, investigating the gradual degradation of the circadian rhythm as a result of aging.

### Tufts University Computer Science Department

#### Teaching Fellow • Jan 2019 – Present

- ❖ Hosted office hours, facilitated labs, and improved grading infrastructure for 120+ person classes; Served as liaison between professor and 30+ person teaching staff.

## PROJECTS

### Beyond the lyrics: the intersection of music and data visualization

#### Towards Data Science Article • Nov 2019

Performed sentiment analysis on song lyrics using the Spotify API, Python, and Tableau; wrote a Medium article using data to show how artists evolve and how genres differ.

### Intellivo

#### Best Technical Problem (InternHacks) • Jul 2020

Integrated a Flask web application that facilitates intellectual conversation between users with a K-Means Clustering algorithm, to help mitigate social media echo chambers.

## CO-CURRICULARS AND INTERESTS

### Tufts Women in Technology Conference

#### Speaker Coordinator • Apr 2020 – Present

Networked with women in high up positions at top tier tech companies; Recruited 8 speakers to inspire and empower college students at virtual women in technology conference.

## CONTACT



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## EDUCATION

### Tufts University (Medford, MA)

GPA: 3.77 *Dean's List*  
Graduation: May 2021 (expected)

### Jesuit High School (Portland, OR)

GPA: 4.26 weighted, 3.96 unweighted  
Graduation: June 2017

## RELEVANT COURSES

- Data Structures
- Algorithms
- Machine Learning
- Data Visualization
- Neural Networks and Deep Learning
- Big Data
- Artificial Intelligence
- Cybersecurity

## TECHNICAL SKILLS

### Coding Languages

Python, C, C++, Java, R, SQL, HTML, CSS, Javascript, MATLAB

### Packages & Libraries:

matplotlib, numpy, scipy, pandas, d3, keras, tensorflow, pytorch, sklearn, flask, spacy, snorkel

### Operating Systems:

Linux, UNIX, Windows

### Software Development Tools:

Github, VSCode, Sublime Text, Jupyter Notebooks, Xcode, LaTeX, Tableau

### Technologies & Microprocessors:

Raspberry Pi, Arduino, micro:bit, OpenMV Camera, PyBoard

## INTERESTS

Fitness Technology, Mandarin Chinese, NBA, Running, Cooking, Travel