

## BRIDGET KNIGHT

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### TECHNICAL SKILLS

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- **Languages:** Python, Java, Javascript, HTML, CSS, R, SQL, Bash, WDL, C (Arduino), Kotlin
- **Tools:** Visual Studio Code, Linux, Git, GitHub, Arduino, Raspberry Pi, FPGA, Docker
- **Cloud-Based Technologies:** Google Cloud Platform
- **Frameworks & Libraries:** Jinja, jQuery, Keras, MERN stack, Jetpack Compose, IPyWidgets
- Public speaking and technical writing

### EXPERIENCE

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#### BROAD INSTITUTE OF MIT AND HARVARD (3.5 years)

Cambridge, MA, USA

##### *Software Engineering Intern*

Jun 2021 - Present

- Developed a Jupyter Notebook search engine interface in Terra for filtering and analyzing genomic variant data
- Engineered automated HTML-based reports using Jinja and Python for data visualization in Terra, streamlining malaria sequencing data analysis for researchers worldwide
- Designed and developed a self-contained graphic user interface using R, Python, and SQL to store, query, and visualize genomic variant data, improving data accessibility for analysis

#### SALEM STATE UNIVERSITY (1 year)

Salem, MA, USA

##### *Undergraduate Researcher*

Sep 2022 – Present

- Implemented a robust Jupyter Notebook interface to conduct statistical analysis and visualize pre- and post-test data from high school physics classes, enhancing data-driven decision-making for instructional improvements
- Examined video data of physics classes to investigate the impact of computational modeling on student learning

### EDUCATION

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#### SALEM STATE UNIVERSITY

Salem, MA, USA

*B.S. in Computer Science, Intelligent Systems. Minors in Math and Physics. GPA: 4.0*

Sep 2020 - Dec 2024

- **Relevant Coursework:** Software Engineering, Machine Learning, Artificial Intelligence, Robotics
- **Activities and Societies:** Alpha Lambda Delta, Programming Club (VP), Datathon Club (VP), Commonwealth Honors Program, Upsilon Pi Epsilon
- **Honors and Awards:** Dean's List (2020 - 2024)

#### MARBLEHEAD HIGH SCHOOL

Marblehead, MA, USA

*GPA: 4.1*

Sep 2016 - Jun 2020

- **Activities and Societies:** National Math Honors Society, National Art Honors Society, Programming Club

### PROJECTS

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#### SPROUTLING

Salem, MA, USA

##### *Salem State University*

Presented Dec 2024

- Built Arduino-based automatic plant watering system which detects moisture and supplies water, implementing voltage regulation and circuit management techniques for efficient operation
- Developed an Android application in Kotlin and Jetpack Compose utilizing WiFi to control hardware remotely
- Compiled requirements in hardware diagrams, use case diagrams, system context diagrams, and data flow diagrams

### PUBLICATIONS & PRESENTATIONS

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#### AUTOMATIC SEQUENCING REPORTS - MALARIA

##### *Broad Institute of MIT and Harvard, Harvard School of Public Health*

Aug 2024

- Presented to leading immunology and infectious diseases researchers on dynamic generation of sequencing reports using Terra and WDL pipelines, highlighting the impact of automation on research efficiency and accessibility

#### DIGGING IN: Attending to students' epistemic emotions while computationally modeling in physics

##### *American Association of Physics Teachers, [doi.org/10.1119/perc.2024.pr.Conlin](https://doi.org/10.1119/perc.2024.pr.Conlin)*

Jul 2024

#### BIG DATA ANALYSIS USING PYTHON AND GITHUB

##### *Key Speaker at Women in Data Science Conference*

Jul 2020, Jul 2021

#### PLAGIARISM AND TEXT SIMILARITY DETECTION USING AI

##### *Presenter at Massachusetts Undergraduate Research Conference*

Sep 2020