

# Liam McFadden

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## Technical Skills

AngularJS

React

Vue.js

Django

C# (Unity)

Python

SQL

Flutter

Bash

## Languages

Spanish – B2

German – A2

English – Native

## Experience

### Software Engineer

Pittsburgh, Pennsylvania

*TrademarkVision, now a part of Clarivate Analytics*

Aug. 2018 to Jun. 2020

- Lead development of a software product through beta and release, managing daily bugs and feature requests from 100s of clients
- Implement features in, debug, and write tests for the backend of a Django-based REST API with 1000s of users
- Implement frontend features using TypeScript frameworks Vue.js and Angular, with Redux and RxJS
- Contribute to the team development of a single-page, dynamic Analysis Tool under a test-driven, Scrum development framework
- Manage data ingestion and integrity for millions of trademarks across SQL, MinIO, Elasticsearch, and MongoDB databases
- Manage bare-metal and cloud Linux servers using Bash scripts, Hetzner online portal, and Ansible
- Talk to and learn from the Founder/CEO via monthly one-on-ones as the company transitions from startup to acquisition

### Research Assistant

Barcelona, Spain

*Computational Science Laboratory*

Sept. 2020 to Aug. 2021

- Write Python scripts to process millions of frames of molecular dynamics data, hack scripts to distribute load across machines
- Transform messy, multi-dimensional, and large (>10GB) simulation data into concise figures using Matplotlib
- Train and optimize hyperparameters for a graph neural network, debug PyTorch Lightning data loading
- Summarize state-of-the-art research, and synthesize results, with figures, into a 70+ page thesis and a 25-minute oral presentation

### iGEM Team Member

Pittsburgh, Pennsylvania

*Pitt 2017 International Genetically Engineered Machine Team*

May 2017 to Dec. 2017

- Design Dronpa-CheY fusion protein, using UCSF Chimera, to reversibly block phosphorylation site of E. Coli chemotaxis protein
- Genetically engineer bacteria to express this fusion protein using techniques such as PCR, transformation, and cloning
- Experimentally verify transformation via gel electrophoresis and expression via fluorescence imaging
- Create animated interactive Wild West-themed website primarily based on HTML 5 Canvas

## Personal Projects

### Improved Seasonal Job Search -

Map-based search for US seasonal visa jobs, built from scratch with React

### WEMsite Personal Website -

Basic design and animations for personal website, built with React

### Javascript Spiking Neural Network -

Simulation and visualization of spiking neurons, built with vanilla Javascript

### Unity Spiking Neural Network -

Simulation and visualization of spiking neurons, built in Unity (C# and HLSL)

### 12Tango Studio Management -

Simple calendar application for iOS, written in Flutter

## Education

### Master's Degree in Computational Biomedical Engineering

Pompeu Fabra University, Barcelona

Thesis: Learning to Coarse Grain Protein-Protein Interaction with Neural Network Potentials

Sept. 2020 to Aug. 2021

### B.Eng. in Bioengineering, B.Sc. in Neuroscience

University of Pittsburgh, Pennsylvania

Double major, both Cum Laude

Aug. 2014 to Apr. 2018

### Venture for America Fellow

Entrepreneurship-focused professional development program

Pittsburgh, Pennsylvania

Apr. 2018 to Jun. 2020

### Entrepreneurship and Innovation Management Program

Theoretical and project-based study abroad program

Berlin School of Economics and Law, Germany

Jul. 2016