

# Jacob McPeak

## Software Engineer

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LANGUAGES	GAME DEV	COMP SCI
C / C++ / C# NodeJS SQL (Proficient) Python (Proficient) Lua (Familiar)	Unity Visual Studio WPF, Qt, ImGui Mono C# Runtime Network State Replication	Custom C++ Engines Perforce and Git Nintendo SDEV AWS and Azure Doxygen
		Data Oriented Design 3D Mathematics Data Structures Algorithm Analysis Domain Specific Languages

## PROFESSIONAL EXPERIENCE

### SOFTWARE ENGINEER (GAMES) AT MAGIC LEAP STUDIOS

MAY 2019 - PRESENT

- Shipped first party applications on the Magic Leap One, often working with unreleased technology.
- Established Studio's network engineering best practices and the software engineering culture surrounding it.
- Lead effort to evaluate Unity Networking plugins and shared that information company wide.

### GCP CONTRACTOR AT INNOVATIVE EDUCATION MANAGEMENT

JUNE 2018 - AUGUST 2018

- Coordinated integration between older bespoke student record system and new Google administration technologies to allow students and educators to easily interact using the Google suite.
- Led code review meetings to enforce security standards and improve code maintainability.

### TEACHER AT PROJECT FUN

JULY 2017 - SEPTEMBER 2017

- Developed and executed lesson plans to teach approximately 30 8th-12th grade students Java.
- Delegated work between myself and 4 TAs to give students maximum 1-on-1 attention.
- Managed classroom behavior.

## PROJECTS

### GAME NETWORKING SPECIALIST (PANCAKE PALS, ML STUDIOS)

MAY 2019 – MARCH 2020

- Researched industry standard physics networking approaches on how they perform on device. Used that information to develop low level replication code for a soft body physics object.
- Stitched together the soft body pancake in Unity to support pancake flips, flops, and stacks.
- Co-implemented UI systems with another engineer following the design specifications of our UI/UX designer.

### TECHNICAL LEAD AND NETWORK ENGINEER (THE PILGRIM, DIGIPEN)

JUNE 2018 – MAY 2019

- Developed game replay system in Unity which automatically uploads replays to a server where a designer can download and view to make the most of remote playtesting.
- Created level streaming tools that enabled designers to iterate on individual gameplay segments that were later "stitched" together with the rest of the level and other background objects placed by artists.
- Designed server infrastructure to support a drop-in drop-out multiplayer game using Client/Server topology.
- Implemented state replication on a Unity client over UDP with a custom Ubuntu C++ server hosted by AWS.

### TECHNICAL LEAD (OUTBREAK, INDEPENDENT)

NOVEMBER 2016 – MAY 2019

- Redesigned feature development process to better parallelize work with growing technical team and to improve communications between the technical team and the ARG design team.
- Directed website redesign to bring the web app up to current industry standards using NodeJS and Express.
- Organized feature development between 3 developers to ship a product in a 2 week development window.

## TECHNICAL LEAD (DRAGON'S RUN, DARING HERO LLC)

JUNE 2017 - MARCH 2019

- Developed core gameplay loop and networking integration for an online mobile resource management game using RFID readers attached to android tablets via BlueTooth.
- Managed technical communication with company who makes the RFID hardware and server software.

## NETWORK ENGINEER (SWITCH JOUSTING, INDEPENDENT)

SEPTEMBER 2018 - OCTOBER 2018

- Created shared Unity physics simulation over UDP playable with 150ms latency and 5% packet loss by leveraging a client-side predictive physics simulation with corrections coming from an authoritative client.
- Supported cross platform network play between Nintendo Switch and PC.

## ENGINE AND TOOLS PROGRAMMER (OUTLIER, DIGIPEN)

JUNE 2017 - APRIL 2018

- Created a level editor in C++/C# with WPF to enable designers and artists to create content in engine.
- Integrated the Mono to allow designers to write gameplay scripts in C# which improved iteration time.
- Wrote python scripts that used clang to create an AST used to generate reflection code.
- Developed pipeline to automatically generate Recast NavMeshes using PhysX information from game levels.

## TECHNICAL LEAD AND PRODUCER (SYNTHALAXY, DIGIPEN)

JUNE 2016 - APRIL 2017

- Created a level creation toolset in Qt to be used by 2 designers to create 20 game levels.
- Programmed a Python script to help create boilerplate code for glsl shader integration.
- Designed a custom type introspection system in C++ to automatically serialize C++ types and extend editor tools.
- Made Executive decisions on technical problems and organized technical tasks for 5 engineers.

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## EDUCATION

### DIGIPEN INSTITUTE OF TECHNOLOGY

GRADUATED APRIL 2019

- Bachelors of Science in Computer Science and Real Time Interactive Simulation.