# Maanu Grover

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## Education

**University of Illinois at Urbana-Champaign** GPA: 3.58/4.00
*Computer Science; Bachelor's of Science* *August 2017 - May 2021*

- **Coursework**: Algorithms & Models of Computation, Data Structures, Advanced Distributed Systems, Applied Parallel Programming, System Programming, Database Systems, Computer Security, Languages & Compilers

## Programming Skills

**Languages**: C/C++, Python, Go, Bash, SQL, MongoDB **Tools/Technologies**: Git, Docker, AWS, Flask, ViM

## Work Experience

**Advanced Reactors and Fuel Cycles (ARFC)** Champaign, IL
*Undergraduate Research Assistant for Nuclear Engineering Department* *May 2019 - August 2019*

- Debugged a variety of issues in a Python nuclear engineering toolkit (PyNE) to ensure accurate functionality
- Re-implemented CircleCI integration tests to use most recent data sources to ensure library produces precise results, isolating test cases in different Docker containers with different optional dependencies
- Updated documentation to provide more accurate information on features, updates, and installation
- Overhauled Bash installation scripts and Dockerfiles for PyNE to reduce obsolete dependencies, update required dependencies to latest versions, reduce required permissions to install the library, and reorganize dependency package management

## Projects

**Bebop (Social Media Web Application)** *October 2020 - December 2020*

- Built a Python Flask application hosted on CPanel with one local database and one remote database on AWS
- Wrote functionality using embedded SQL queries for users to create account credentials and write posts
- Tracked post interactions in a MongoDB database to generate per-user statistics data visualization using Chart.js
- Prioritized relevant content by calculating word distance using the Word2Vec Python NLP library

**Ray Tracer** *January 2018 - May 2018*

- Implemented a physically-based renderer using principles of light optics including reflectivity and transparency, improving render quality using multi-sampling
- Utilized a tree-like bounding volume hierarchy data structure to optimize organization of geometric primitives, especially for rendering larger triangle mesh models, improving ray-intersection detection to logarithmic time

**Password Safe** *November 2017 - January 2018*

- Built a command-line interface password safe, ensuring confidentiality of data entries through SHA-256 hashing and Triple DES encryption, and utilizing a REPL to interact with user
- Utilized of Java archives to allow releases of project to be portable and minimize required dependencies

## Activities

**Illinois Rise Ultimate Frisbee** *August 2017 - Present*

- Manage club funds as program treasurer during 2020-2021 academic year for over 100 program members; responsibilities include selecting hotels when traveling, collecting fees for tournaments, managing jersey creation and procurement, and obtaining team equipment
- Captain B-team in Spring 2019 season to a 2nd place finish at Great Lakes Sectionals and facilitate team's growth by planning practices, designing drills, making roster decisions, and boosting morale at tournaments
- Train and compete with a team of like-minded individuals in the sport of ultimate frisbee

**Chair of GNU Linux User Group (ACM)** *August 2018 - December 2018*

- Special interest group focused on promoting use of Linux and development of free and open source software
- Involved in projects to provide tools for computer science, engineering students and other ACM members to use