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alexisully.me



/alexanderjsullivan



github.com/AlexJSully



TypeScript/JavaScript HTML & CSS/SCSS/SASS SQL (MySQL & PostgreSQL) NoSQL (MongoDB) **Python** 

**PHP** 

R C#

Git & Bash

YML

XML & JSON



## FRAMEWORKS AND TOOLS

Next.js & React Material-UI & Bootstrap CI/CD w/ GitLab & GitHub Actions Amazon Web Services (AWS) Google Cloud Platform (GCP) **Google Firebase Google Analytics & GTM** Sentry

Auth0

Unity

Algolia

Figma

Cypress & Jest

jQuery

D3.js

Blender

# Full Stack Developer & Bioinformatician

Versatile full-stack developer and bioinformatician with 7+ years of experience developing web applications and bioinformatic tools.



## WORK EXPERIENCE

## Full Stack Developer | Masterpiece X

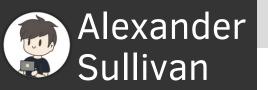
Masterpiece Studio | Dec 2021 - Present

- Developed the Masterpiece X web application which allows users to interact with a growing library of 3D models and assets available for the community to explore, use and remix (edit).
- Implemented a generative AI tool to allow users to use text prompts to generate a 3D model with animations via a web browser.
- Created an interface and APIs to allow users to interact and manage their assets while inside the Meta Quest VR app developed with Unity.
- Managed CI/CD deployment pipelines.
- Maintained the Masterpiece X front end, back-end APIs & databases and Firebase Functions for bugs, performance, optimizations and user & QA reported feature requests and issues.
- Added & monitored analytic metrics.
- Built UI features & back-end API endpoints (with respective database **changes**) and **managed third-party services** across the Masterpiece X community library, user storage system, generative AI tool, account management pages and admin systems.
- Ensured responsive web application on mobile, desktop, tablet, VR browsers and a custom in-app viewport while ensuring compatibility for users with accessibility requirements.

## Bioinformatician & Web Developer | eFP-Seq Browser & GAIA

BAR/Provart Lab - University of Toronto | Sep 2016 - Dec 2021

- **Developed multiple bioinformatic web tools** and applications with Professor Nicholas Provart and his BAR (Bio-Analytic Resource) lab.
- eFP-Seg Browser | Data Visualization Programmer
  - Developed the eFP-Seq Browser, a web tool to visualize gene expression data from RNA-Seg experimental data.
  - **Developed UI features** for **visualizing** RNA-Seq experimental **data**.
  - Implemented an account system using Google Identity to store and manage uploaded data.
  - Maintained Python webservices on back-end.
  - Ensured web app was accessibility friendly.
  - Collaborated with a research lab to ensure the reliability of statistical outputs for the RNA-Seq analysis using both Pearson **Correlation Coefficient and point-biserial correction coefficient** in R.
  - Published in an open-access paper, The Plant Journal, as a firstauthored peer-reviewed scientific publication with over 26 citations & zero being contrasting statements.







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## PERSONAL PROJECTS

#### Impact Depth | May 2021 - Jan 2023

- Visualize citation flows of a publication of interest and use an interactive tree to understand what scientific fields that publication impacted.
- Created using D3.js & React, custom data scrapping and processing scripts, database on MongoDB, hosted using Firebase.

### Small Dev Talk | Mar 2013 - Apr 2016

 Created a blog website that wrote interview and news articles about projects and games in the indie community.



## **TEACHING**

## **Teaching Assistant**

University of Toronto | Jan 2019 - Aug 2021

 TA for CSB352: Bioinformatic Methods & BIO130: Molecular & Cell Biology

#### **Academic Tutor**

Mai Tutor | Sep 2012 - May 2013

 Tutor students from grade 1 through grade 11

# Full Stack Developer & Bioinformatician



## WORK EXPERIENCE (...CONTINUED)

## Bioinformatician & Web Developer | eFP-Seg Browser & GAIA

BAR/Provart Lab - University of Toronto | Sep 2016 - Dec 2021

- GAIA (General Agricultural Intelligent Agent) | Project Lead
  - Designed and developed GAIA, a web tool to aggregate and synthesize general agricultural biological information across over a dozen species to centralize and simplify data search while enabling users to ask broad questions.
  - Managed a team of programmers and bioinformaticians to ensure GAIA's features were **delivered by the expected deadlines** through iterative & agile development.
  - Developed UI features & back-end webservices as well as dataprocessing scripts.
  - Developed a statistical natural language processing (NLP) feature to answer broad questions by creating an in-house machine reading (MR) logic.
  - Collaborated with a machine-learning research lab to create a machine vision tool (using GCP Vision API) to recognize and read biological pathways in figures & image to allow them to be searchable within GAIA.

## Programmer & VR Game Developer | VirtEx Labs

Dr. Kilkenny's Lab - University of Toronto | Aug 2017 - Sep 2018

- Researched and developed a virtual reality pedagogical prototype to teach basic scientific laboratory techniques.
- Was the sole developer on this prototype and was responsible for programming in C# in Unity 3D game engine, creating custom 3D assets using Blender, working with teaching laboratories to replicate basic techniques, as well as handle bug fixes and optimizations.
- Was awarded the NVIDIA Academic GPU Grand Program.



## **EDUCATION**

#### Master of Science (MSc) - Bioinformatics

University of Toronto | Aug 2018 - Nov 2021

### Bachelor of Science (BSc) - Biotechnology

University of Toronto | Sep 2013 - June 2018



## **PUBLICATIONS**

# ePlant in 2021: New Species, Viewers, Data Sets, and Widgets

Preprint (bioRxiv) | Apr 2021 | doi 10.1101/2021.04.28.441805

An 'eFP-Seq Browser' for visualizing and exploring RNA sequencing data The Plant Journal | Jul 2019 | doi 10.1111/tpj.14468