BRIDGET KNIGHT

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Technical artist and concept illustrator integrating production-level software engineering with 3D visualization and illustration. B.S. in Computer Science, pursuing an M.F.A. in Illustration at SCAD. Experienced in shader development, procedural 3D pipelines, and data visualization, with a focus on making complex phenomena visually intuitive.

EDUCATION

M.F.A. in Illustration | GPA: 4.0 *Jan 2026 - Present*
Savannah College of Art and Design Online
- **Relevant Coursework:** Concepts & Composition, Digital Solutions for Illustrators

B.S. in Computer Science, Intelligent Systems | GPA: 3.94, Summa Cum Laude *May 2025*
Salem State University Salem, MA
- **Minors:** Mathematics & Physics
- **Relevant Coursework:** Computer Vision, Robotics, Astrophysics I & II, Modern Physics, Materials & Devices, Lab Automation

SKILLS

3D & Real-Time: Maya, Blender, node-based shading, volumetric rendering, procedural modeling
2D & Illustration: Adobe Suite (Ps, Ai, Br, Pr), Clip Studio Paint, Toon Boom, Figma, iterative design
Engineering & Scripting: Python, C++, JavaScript, R, SQL, HTML/CSS, Linux, Docker, Git/GitHub, Arduino, ArcGIS
Scientific & Technical: Computer vision, systems design (UML, SysML), scientific visualization, physical simulation

PORTFOLIO & PROJECTS

Physically-Based Black Hole Visualization · Blender, Maya, Python
- Engineered a gravitational lensing shader in Blender using node-based logic to simulate Schwarzschild light distortion, producing a scientifically grounded model of relativistic optics for real-time rendering contexts
- Developed accretion disk texturing and volumetric rendering pipeline for an astronomically accurate aesthetic
- Investigated cross-platform procedural workflows in Maya using MASH networks – visible at bridgetknight.com

Autonomous Vehicle Vision System · Python, C++, OpenCV2
- Programmed a fully autonomous PiCar navigating a custom-built track with real-world obstacles (stop signs, pedestrians, traffic lights) using computer vision algorithms, including lane detection, object classification, and Canny edge detection

Narrative Environment: Abandoned City Sci-Fi Concept Art · Blender, Photoshop, Clip Studio Paint
- Developed 3D blockouts and compositional thumbnails to validate scale and spatial logic; executed final digital painting with deliberate lighting and atmosphere to support environmental storytelling – visible at bridgetknight.com

Sproutling: Automated Plant Monitoring System · Arduino, C++, Android
- Engineered Arduino sensor array for real-time soil moisture monitoring and irrigation; companion Android app for remote control

PROFESSIONAL EXPERIENCE

Software Engineering Intern | Full-time *Jun 2021 - Jul 2025*
Broad Institute of MIT and Harvard Cambridge, MA
- Led end-to-end development of automated, reproducible sequencing report pipelines (Python, WDL) containerized in Linux, deployed to 30+ malaria researchers across two continents
- Designed and built scalable interactive data visualization dashboards (R Shiny, Python), translating high-throughput genomic data into interpretable interfaces; presented at Harvard School of Public Health and Women in Data Science (2021, 2022)

Research Assistant *Sep 2023 - Jun 2025*
Salem State University – In partnership with MIT Salem, MA
- Developed Jupyter Notebook pipelines for statistical analysis and visualization of physics education data from 100+ high school students; findings contributed to a peer-reviewed publication
- Built interactive computational physics models, translating scientific concepts into visual, hands-on educational experiences
- Presented research at the 2024 Physics Education Research Conference (PERC) and American Association of Physics Teachers (AAPT) national conference in Boston, MA

HONORS & PUBLICATIONS

- **Scholarships:** SCAD Achievement Honors & Student Recognition · **Societies:** Alpha Lambda Delta; Upsilon Pi Epsilon (CS)
- **Publication:** *Digging In: Attending to students' epistemic emotions while computationally modeling in physics* (2024)
- **Presentations:** Automated Sequencing Report Pipelines for Malaria Surveillance, Harvard School of Public Health (2025); Big Data Visualization & GitHub Insights, Women in Data Science (2021, 2022); Sproutling - Automated Plant Watering System, Massachusetts Undergraduate Research Conference (2025)