ALEXANDER JURCAU

✉ jurcaua@gmail.com 🌐 jurcau.com in jurcaua ○ jurcaua

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

EMPLOYMENT

ARSTECH GUILD Inc.
Engineering Manager · Tokyo, Japan
Jan. 2024

- [**Management**]
  → Guided **career development** for 5 engineers through consistent goal setting, quarterly performance reviews, monthly 1on1s, and self-reflection via the KPT method
  → Designed and coordinated a **Git training program** for 15 cross-disciplinary new graduates, resulting in a standardized program to be used for future cohorts
  → **Led a 3-engineer team on a AAA UE4 title** (transitions, character/vehicle handling, and load optimization), coordinating with clients and designers w/ biweekly sprints
  → **Oversaw the engineering direction of a company-wide project involving 15 new graduates**, successfully delivering a game development cycle (Prototype to Master) within 3 months; conducted performance evaluations that identified key growth areas, and compiled a comprehensive report resulting in an annual program continuation
- [**UE5 Tools**]
  → Developed a scalable **crowd simulation toolset** in UE5, tailored for a leading Japanese animation studio, streamlining their animation workflows and improving efficiency
  → Spearheaded the development of a **project-agnostic UE5 tool launcher**, consolidating internal tools across engine versions for improved accessibility and efficiency

Game Engineer (UE4 Cancelled AAA Project) · Tokyo, Japan
Dec. 2020 - Dec. 2023

- [**3CS**] Character, NPC & Vehicle: From scratch development of movement, AI, animation (ABP), interaction logic, and abilities
- [**UI**] Minimap & World Map: Generic impl., heavy 2D material manipulation, generic UI widget pooling system, robust fog of war system, etc.
- [**Editor Tools**] Ultra-high resolution screenshot tool, statically partitioning levels for conditional / staged loading, custom branching spline editor, etc.
- [**Internal Tools**] Lead the internal tool development team:
  → (Rust) Developed a generic tool package manager for all internal tools and scripts
  → (Python) Developed an automated clock-in/out tool hooked into computer login timing, reducing schedule inconsistancies by 99%
  → (React + Go) From scratch development of company portal website including integration with external user authentication (Okta)
- Fully **translated and presented a game project proposal** to an external publisher, achieving a greenlit global collaboration
- Started the company **English club** (英会話), holding weekly events and growing a community revolving around having fun while learning English

Ubisoft
May 2020 - Nov. 2020

Tools Programmer (Watch Dogs Legion) · Toronto, Canada

- Lead the design and development of an internal **automated security protection-applying tool** using **Powershell** (psake) & **Gitlab CI**, and HTML/CSS/JS frontend, for sending secure builds to external vendors on-demand
- 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 internal C++ tools and JavaScript plugins

Generalist Programmer Intern (Watch Dogs Legion) · Toronto, Canada
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
May 2017 - Sept. 2019

Augmented Reality Software Developer (Unity) · Toronto, Canada

- 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

SKILLS

COMPUTER LANGUAGES: C++, Python, Javascript, Rust, C#, C, T-SQL, Java, Racket, Haskell, Dafny
TECHNOLOGIES: Unreal Engine 4 & 5, Unity, Visual Studio, Qt, ELK, Perforce, React, Git, Redux, Express, Mongo, Node
HUMAN LANGUAGES: English (Native), Japanese (Fluent), Romanian (Conversational)

EDUCATION

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

Japanese Language Proficiency Test - N1

Microsoft Database Administration Fundamentals (MTA: 98-364)

SMALLER PROJECTS

Tungsten and Sparky - (ToJam 2020 - UE4 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

Personal Website (jurcau.com) - (React + Material UI)   Dec. 2019 - 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   Sept. 2019 - Dec. 2019
- 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)   Mar. 2018 - Apr. 2018
- 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

Snake & Level Editor Dev Tool - (C++ Personal Project)   Mar. 2018
- Created simple snake game and mouse-controlled **level editor** with text file reading/writing
- Implemented a **uniform grid collision detection system** that increased efficiency by ~1000% compared to brute-force methods

Google Spy - (UofTHacks 2018: Unity C# and Javascript Developer | Runner-Up for Best Game)   Jan. 2018
- 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)   Jan. 2018 - May 2018
- 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)   Dec. 2017 - Jan. 2018
- 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)   Oct. 2017 - Dec. 2017
- 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)   Mar. 2017 - Dec. 2017
- 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

Code Bumpin' - (UofTHacks 2017: Unity Game Developer)   Jan. 2017
- 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)   Dec. 2016 - Jan. 2017
- **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