Jonathan Porter Squires

Resume

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WORK EXPERIENCE

FALL 2025 - CURRENT (PT)

UGA HeRo Lab
Graduate Research Assistant

Acting as researcher for poultry house simulation. Software **simulates broiler behaviors** in commercial poultry houses, mimicking expected time budgets. **Collected data** at commercial farms for **computer vision** and qualitative behavior analysis. Used **Unity DOTS**, custom particle physics, and other optimizations to simulate 20k chickens at 60fps using existing techniques and developed **behavior tree** techniques.

FALL 2023 - FALL 2024 (PT)

UGA THINC Lab
Graduate Research Assistant

Researcher for **video anomaly detection** using computer vision and as a **full stack developer** for the **web application** to assist with research. Created & deployed the wep app using **NextJS (React)** frontend and **Django** backend. Designed the database and website architecture. Researched methods to compare VAD datasets with each other.

SPRING 2022 - SPRING 2023 (PT)

UGA Disruptive Geospatial Technologies Lab
Student Developer

Spring 2022, created Athens historical building models in **Blender**. Used drone-collected **structure from motion** reference models when **modeling the buildings in Blender**. Next two semesters, contributed to AI project; develop a **real time** AI model utilizing **drone imaging** to detect and assist with time-sensitive crop health and conditions.

SUMMER 2022 (FT)

National Cash Register
Software Intern

Added a user analytics software (FullStory) in **ASP.NET framework** application using C# and JS (Ext.JS & React). Changes were **pushed to production**. Drafted migration plan to support a **SSO authentication & authorization** service. Used **SCRUM planning** for development.

EDUCATION

FALL 2019 - SPRING 2023 — **Bachelor Degree Computer Science**
MAGNA CUM LAUDE - GPA 3.84
University of Georgia (UGA)

FALL 2023 - SPRING 2025 — **Master Degree Computer Science**
GPA 3.91
University of Georgia (UGA)

FALL 2025 - SPRING 2028 — **PhD Computer Science**
PREDICTED SPRING 2028 COMPLETION
University of Georgia (UGA)

COMPUTER SKILLS

LANGUAGES	Java, C#, Python, SQL, TypeScript, Javascript, HTML, C++, C
ENVIRONMENTS	VSCode, Visual Studio, JetBrains IDEs, GitHub, Unix
SOFTWARE	Git, Latex, Jupyter Notebook, Google colab, Anaconda, Unity, Blender, Jira, Krita, Inkscape

AUTODIDACTIC PROJECTS

Team Sorting Linear Program

For my Master's Project, I created a **linear program** that sorts members into teams based on team preferences and roles (**Team Partitioning Problem**). The program ensures that all teams meet minimum requirements in roles while sorting members into most prefered teams. My program sorted teams at UGA's Game Builder's Club, placing 52 members into 5 teams. My solution found great success, assigning 49 members preference one and 3 members preference two.

Implementing GPU-Accelerated Radix Sort

I implemented a **parallelized radix sort** algorithm using **CUDA C** and compared it to the state of the art techniques, showing improvements in some input sizes.

Project Ricochet War

Using Unity game engine, I, as part of a team, created a 2D platform fighting game. I used **shader graphs**, many software design patterns, Unity's **animator & animations**, **VFX**, Unity's **input system**, **scriptable objects**, and other Unity-related game dev tools.

Minecraft Modding

I developed a large Minecraft mod that added several elements to enhance different aspects of the game. Through this, I employed and learned design patterns and frameworks, such as **server-client synchronization**, **singleton registries**, **client interaction handlers**, and the **Mixin code injector**.

AUTODIDACTIC MASH-UPS

- Unity Packages
- Macros in WoW
- A* Pathfinding
- Board Game Designs
- Game Builder's Club
- Batch File Code Compilation
- Hosted Minecraft Server
- Board Game Prototypes

PRESENTATIONS

SPRING 2025

UGA School of Computing Research Day
Partitioning Members into Project Teams

Poster presentation at the UGA School of Computing Research Day. Presented my research on the Team Partitioning Problem for my Master's Project.

FALL 2022

DiGTL - UGA
Integration of AI Capabilities into a Drone Platform

Poster presentation at the AI Everywhere (All at Once) meeting, held by the AI Institute at UGA. Presented the current research in the software component, highlighting the focus in real-time predictions of diseased/infested crops by an AI-enabled computer mounted on a drone.

COURSES

- Algorithms
- Approximation Algorithms
- Computer Vision
- Artificial Intelligence
- Computer Graphics
- Data Mining
- Operating Systems
- Database Management
- Multi-robot Systems
- Deductive Systems
- Combinatorics
- CUDA C Programming