






Ben Phillips

 jorbon.github.io
 github.com/Jorbon
 /in/ben-a-phillips

 ben.a.phillips@outlook.com
 913-213-8967

EDUCATION

Bachelor of Science in Engineering Physics (Digital Electronics Design)

- Minor in Film and Media, Honors, 3.99 GPA

University of Kansas

Expected May 2026

SKILLS

Languages: Rust, C / C++, JavaScript, Python, Java, VHDL, GLSL, WGLSL, CSL, Befunge, \LaTeX

Frameworks: Git, OpenGL, Linux, WGPU, WebAssembly, ReactJS, Wwise

Technical Skills: Math Modeling, Algorithms, Electronics Hardware, CAD, Sound Design, Lighting Design

WORK EXPERIENCE

Garmin Software Engineering Internship

Garmin

App Architecture, Tools Development, UX Systems, Physics Modeling, Python, Qt

May – August 2025

- Designed a new app architecture for a data analysis algorithm development tool with 10,000 line diff
- Added new graphical interaction systems, undo and redo, app session save files, an animation system, and data units tracking, while decreasing total code volume
- Refactored app repo to centralize state management, separate front and back ends, and use type checking
- Developed analytical models for fitness device sensor features, using Fourier analysis for PDE solutions

Quantum Computing Research

KUARQ Computing Research Group

Quantum Simulation, Algorithms, Embedded Development, Scientific Writing, CSL

May 2024 – May 2025

- Lead a project to develop quantum circuit simulators for Cerebras Wafer-Scale Engine (WSE)
- Implemented, profiled, and optimized algorithms for unique HPC architecture
- Collaborated with Cerebras and Argonne National Lab
- Created, published, and presented a poster as first author at the Supercomputing 2024 (SC24) conference

Condensed Matter Physics Research

KU Ovchinnikov Lab

Mathematical Model Development, Visualization Tools, Reverse Engineering, Rust

November 2022 – January 2024

- Developed a graphical visualization tool for Moiré patterns to predict material properties
- Reverse-engineered device communication protocols to plot and log data from an electron microscope

Cerner Software Engineering Internship

Cerner

Java, ReactJS, SQL

February - May 2021

- Implemented front-end and back-end for an internal database compliance checking application

PROJECTS

1st Place Winning HackKU Project

devpost.com/software/wikidungeon

Data Processing, Procedural Generation, Game Engine Development, Game Design, Python

April 2023

- Lead a team of three to win first prize in a 36-hour coding competition
- Created a rogue-like video game with content and layout generated by fetching Wikipedia pages and processing the HTML into procedural game levels connected by Wikipedia's link topology

Handheld Digital Camera - Capstone Project

[Project Poster Link]

Embedded Development, Firmware Development, Video Streams, Linux, C, V4L2, OpenGL ES

January - May 2025

- Software lead for system firmware and user interface on an embedded Linux environment
- Worked closely with hardware engineers to allocate SOC resources and maximize features under component, power, space, and budget constraints

Published Physics-Based Minecraft Mod

[CurseForge Link] | [Modrinth Link]

Applied Math, Open Source Collaboration, Software Publishing, Java

2021 – 2025

- Uses physics calculations with matrix transformations to add physically accurate camera movement to flight
- Continuously maintained and updated repo and binary releases, managing contributors' pull requests
- Over 140,000 downloads between publishing sites Curseforge and Modrinth

Embedded Camera Recon System

[Project Post Link]

Baremetal Programming, Hardware Interfaces, Real-Time Signal Processing, CAD, C++, Rust

January – August 2025

- Designed and constructed a multi-camera capture device running on baremetal C++
- Given 2cm radius, 5W power, and \$150 budget design constraints
- Used DMA (Direct Memory Access) and hardware configuration to capture and multiplex live video signals

Indie Game Engine

[Project Devlog Page]

Physics Simulation, Computer Graphics, Game Engine Development, OpenGL, WGPU, Rust

2024 – Present

- Designed, implemented, and optimized a robust collision algorithm for a unique voxel engine
- Established a powerful, multithreaded graphics system using procedural meshing and texture mapping to enable novel level geometries

Online Desktop Calendar Application

github.com/delster1/RockChalkRendezvous

App Architecture, REST APIs, Software Documentation, C++

February – May 2024

- Technical lead on team of 5, combining features from Outlook and When2Meet into a new app
- Designed client and server for REST API architecture, using serialization patterns for networking and storage

CONFERENCE PUBLICATIONS

Towards Scalable Quantum Simulation on Wafer-Scale Engines

SC24 Poster [Poster Link]

Phillips, Ben, Kneidel, D., Nobel, A., & El-Araby, E. (2024). The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC24), Atlanta, Georgia, USA, November 2024.

An Accurate and Scalable Multidimensional Quantum Solver for Partial Differential Equations

SC24 Poster

Chaudhary, M., Islam, I., Nobel, A., Kneidel, D., Jha, V., **Phillips, Ben**, El-Araby, K., Singh, M., & El-Araby, E. (2024). The International Conference for High Performance Computing, Networking, Storage, and Analysis (SC24), Atlanta, Georgia, USA, November 2024. (**Best Research Poster Award Finalist**)