

# Matthew R. Hall

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## EDUCATION

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**The Ohio State University** – *BS, Computer Science* *class of 2022*  
*Specialization in Computer Graphics and Game Design, Minor in Visual Arts* *GPA: 3.464*

## WORK EXPERIENCE

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**Blubrry Podcasting** [blubrry.com](#) Columbus, OH  
*Software Engineering Intern* *May to August 2020*

- Designed and implemented the push notifications service for Blubrry’s flagship mobile app using the Firebase Cloud Messaging SDK. Implemented a batching system to send notifications with the minimal number of API requests. Designed production database tables to store device tokens and notification settings. Implemented REST (Representational State Transfer) API endpoints backed by complex SQL queries with multiple security levels including SSO and OAuth 2.0.
- Worked in a team of developers using Scrum and Agile project management techniques to delegate issues and Scrum User Stories. Used Jira to plan and complete sprints and Git to collaborate on the codebase.

**WIZAGA / ACCAD** [wizaga.com](#) / [accad.osu.edu](#) Columbus, OH  
*Undergraduate Researcher — The Ohio State University* *August 2019 to Present*

- Worked with a team of faculty and graduate students at Ohio State’s Advanced Computing Center for the Arts and Design (ACCAD) to develop a room-scale, multiplayer Augmented Reality (AR) experience in Unity using the Vuforia SDK. Created 3D model of a bird with rig that supported folding wings and flight cycles.
- Wrote shaders for particle-system clouds and other VFX effects. Implemented random motion cycle for non-player characters. Scripted blendshape and rig drivers for complicated 3D models.

**Air Force Research Lab** Dayton, OH  
*Research Intern, Contractor, Wright Scholars — Wright-Patterson AFB, RQOI* *Summers 2018 and 2019*

- 2019: Provided test verification through validation, simulation, and system identification techniques for the hybrid drive train of an autonomous aircraft. Validated three-phase Delta and Wye AC motors to improve system integrity on a Simulink model of a hybrid gas-electric drone system.
- 2018: Developed MATLAB thermal controls models for fuel-cooled avionics systems. Constructed a fault detection and mitigation finite state machine in Simulink, compiled for dSPACE hardware, to provide automated isolation of fluid flow and pressure faults.

## PROJECTS

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**Static Site Generator** [github.com/mh15/neanderthal](#) *June to July 2020*

Designed and implemented Neanderthal, a static site generator inspired by Hugo and Jekyll. Neanderthal supports incremental builds, blog posts with multiple authors, tags, and custom themes and templates. The project is implemented in TypeScript and is used in production by [matthall.codes](#), my personal website.

**CSE 3541 Final Project - Maze Generation** [github.com/mh15/CSE3541-final-project](#) *April 2020*

A procedurally-generated 3D maze game with custom 3D assets and entirely original codebase made using Unity and Blender. This was the winning submission for the final project contest in CSE 3541, Spring 2020.

## COMPUTER LANGUAGES AND SOFTWARE

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Tech stacks for web apps and interactive technologies:

- The modern web, including TypeScript, ES6+, React, Vue, and backends built in NodeJS, PHP, and Golang driven by MySQL. REST API creation and consumption.
- Game development and computer graphics, including content-authoring tools such as Maya, Blender, and the Adobe Suite, for game engines such as Unity with C#.
- Other computing tools such as Python, Java, C/C++, Git, Linux, and MATLAB/Simulink.

## INTERESTS

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Photography, climbing, running, 3D printers