Yousif A. Aldolaijan

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Education

Master of Science in Computer Science - 3.95 Cumulative GPA **August 2019 - December 2020 (Expected)**

King Abdullah University of Science and Technology, Thuwal, Saudi Arabia (KAUST)

- Coursework: Distributed Systems, Scientific Visualization, Special Topics in Visualization, Artificial Intelligence and Machine Learning, Computer Graphics, Computer Networks.

Bachelor of Science in Computer Science **August 2015 - December 2018**

University of Southern California, Los Angeles, CA (USC)

Internships and Research

Molecular Dome (Moldome) - Nanographics Internship **Summer 2020**

- Finalized the implementation of a molecular visualization framework to be used in projection domes using C++ and the SGCT library under the guidance of Dr. Peter Mindek and Dr. Ivan Viola.
- Implemented user-parameterized camera controls and animations for scene traversal.
- Implemented multiple post-processing effects and the labeling of thousands of objects within a scene.
- Implemented a proof-of-concept molecular visualization framework using WebAssembly and WebGPU.

Multiscale Molecular Visualization (Marion) - Nanovisualization Lab at KAUST **January 2020 - May 2020**

- Converted a visualization tool used to render multiscale molecular data from an OpenGL to Vulkan.
- Programmed using C++ and GLSL under the guidance of Dr. Ivan Viola.

Google Software Engineering, Tools and Infrastructure Internship **Summer 2018**

- Generating and enforcing access control lists that restrict remote procedure calls within an integration testing framework. This feature allows developers to easily verify if their services are hermetic.
- Programmed with Python, internal frameworks and configuration languages under the guidance of Robert Dryke.

Distributed Systems Experimentation Framework (DSEF) - Networked Systems Lab at USC **Summer 2016, 2017**

- Developed DSEF which easily runs experiments on different types of distributed systems while measuring the throughput, latency, and the performance of the machines running the distributed system.
- Programmed using Python and Jupyter Notebook (IPython Notebook) under the guidance of Dr. Wyatt Lloyd.

Projects

Stock Price Prediction using Machine Learning **August 2019 - December 2019**

- Implemented a stock price predicting application using time-series forecasting models using Python.

Software Rasterizer and Raytracer **August 2019 - December 2019**

- Developed a software-based C++ rasterizing and ray-tracing renderer that implements: Transformations, Blinn-Phong Shading, Texture Mapping, Soft Shadows, Anti-aliasing, and Glossy Reflections.

iTutorU - Tutoring iPhone App **August 2018 - December 2018**

- Maintained and modified a student-tutor matching React-Native app to improve sign-up, administrative control, and payments. Backend implemented using Firebase and Stripe.

Controls Lead - USC Hyperloop Design Team **August 2016 - May 2018**

- Lead the controls team to develop the autonomous control system of the USC hyperloop pod.
- Control logic was programmed in C on a Texas Instruments MCU. Communications between subsystems were facilitated using CAN, TCP/IP, UDP, GPIO, and ADC.
- Built a Ground Control System to provide remote telemetry and emergency stop and manual control of the pod.

Organizations

Association for Computing Machinery (ACM), Member **September 2015 - Present**

Skills

- **Programming and Frameworks:** C++, C, Python, OpenGL, Vulkan, GLSL, WebGPU, Django, Qt, LabVIEW.
- **Tools:** Git, CMake, Bash, PostgreSQL, LaTeX.

Achievements and Awards

- **USC Viterbi School of Engineering Dean's List** **Spring 2016, 2017, Fall 2017**
- **KAUST Gifted Student Program (KGSP) Scholarship - Recipient** **May 2014 - December 2018**