

# Ben Phillips



jobon.github.io

github.com/Jorbon



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## EDUCATION

### Bachelor of Science in Engineering Physics (Computer Engineering)

- Minor in Film and Media, Honors student, Tau Beta Pi member, 3.99 GPA

University of Kansas  
Expected May 2026

## SKILLS

**Languages:** Rust, C / C++, Python, Java, Kotlin, JavaScript, VHDL, GLSL, x64 Assembly, WGSL, L<sup>A</sup>T<sub>E</sub>X

**Frameworks:** Git, OpenGL, Linux, Android Studio, Jetpack Compose, ReactJS, WebAssembly

**Technical Skills:** Algorithms, Computer Graphics, Electronics Hardware, Math Modeling

## WORK EXPERIENCE

### Garmin Software Engineering Internship

Software Architecture, Application Design, UX Systems, Physics Modeling, Python, Qt

Garmin  
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

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

KUARQ Computing Research Group  
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

Mathematical Model Development, Visualization Tools, Reverse Engineering, Rust

KU Ovchinnikov Lab  
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

## PROJECTS

### Handheld Camera Embedded Device

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

CLIC Capstone Project  
January - May 2025

- Created a consumer-grade handheld digital camera in a team of 4 for my capstone project
- Software lead for system firmware and user interface on an embedded Linux platform
- Effectively allocated IO resources to simultaneously support a display, SDIO storage, USB, and six buttons

### RESTful Calendar Coordination Platform

Application Architecture, REST APIs, Software Documentation, Software Testing, C++

Rock Chalk Rendezvous  
February - May 2024

- Technical lead on team of 5, combining features from Outlook and When2Meet into a new app
- Created and applied design standards for networking and storage to achieve a RESTful architecture
- Verified implementations using unit tests defined in design documents

### Low-Power Imaging Embedded System

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

GISP Recon Camera  
January - August 2025

- Designed and constructed a three-camera capture device running on baremetal C++
- Programmed DMA (Direct Memory Access) to efficiently capture and multiplex live video signals
- Created an operational device within strict space, power, and budget constraints

### Published Open-Source Minecraft Mod

Open-Source Collaboration, Software Maintenance, Applied Math, Java

Cool Elytra Roll  
2021 - Present

- Added physics-based camera rotation to flight using matrix transformations
- Continuously maintained codebase and released updates, managing contributors' pull requests
- Over 160,000 downloads across multiple publishing platforms

## CONFERENCE PUBLICATIONS

### Towards Scalable Quantum Simulation on Wafer-Scale Engines

SC24 Poster

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.