Alexander Jaeger

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Education

M.S. Information Science — Little Rock, Arkansas
University of Arkansas At Little Rock — *Expected May 2019*

- Advisor: Dr. Carolina Cruz
  Relevant courses: Information Visualization, Advanced Computer Graphics, Machine Learning

B.S. Computer Science — Little Rock, Arkansas
University of Arkansas At Little Rock — *December 2016*

- Relevant courses: Fundamentals of Virtual Reality, Interactive Computer Graphics, Linear Algebra

High School Diploma — Hot Springs, Arkansas
Arkansas School for Mathematics, Sciences, and the Arts — *May 2014*

Work Experience

Intel Corporation — Santa Clara, California
Advanced Raytracing Group (ART) Intern — *June 2018 - Aug. 2018*

- Learned how to use C for Media (Intel's GPU programming language for compute)
- Implemented Radix Sort in C for Media and benchmarked it against implementations in OpenCL.

  This implementation is based on the paper "Revisiting sorting for GPU stream architectures" by Merrill, et Al
- Began implementation of BVH Tree Builder using the Radix sorter and Morton Codes in C for Media
- Worked with the C for Media compiler team by providing unit testable GPU kernels for their regression suite.

Halliburton Landmark — Houston, Texas
Summer Computer Graphics Intern — *June 2017 - Aug. 2017*

- Brought engineering models into a shared AR / VR space where users can see each other and have limited interaction support
- Used Unity3D to produce a single project for the Microsoft Hololens, HTC Vive, Android and Desktop clients.
- Worked on a team of 6-7 people and used Git to manage source code.

UA Little Rock Emerging Analytics Center — Little Rock, AR
Graduate Assistant — *September 2014 - Present*

- Used Unity3D, C#, C++ and OpenGL to produce Virtual and Augmented Reality Applications
- Collaborated with team members to complete projects
- Lead Demonstations and provided information about current projects to potential clients

Projects

CAVE In A Box, Master's Thesis
Emerging Analytics Center, UA Little Rock — *Feburary 2016 - Present*

- Designed a CAVE that is focused on mobility and low barrier of entry

- Designed supplemental software in Unity3D and Python to allow other developers to build applications for this CAVE
- Used Autodesk Inventor to design the structure and then built it by hand in the local workshop.
- Presented at the 2016 Arkansas EPSCoR/IDeA Foundation Conference

Haptic Force Feedback
Emerging Analytics Center, UA Little Rock *April 2015 - August 2015*

- Developed a physics simulation in OpenGL and C++ to test a Haption 6DOF Robotic Arm.
- Designed a library and supplemental training materials to make it easier for other developers to learn.

Virtual Reality Touch Table
Emerging Analytics Center, UA Little Rock *May 2015 - October 2015*

- Designed a structure to hold 2 consumer lcd touch screens to create a Virtual Reality experience.
- Shown at the 2015 Supercomputing Conference in Austin, Texas

Stair Climbing Robot, High School Thesis
Arkansas School for Mathematics, Sciences and the Arts *January 2013 - Feburary 2014*

- Designed a Stair Climbing Robot to aid personnel as my end of term project (thesis). Presented at the 2014 FIRM Competition. I recieved second place in the Mechanical Engineering portion.
- Worked with Carl Frank and Nicholas Seward to design this robot in Autodesk Inventor. Used a workshop to construct using wood and 3D printing. Used a Raspberry Pi and Arduino to drive the robot. The Raspberry Pi handled communication and preiphials. The Arduino handled the drivetrain and recieved commands from the Raspberry Pi.

Sign Construction, Eagle Scout Project
March 2014 - June 2014

- Volunteer work for the local Veteran's Memorial Hall exceeding 100 man hours.
- Designed a sign for their newly constructed building using Autodesk Inventor
- Held design meetings with beneficiarys to confirm designs and prototypes
- Orchestrated volunteers and materials remotely in order to complete project.

Conference Proceedings

Fred's Happy Factory DOI: 10.2312/egve.20161454
ICAT-EGVE 2016 - Posters and Demos *October 2016*

- Coauthored with Aaron Baggett, Benjamin Lewis, and Isaac Wardlaw
- Designed as our final project for the Intro to Virtual Reality course taught by Dr. Carolina Cruz-Niera
- Users acted as a small helper robot named FRED as he tries to cheer his coworkers up around the office.

Unity - Unity Integration of OpenCV and Vuforia for Augmented Reality Page 11
IEEE Conference on Virtual Reality - Tutorial *March 2015*

- Coauthored with Dylan Johnson, Connor Taffe, and Brent Blasingame
- Introduced new developers to the fundamentals of Unity and taught how to combine OpenCV and Vuforia to create a more complex Augmented Reality application.
- Combining opencv and vuforia in a single application can allow for post rendering and multiple camera usage.

Skills

Languages: C++, Python, C#, Currently Learning C for Media and CUDA

Operating Systems: Linux (Debian, Arch), Windows 7/8/10

Toolkits: Unity3D, OpenGL, Visual Studio, Git, Exposure to OpenCV and Tensorflow, Currently Learning Vulkan

Hardware: HTC Vive, Microsoft Hololens, Oculus Rift, CAVEs

Miscellaneous: strong verbal and written communication skills, excellent troubleshooting and debugging skills, exceptional problem solving skills, good teams skills