Alper Sahistan

PhD Student - University of Utah - School of Computing

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Formal Education/Degree

Ph.D. in Computing Science

School of Computing - University of Utah

August 2022 – ongoing

- Working on scientific visualization methods, including volume rendering, ray-tracing, woodcock tracking, large-scale visualization, and data compression.
- **Advisor:** Prof. Valerio Pascucci

M.Sc. in Computer Science

Department of Computer Engineering - Bilkent University

September 2019 – July 2022

- **CGPA:** 3.52/4.00
- **Current Research subjects:**
  - Direct Volume Visualization, Scientific visualization.
  - Collaborating with Dr. Ingo Wald
- **Past Researches:**
  - GPU accelerated Fast & Efficient Tetrahedral Mesh Traversal for Ray Tracing
- **Supported** (January 2019 - November 2020) by The Scientific and Technological Research Council of Turkey(TUBITAK)
- **Advisor:** Prof. Uğur Güdükbay

Bahcelor's Degree in Computer Engineering

Department of Computer Engineering - Bilkent University

August 2015 – June 2019

- **CGPA:** 3.40/4.00 (Honor Student)
- **Elective Research Course:** GPU accelerated Fast & Efficient Tetrahedral Mesh Traversal for **Ray Tracing**
- **Relevant Courses:** Computer Graphics, Parallel Computing, Algorithms I

Experience

Graduate Computing Summer Intern

Lawrance Livermore National Laboratory

June 2018 – August 2018

- Worked on profiling and optimizing floating-point compression library zfp.
- Started porting zfp to oneAPI SYCL.

Engine Programming Intern

TaleWorlds Entertainment

June 2018 – July 2018

- Implemented C++ tools for 3D model exporter. Tool allowed rigidbody and LOD meshes to be exported in desired format with a single console command or GUI control.
- Realised a C# script to simulate motion of waves for floating objects to enhance the scenes.

Relevant Projects

StrandStorm

2022 – 2022

https://github.com/alpers-git/StrandStorm

- Physics-based animation and Interactive Comp. Graphics courses conjoint project.
- Real-time hair rendering and physics.
- Kajiya-Kay and Marsehner et al. shading modes with deep opacity maps.
- Discrete elastic rods are used to simulate hair strands.

DeltaVis

2022 – 2022

https://github.com/alpers-git/deltaVis

- A delta-tracking-based volume renderer that uses RTX cores via NVIDIA OptiX.
- Visualization for Scientific Data Course Best Project Nominee.

RTX-umesh-renderer

2020 – 2021

- Experimental renderer for RTX accelerated direct volume rendering research.

Chroma Ray Tracer

2019 – 2020

github.com/chroma-works/Chroma-RayTracer

Blog:chroma-works.github.io/Chroma-RayTracer

- Fully realised **Path Tracer** with **OpenGL** raster preview renderer
- Features: texturing, normal maps, bump maps, BRDF materials, A. aliasing, HDR imaging and **(PBRT)BVH** acceleration.

Languages

English, Turkish
Spanish, German

References

References are available on request.