North Hollywood, California
tbujnevicie@gmail.com

Timothy Bujnevicie

linkedin.com/in/tbujnevicie
timbujnevicie.com

A programmer with a passion for testing out novel technologies and seeing if I can integrate them into a usable product. My main focus is geared towards Unreal Engine and using it to develop tools and real time applications.

Work Experience

Senior Developer   **Steamroller Technologies**   **Oct 2023–Present**
Mount Dora, FL

- Provided Unreal support for developing an Android thin client that makes use of Unreal's pixel streaming from a linux server over a local network.

- Integrated ORB SLAM3 into Unreal via a plugin for said client to get around ARCore's device limitations and provide simultaneous localization and mapping support for Unreal.

- Integrated Google MediaPipe into Unreal to allow for visual hand tracking on the Android client using tracked knuckles location data to drive IK hand meshes.
- Developed a system for streaming Ultraleap and MediaPipe hand data from the Android client back to the Unreal server to interact with the media being streamed back.

- Developed a prototype Shotgrid config that uses version control instead of a centralized studio network drive.

Software Engineer   **Pure Imagination Studios**   **2016–2023**
Sherman Oaks, CA

- Wrote and maintained the Unreal frameworks that would drive interactivity and game state of a majority of dark rides and attractions while working here.

- Wrote systems to convert real world shot location and direction vectors that were calculated when a screen was hit into Unreal's coordinate system in a way that real world space and Unreal's virtual space would line up.

- Built systems inside Unreal for off-axis camera projection via direct modification of the engine source and also through nDisplay.

- Integrated third party libraries and software into Unreal by writing modules and plugins that acted as wrappers to allow native c and c++ code to interact directly with Unreal.

- Helped write gameplay code and implemented animation blueprints for a majority of rides and attractions.

- Developed tools for creating Nvidia Hairworks assets in Maya and bringing them into Unreal.

- Created a system using Nvidia Ansel to generate high fidelity 360 stereoscopic videos inside Unreal.

- Developed both Unreal and Unity standalone attractions for museums, exhibits, and amusement parks.

- Helped write the automation and DDC tools for their Shotgrid pipeline.

- Developed attractions using image processing technologies like OpenCV and Stereolabs Zed cameras to track both thrown objects and human poses to drive gameplay inside Unreal.

Cofounder   **AntiCode**   **2016–2023**
Phoenix, AZ

- Co-founded a company that developed an isomorphic web application specifically for aiding programmers with their debugging issues

- Developed a full stack application with a React frontend and a Django REST API backend for some reason.

- Built a bug bounty system for the site that would take advantage of chained Paypal transactions to provide a revenue stream to support the website.

Research Assistant   **WPI**   **2014–2014**
Worcester, MA

- Worked on building a virtual reality oil rig simulator system

- Modified the C4 engine to include haptic rumble feedback via ultra low frequency audio for more immersive simulation

Education and Certifications

- **B.Sc. Interactive Media & Game Development,** WorcesterPolytechnic Institute, Massachusetts.   **2011–2015**

Technologies and Languages

- Languages: C++, C, C#, Java, Javascript, Python
- Technologies: Unreal, Maya, Unity, Git, Perforce, nDisplay, Shotgrid, Android Studio, Stereolabs, OpenCV

Projects

- **Android Thin Client** Helped develop an Android thin client that would make use of Unreal's pixel streaming feature to stream gameplay to the android device from an Unreal instance running on a linux server. Built systems to integrate Google's MediaPipe, Ultraleap's hand tracking, and ORB SLAM3 into Android to allow for the device to provide user inputs to the Unreal instance directly from the Android thin client.
- **Villain Con Minion Blast** Built a system for synchronizing nDisplay events across nodes, and also built a system to deproject from real world screen space to 3D game space that would account for curved screens and the nDisplay pixel shaders being used.

- **Volkanu - Quest for the Golden Idol -** Wrote the underlying framework that the game was built upon along with a decent amount of the gameplay. Also built a system for off-axis camera projection that doesn't require modification to Unreal's source via nDisplay.
- **JUSTICE LEAGUE: Battle for Metropolis** Implemented off-axis matrix projection via an Unreal source build driven by data exported from a recreation of the ride track in Maya. Created a system for dynamically scaling projection screens when attempting to project them onto moving targets. Also worked on general gameplay and built tools that I used for tuning the media aspect of the ride on site.
- **Reese's Cupfusion** Wrote and integrated everything besides lighting and materials for the project. Tested out implementing Nvidia-Flex for fluid simulation and installed on site.
- **Critter Cam** helped develop an Unreal puppeteering system where an actor would control the movements of a virtual panda, and all facial data would be captured from the actor and mapped onto said virtual panda allowing them to talk as the panda. Created the fur for the panda via Nvidia Hairworks and trained staff on how to build real time remapping profiles and how to operate the project.
- **Dinosphere** Developed a system for scanning colored in pictures of dinosaurs and applying said drawing to the UVs of animated 2D dinosaurs that would roam the screen of the attraction.
- **Batman Bat-Tech Edition mobile** Developed an atlas tool for Maya to generate a VRay lighting atlas that could be applied to a secondary UV channel of the meshes to get around Unity lightmap limitations.