Full Stack Developer & **Bioinformatician with 7+** years of experience



CONTACT





alexisully.connect@outlook.com





(III) alexjsully.me



/alexanderjsullivan



github.com/AlexJSully

</>> PROGRAMMING LANGUAGES

TypeScript/JavaScript HTML & CSS/SCSS SQL (MySQL & PostgreSQL) NoSQL (MongoDB) Python PHP R C# Git & Bash YML/YAML 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 & Google Identity Unity 3D (game engine) Android & adb Algolia Figma & Miro & Adobe XD Cypress & Jest (testing) jQuery & jQuery UI D3.js Node.js Linux (Debian & Ubuntu/WSL)

Vercel & Cloudflare & Namecheap

Alexander Sullivan



WORK EXPERIENCE

Full Stack Developer | Masterpiece X

Masterpiece Studio | Permanent Full-time | 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 API endpoints to enable users to manage and interact with their assets while in the Meta Quest app developed with Unity.
- Managed CI/CD deployment pipelines for production updates.
- Maintained the Masterpiece X front end, back-end APIs, database and Firebase Functions for bugs, performance, optimizations and user & QA reported feature requests and issues.
- Managed & monitored analytic metrics to be used to track and understand how a user interacts with the Masterpiece X app.
- Engineered & managed user account systems (from front-end, to API endpoints and database) enabling management of account public and private 3D assets, account details and deletion.
- Built UI features & REST API endpoints (with respective PostgreSQL database changes) and managed third-party services across the Masterpiece X community library, user storage system, generative AI tool, account management and admin systems.
- Ensured responsive web design on mobile, desktop, tablet, VR browsers and a custom in-app viewport while ensuring compatibility for users with accessibility requirements.

Web Developer & Bioinformatician | eFP-Seq Browser & GAIA

University of Toronto | Contract part-time | Sep 2016 - Dec 2021

- · Developed multiple bioinformatic web tools and applications with Professor Nicholas Provart and his BAR (Bio-Analytic Resource) lab.
- eFP-Seq Browser | Data Visualization Programmer
 - o Developed the eFP-Seq Browser, a web tool to visualize gene expression data from RNA-Seq experimental data.
 - Developed UI features for visualizing RNA-Seq experimental data.
 - Implemented an account system to store and manage uploaded data.
 - 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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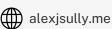


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PERSONAL PROJECTS

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

Alexander Sullivan



WORK EXPERIENCE (...CONTINUED)

Web Developer & Bioinformatician | eFP-Seq Browser & GAIA

University of Toronto | Contract par-time | 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 to centralize data search while **enabling users to ask broad questions.**
 - Organized and managed a team of programmers and bioinformaticians to ensure GAIA's features were delivered by the expected deadlines through iterative & agile development.
 - Developed and designed front-end UI features & back-end Python webservices as well as data-processing scripts.
 - Developed a statistical natural language processing (NLP) 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 be searchable within GAIA.

Unity Software Engineer | VirtEx Labs

University of Toronto | Contract part-time | Aug 2017 - Sep 2018

- Researched and developed a virtual reality (VR) 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.
- Ensured the prototype VR educational game was usable from high-end devices like the HTC Vive to lower end devices like phone VR using Google Cardboard SDK.
- 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