Thomas Alder

Proactive, design centered developer motivated to create beautiful applications with a hunger to increase knowledge in well-designed user interfaces and professional development of websites and apps. Current computer science junior at the University of Colorado – Boulder.

Contact

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Skills

Programming Languages/ Frameworks

C/C++/C#	Pug/Jade
Java	HTML
JavaScript	CSS
Kotlin	Lua
Python	Angular
Scala	NodeJS
SQL	

Programs

Unity	ZBrush
Blender	Ubuntu
Octane Render	Windows
	macOS
Adobe Suite	Unreal
Qt	AWS
Mixamo	

Education

University of Colorado - Boulder — Boulder, CO
Bachelor of Science in Computer Science — Graduation Date: **May 2020**
History Minor — GPA: 3.658

Relevant Coursework

CSCI 3302 - Artificial Intelligence — Fall 2019
• Discussed the varying forms of AI, from search and genetic algorithms to machine and deep learning. Implemented many algorithms such as DFS, BFS, hopfield networks, regression, and neural networks using frameworks like sci-kit learn, keras and TensorFlow.

CSCI 4622 - Machine Learning — Fall 2019
• Analyzed supervised, unsupervised, and semi-supervised machine learning algorithms including regression and classification tasks, shallow and deep neural networks implementing many of them such as Perceptron, Decision Trees, Random Forests, SVM, and neural networks in Python.

CSCI 4448 - Object Orientated Analysis and Design — Fall 2019
• Developed an understanding of the design behind a true object orientated system. Studied various object orientated principles applied to in a C++ semester project.

CSCI 4273 - Network Systems — Spring 2020
• Currently studying the layers in a network protocol. Applying that understanding by developing simple applications like a reliable UDP implementation and basic web server in C.

Experience

Computer Graphics Intern — 05/19-10/19
CableLabs — Louisville, CO
• Helped in the development of a specification regarding the standardization of 3D volumetric assets. Fact checked as well as developed appendices regarding animation and Lua audio scripts.
• Provided a greater understanding of VR/AR, 3D formats and concepts such as FBX, ORBX, rendering, and raytracing.
• Worked on a collaborative demonstration with Charter for a specification for a Display Summit being held at CableLabs in early October. The demo revolved around the idea of the progression of movie theaters over time. Leveraging pre-made 3D content, I brought the assets into Blender for clean-up and rendered them through a physically based renderer, Octane Renderer, to achieve photorealism in a synthetic 3D scene for use on multiple displays including 3DoF/6DoF VR. Work also included animating humanoid figures and lighting to create an alive, and visually stimulating environment.
• Gained exposure to workflows involving numerous, large companies by sitting and participating in remote and in-person working group meetings.

Video Editing/3D Modelling Intern — 08/17-01/18
Software Intern — 05/18-09/18
Reality Garage — Boulder, CO
• 3D scanned people, cleaned up resultant model with ZBrush before animating through Adobe Mixamo and Unity developing a workflow of integrating representations of people in VR.
• Designed and developed a VR casting system using UDP between the Android based Oculus Go and Windows computer within Unity/C# successfully collaborating with a fellow intern.
• Built an accompanying admin web application using Express and NodeJS acting as a control page for numerous VR kiosks in museums and businesses. Working alongside another intern, we used HTTP requests from a Unity-based C# client to communicate with a NodeJS server on AWS continuously exchanging JSONs with updated information regarding the kiosks.
• Spent time within their VR arcade as a VR guide helping people from numerous backgrounds understand and experience VR.

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Projects

Senior Capstone Mapping Project   9/19-Present
• Currently working on a project which demonstrates my overall development as a computer science student at CU. Working with the CU EBIO department and the Boulder Apple Tree Project we are developing a web app to map heritage apple trees throughout Boulder. As tech lead in a team of eight, I led discussions in the overall software stack which includes a Postgres database backend accessed with a serverless AWS API used by an Angular front end. I am presently focused on developing the front-end using Leaflet for mapping and HTTP requests for the apple data itself.

Big Data Project   1/20-Present
• For ATLS 4214, currently working in a team of four to create a project focused on predicting soccer results and comparing bookmaker's odds to our model. Designing a stack which allows for a large dataset of soccer data to be queried gracefully and presented in an interpretable manner using React.

Object Orientated Design Project   12/19
• For CSCI 4448 Object Orientated Design and Analysis, me along with a team of three created a cloud based document storage application called DropBucket on GCP which synced everytime a document was uploaded, modified or deleted. I worked on the front-end using Qt and C++ with a focus of using appropriate object orientated design principles and patterns.

Android App Development   10/18-12/18
• For a CSCI 3302 Robotics final project, myself and a team of three other students created an Android App built with Android Studio and Kotlin. Using an Arduino based Sparki robot, we created the "Mr Sparkclean" app which communicated via Bluetooth to the robot to navigate around a makeshift poster board "room" and pick up objects, dropping them off at bins along the side of the room. Worked on UI, Bluetooth communication and implementation of Dijsktra path planning in Kotlin.

Leadership Experience   08/18-12/18
• Was team leader for a team of three in an WRTG 3035 project. Drafted and proposed an idea to improve CU's student portal which led to me gaining a group of two other students. I set up appointments with the clients and stakeholders of the USE project at CU, who we created student surveys on the current student portal, graphics, and case studies for regarding fellow Universities student portals for. In addition, created a proposal feature mock-up of a CU Boulder Today card and compiled the final consulting report with Adobe InDesign.

HackCU V   02/19
• On a team of three, we created a data visualization website using NodeJS and D3JS using StockX's 2019 data contest Nike vs Adidas data set. Worked on the front-end US state map and line graph visualizations.