Hal Brynteson

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Education

Northern Illinois University, BS in Computer Science, GPA: 3.7 Aug 2018 – Dec 2022

- **Coursework:** Data Structures, Computer Architecture, Data Visualization, UNIX/Networking

University of Illinois Chicago, MS in Computer Science, GPA: 4.0 Jan 2023 – May 2026

- **Coursework:** Computer Graphics, Virtual Reality, Computer Vision, Visual Data Science, Parallel Processing, GIS/Remote Sensing

Experience

Graduate Assistant, University of Illinois Chicago – Chicago, IL Jan 2023 – Current

- Research novel methods in scientific visualization and computer graphics at the Electronic Visualization Laboratory.
- Develop immersive applications for virtual reality headsets and CAVEs.
- Communicate research and hardware capabilities to investors, sponsors, and administration.
- Provide teaching and technical support for the interdisciplinary Creative Coding class, CS 427.
- Mentor Undergraduate researchers through the Early Research Scholars Program(ERSP) program to develop a WebXR extension for the CAVE2.

Lead Instructor, RoboThink Chicagoland – La Grange, IL Nov 2024 – Current

- Facilitate after-school Robotics and Coding activities for K-6 students.
- Manage robotics hardware, laptops, and coding software for lessons.
- Create custom game design curriculum and documents for educational activities and planning using Microsoft Office Suite.

Graduate Research Aide, Argonne National Laboratory – Lemont, IL May 2023 – Aug 2025

- Developed advanced robotics simulation methods, resulting in a digital twin development methodology that leverages Virtual Reality (VR) on Windows and Linux.
- Created a robotic arm simulation and control interface in Unity3D and NVIDIA Isaac Sim.
- Lead team of Undergraduate researchers to increase development speed and foster research environment.
- Presented work at 5 academic conferences and research symposiums.

Research Aide, Argonne National Laboratory – Lemont, IL May 2020 – July 2022

- Collaborated with multidisciplinary team to develop scientific data visualization pipeline for 500+ GB data sets.
- Generated visualizations rendered using 100+ node High Performance Computing (HPC) resources.
- Developed interactive scientific data visualization in Virtual and Augmented Reality.

Student Worker, Northern Illinois University – DeKalb, IL Sep 2018 – May 2022

- Facilitated after-school STEM activities for 20+ at-risk middle school students in the community.
- Communicated with students and their families in a diverse community.
- Assisted students with homework and academic projects.
- Worked as support staff at STEM events and field trips, including NIU STEM Fest with 7500 attendees.
- Created crucial documents for educational activities and planning using Microsoft Office Suite.

Skills

Languages: C++, C, C#, Python, R, JavaScript, GLSL, HLSL, PHP, SQL
Graphics Libraries: OpenGL, WebGL, WebXR, Three.js, D3.js, Vulkan, The Visualization Toolkit(VTK)
Graphics Software: Unity, Unreal Engine, NVIDIA Omniverse, Maya, Blender, Houdini, V-Ray, ParaView, AutoCAD
Robotics: Robot Operating System (ROS/ROS2), NVIDIA Isaac Sim, Gazebo, MoveIt, Arduino
Other: MPI, OpenMP, CUDA, Docker
General Technology: Microsoft Office, 3D printing, Adobe Creative Suite, QGIS