

Yousif A. Aldolaijan

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Education

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

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

- Coursework: GPU and GPGPU Programming, Deep Learning for Visual Computing, Scientific Visualization, Artificial Intelligence and Machine Learning, Computer Graphics, Distributed Systems.

Bachelor of Science in Computer Science

August 2015 - December 2018

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

Internships and Research

oxDNA Acceleration using Multi-GPU - Nanovisualization Lab at KAUST

August - December 2020

- Accelerated oxDNA molecular dynamics simulations by 20% using multiple GPUs and NVLink.
- Programmed using C++ and CUDA under the guidance of Dr. Ivan Viola.

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.

Skills

- **Programming and Frameworks:** C++, C, Python, OpenGL, Vulkan, GLSL, WebGPU, CUDA, Django, Qt.
- **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