ALEXANDER JURCAU

✉ jurcaua@gmail.com 🌐 jurcau.com 📞 647-883-2369 in jurcaua ⬡ jurcaua

Note: The personal website above has a detailed and complete collection of all notable projects.

EMPLOYMENT

Ubisoft
Tools Programmer (Watch Dogs Legion) · Toronto
May 2020 - Current

- Constructed project-agnostic web tool in React with the ability to **remotely send commands to any game or engine instance**, also providing users with a fully customizable drag & drop, shareable interface, without the need of a backend
- Developed in-house online service consolidating webapp tool in **React** as a fullstack developer - handling the configuration of the shop, scheduled events, etc.
- Wrote an HTML report automation tool in **Python** that collects data from **JIRA** and **Confluence** to summarize weekly and monthly critical issues
- Upgraded **Photoshop SDK** from CC6 to CC2020 including all internal C++ tools and JavaScript plugins
- Provided programmer support to entire project, assisting fellow programmers with any technical issues by delving into unfamiliar codebases
- Prototyped a custom internal **URL shortener REST API** in Python in an afternoon, later integrated into future webapp tools

Generalist Programmer Intern (Watch Dogs Legion) · Toronto
June 2018 - Aug. 2019

- Lead development of a company-wide service-consolidating production tool in Python / C# to add context to created tasks in meetings and director reviews - automated video and audio capture / upload (FFMPEG), JIRA creation, game plugins, etc, **saving ~8 hours** per task
- Oversaw technical side of an automated integration testing framework supporting **hundreds of internal clients and testers**
- Resolved Sony **TRC** online-related issues, leading to experience with the PS4 development process
- Drafted comprehensive **technical documents** including sequence diagrams, wireframes, and crafted paper prototypes for new tools and workflows
- Started the **Ubisoft Toronto Japanese Learners club** - teaching up to N2 Japanese, creating weekly worksheets, and organizing weekly language exchanges

ARnocular
Augmented Reality Software Developer · Toronto
May 2017 - Sept. 2019

- Implemented a system that **dynamically downloads AssetBundles and displays 3D models from a database**, requesting and parsing CSV files
- Developed an accurate **linear regression system** using GPS points to smoothly move between perceived user locations
- Collaborated smoothly with **Git** version control; experience with Prod/QA/Dev pipeline, branching, merging, stashing, working with a remote repo

Youth Fusion
Video Game Design Coordinator · Toronto
Mar. 2017 - May 2018

- Taught for a local non-profit after-school program aimed to decreasing high school drop-out rates by teaching all aspects of video game development
- Verbally **communicated** complex game design concepts to children in simple and easy-to-understand ways

Inmar
Systems Support · Toronto
May 2016 - Aug. 2016

- Developed **SSIS packages** for data transfer between SQL Server databases and uploads/downloads from/to Excel files
- Developed **T-SQL scripts** for comprehensive field level discrepancy reports

PROJECTS

Tungsten and Sparky - (ToJam 2020 - Unreal Engine 4 Project)
May 2020

- Local two player coop game, created with a team of 10 people (3 programmers, 4 artists, 3 musicians)
- Implemented entirely custom **physics-based player controllers** and **physics-based attached rope** between players using **Blueprints**

EspionAge - (Unity Project)
Jan. 2020 - Apr. 2020

- Open world comedy stealth game, created with a team of 9 people (4 programmers, 3 artists, 2 musicians)
- Implemented entire generic **mission system**, and specific mission logic and **cutscenes**, also integrating with all other game systems
- Implemented **player control, camera, region systems**, providing a cohesive world traversal experience for the player
- Designed all gradual **tutorialization**, including main tutorial level design and logic, and all mechanic introduction UI throughout game

SKILLS

COMPUTER LANGUAGES: Python, Javascript, C++, C#, C, T-SQL, Java, Racket, Haskell, Dafny
TECHNOLOGIES: Unity, Visual Studio, Qt, ELK, Perforce, React, Redux, Git, Express, Mongo, Node, Unreal Engine
HUMAN LANGUAGES: English (Fluent), Japanese (N2 - Business Level), Romanian (Conversational)

EDUCATION

University of Toronto - St. George
H.B.Sc. Computer Science Specialist 2020

Japanese Language Proficiency Test - N2

Microsoft Database Administration Fundamentals (MTA: 98-364)

SMALLER PROJECTS

Personal Website (jurcau.com) - (React + Material UI)   Current
- Entirely custom and **robust localization system**, and personally translated into Japanese
- High-detail and highly-customizable project showcasing framework with robust tagging and filtering system, and support for all media types
- Optimized and tested on all screen-sizes

EventListeners
- Fully implemented social media platform built from scratch using a **React frontend** and **Express backend**
- Lead frontend development utilizing the **Material UI** framework to provide a simple, clear, and consistent user flow throughout the app
- Designed and implemented **REST API** and integration with frontend

Holo-Mole - (Holography School Project + Unity Personal Project)
- Innovative AR whack-a-mole game that uses Vuforia image and model targets recorded onto a **physical rainbow-transfer hologram**
- Showcased at the **International Symposium on Digital Holography 2018** as a new application of holographic technology

Uniform Grid Implementation - (C++ Personal Project)
- Implemented a **uniform grid collision detection system** that increased efficiency by ~1000% compared to brute-force methods

Snake & Level Editor Dev Tool - (C++ Personal Project)
- Created simple snake game and mouse-controlled level editor with text file reading/writing

Google Spy - (UofTHacks 2018: Unity C# and Javascript Developer | Runner-Up for Best Game)
- Innovative **Google Home voice-controlled Unity game**, with the ability to control player movement and combat via voice commands
- Implemented **Javascript** solution to make Actions by Google query results available to Unity in **Firebase database**

Re-Lec (Software Engineering School Project)
- A platform for students to upload and view lecture recordings using token-based reward system
- Implemented mobile application portion of project which includes user authentication, mobile video recording, HTTP binary data file upload
- Managed and worked with a team of 7 developers -Git branching and merge request workflow

Kleptomanihat - (UofT Game-Making Deathmatch: Unity C# Developer | 1st Overall, Best Gameplay)
- Developed a 2D platformer enemy script with line-of-sight, enemy spotted behaviour, and movement behaviour
- Completed and polished product, tested, progressive tutorial, menu and game UI, game beginning and end states

Game Nani - (THacks2: Unity C# Developer | Best Developer Tool)
- Data-oriented **dev tool** for Unity projects, aimed to optimize and **automate playtests**
- Devised complex internal data structures for comprehensive data logging / graphing and JSON object compatibility
- Implemented user camera movement tracking through raycasts, on pre- or post-defined GameObjects of interest

TranslatAR - (MHacks 9: Unity C# Developer | Most Innovative Hack Award)
- Real-time **Augmented Reality** translation app that uses **object recognition** to translate the surrounding environment
- **Contracted** for Toronto startup **Voila Learning** to implement similar technology for their platform
- Utilizes **Google Cloud's Vision API** for the object recognition and **IBM Watson's Translation & Speech-To-Text APIs** for translation features

Bouncy Cloud Shader - (Unity Personal Project)
- Learned to work with Unity ShaderForge to attempt to create a realistic bouncy-cloud shader with a gradual vertex offset at point of contact, and natural flowing clouds

Code Bumpin' - (UofTHacks 2017: Unity Game Developer)
- A 3D platformer based on music visualization, made in less than 24hrs
- **Split audio signal** into 512 samples, 8 frequency bands, and 1 average amplitude, using buffers to have smooth movement of 3D bars
- Contacted popular EDM artists for legal commercial use of their songs (including Far East Movement and Electric Mantis)

Snake DIMENSIONS - (Unity Personal Project)
- **Published on Google Play Store**, worked with Google Play Developer Console
- Implemented **Unity Singleton pattern** for consistent GameObjects such as background music across all scenes

Cookie Byter - (QHacks 2016: Full Stack Web Developer)
- Clicker game inspired by "Cookie Clicker", but transformed into a "byte" oriented game, instead of tasty treats
- Integrated and **synchronized click event** scripts
- Implemented tool tips on scroll over text with Javascript
- Used HTML/CSS to create entertaining game design elements
- Integrated **persistent data logging** for in-depth game statistics

Airplane Simulator (Java School Project)
- Physics based simple 3D airplane simulator made only from the standard library in Java
- Utilized complex physics concepts in implementation of 3D movement
- Perspective, utilizing angles to move objects, and velocity were taken in account for realistic simulation

Building Personal Computer (Hardware Personal Project)
- Learned a deep knowledge of computer hardware and how components interact
- Implemented AMD's Crossfire video card technology
- Created a personal configuration for Windows 8