Matthew R. Hall

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Objective

Motivated Computer Science undergraduate specializing in full stack development and interactive technologies. Skilled at delivering features quickly and integrating technologies reliably. Seeking a full-time position in 2022.

Education

The Ohio State University – *BS, Computer Science* *class of 2022*
Specialization in Computer Graphics, Minor in Visual Arts *GPA: 3.4/4.0*

Relevant Coursework: Parallel Computing, Realtime Rendering, Databases, Interactive Systems, Artificial Intelligence, Operating Systems, Computational Geometry.

Work Experience

Capital One *Software Engineering Intern* *Summer 2021* McLean, VA

- Developed a full-text document search service API and user interface. Allowed users to retrieve documents based on filters or full text. System stores thousands of Word and PDF documents. Built with CI/CD best practices.
- Created the frontend UI in React. Coordinated the translation of frontend and backend codebases to Typescript.
- Implemented backend in AWS Lambda functions with Elasticsearch and NoSQL stores behind a SQS queue. Led the creation of a "backend-for-frontend" service bridging our React frontend with the AWS services.
- Collaborated with fellow interns to plan sprints and guide the development of this search tool. Presented our progress frequently to product owners and collected feedback. Developed skills for operating in a cloud native environment.

Blubrry Podcasting *Software Engineering Intern* *Summer 2020* Columbus, OH

- Designed and implemented the push notifications service for Blubrry's mobile app using the Firebase Cloud Messaging SDK. Engineered a batching system to send notifications with a minimal number of API requests. Authored production database tables to store device tokens and notification settings.
- Introduced REST API endpoints backed by complex SQL queries with multiple security levels including SSO and OAuth 2.0. in a team of developers using Scrum and Agile project management techniques in Jira.

Air Force Research Lab *Intern, Wright Scholars — Wright-Patterson AFB* *2018 & 19* Dayton, OH

- 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: Researched MATLAB thermal controls models for fuel-cooled avionics systems. Constructed a fault mitigation finite state machine in Simulink to automate isolation of flow and pressure faults. Compiled for dSPACE hardware.

Projects

The Woods wizaga.com/thewoods.html *Autumn 2019 to Summer 2021*

- Developed a room-scale, multiplayer Augmented Reality (AR) eperience with a team of faculty and students at Ohio State's Advanced Computing Center for the Arts and Design (ACCAD).
- Wrote shaders for particle-system clouds, PBR materials, and other VFX effects. Scripted NPC character motion cycles and rigged drivers for 3D models in Unity.
- Accepted to SIGGRAPH 2021, Currents New Media, and other international proceedings.

Programming Language Project github.com/mh15/imp *January 2021 to Present*

- Implementing a statically typed general-purpose programming language that compiles to the JVM.
- Supports first-class functions, method overloading, function closures, custom types and type inference.

Skills and Interests

Languages: Typescript, Javascript, React, Java, C#, Python, WebGL/OpenGL, SQL, NoSQL, GLSL, C, Go,
Software: Unity, Git, AWS, Docker, CI/CD, Autodesk Maya, Blender, Abode Suite
Interests: Climbing, Photography, Interactive Technology, UI/UX, 3D Printers