# Ben Phillips

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## EDUCATION

| 2022 - 2026 | **Engineering Physics B.S. in Digital Electronics Design** | **University of Kansas** |

- Current senior and honors student with 4.0 GPA
- Combination of computer engineering and physics programs
- Pursuing a minor in film and media studies

## SKILLS

| **General Technical Skills** | **Programming Language Proficiencies** |
|---|---|
| Math Modeling  Algorithms  Electronics Hardware  CAD | Rust  JavaScript  C/C++  GLSL  Java |
| Tools Development  Digital Media  Lighting Design | Python  VHDL  CSL  HTML  LaTeX |

## WORK EXPERIENCE

**May – Aug. 2025** — **Garmin Software Engineering Internship**

- Summer intern on the Biosensors and Algorithms team
- Developed a new architecture and UX for an internal tool used to analyze patterns in sensor data
- Refactored python codebase for type checking and explicit state management
- Contributed to analytical physics models using PDEs and signal processing theory

**May 2024 – May 2025** — **Quantum Computing Research**     **KU Advanced Reconfigurable and Quantum (KUARQ) Computing Group**

- Lead a project to develop quantum circuit emulators for Cerebras Wafer-Scale Engine (WSE)
- Researched and implemented practical algorithms on unique HPC architecture
- Collaborated with Cerebras and Argonne National Lab
- Created, published, and presented a poster at the Supercomputing 2024 (SC24) conference

**Nov. 2022 – Jan. 2024** — **2D Materials Research (Condensed Matter Physics)**     **KU Ovchinnikov Lab**

- Developed a Moiré pattern visualization tool and other software utilities for the lab
- Superuser for electrical measurement systems and stereo microscope
- Used a scanning electron microscope to perform EBL (electron beam lithography) on a weekly basis

**2021 – 2023** — **H. Roe Bartle Summer Camp Staff**     **Scouts BSA - Heart of America Council**

- Worked for 3 summers with children age 10+ and adult leaders
- Lead the escape room lodge in 2023 with two junior staff working under my leadership
- Designed, programmed, and ran lighting sequences for major campfire ceremonies

## PROJECTS

**Team Leadership & Software Engineering** — **1st Place HackKU 2023 Project: Wikidungeon**     devpost.com/software/wikidungeon

- Lead a team of three to win first place in the general track in this 36-hour competition
- Rogue-like game where players navigate Wikipedia by exploring a dungeon
- Relies on networking protocols, text parsing and filtering, probability modeling, procedural object placement, a physics engine, and a graphics pipeline
- Dungeon levels and links to other levels are generated algorithmically from Wiki page contents

**Applied Math & Open Source Collaboration** — **Published Physics-Based Minecraft Mod**     www.curseforge.com/minecraft/mc-mods/cool-elytra-roll

- Developed and published a mod to make camera movement more physically accurate
- Changes controls for the flight system using vector calculations and transformation matrices
- Maintained and updated the mod since 2021 with the support of other contributors
- Over 130,000 downloads across mod hosting sites Curseforge and Modrinth

**Application Architecture & Documentation** — **Rock Chalk Rendezvous - Desktop Calendar Application**     github.com/delster1/RockChalkRendezvous

- Technical lead in team of 5 for software engineering semester project
- Client-server REST API architecture combines features from Outlook and When2Meet
- Used data serialization design patterns for networking and storage

## CONFERENCE PUBLICATIONS

**SC24 Research Poster** — **Towards Scalable Quantum Simulation on Wafer-Scale Engines**     sc24.conference-program.com

- **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.