BESS HAGAN

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EDUCATION

Bachelor of Arts in Computer Science, Minor in Data Analytics Expected: 12/2025
Southwestern University, Georgetown, TX GPA: 4.0, Dean's List, Finch Merit Scholar

- Poster Presentation, 2025 Research and Creative Works Symposium
- Selected Coursework: Capstone in Software Engineering, Machine Learning, Algorithms, Database Management, Environmental GIS
- Future coursework: Programming Languages, Remote Sensing

Associate of Science in Computer Science 05/2023
Temple College, Temple, TX GPA: 4.0, President's Honor List

TECHNICAL SKILLS

Languages & Tools: Python, R, C++, SQL, NoSQL, HTML, PHP, x86 Assembly, YAML, CSV, JSON, XML, VS Code, GitHub Desktop, Godot (GDScript), ArcGIS Pro
Libraries & Frameworks: PyTorch, NumPy, Pandas, scikit-learn, Matplotlib, ggplot2, dplyr
Data Analytics & GIS: Data Pipelines, Exploratory Data Analysis (EDA), Data Visualization, Spatial Data Analysis, Geoprocessing, Hypothesis Testing
Machine Learning & AI: Logistic/Linear Regression, Decision Trees, KNN, K-Means Clustering**,** Diffusion Models (conditional & unconditional), UNet, Transformers, Procedural Content Generation (PCG), A* Search

EXPERIENCE

Student Researcher, SURF 2025 (Procedural Content Generation) 05/2025 – Present
Southwestern University, Georgetown, TX

- Trained diffusion models with a UNet architecture on Super Mario Bros. datasets from the Video Game Level Corpus (VGLC) using Python and PyTorch.
- Implemented early stopping, model checkpointing, cross-entropy loss, and A* solvability evaluation tools for model benchmarking.
- Wrote and maintained robust Python modules for level visualization, data processing, and model evaluation; tracked development via GitHub issues.
- Leveraged large language models (ChatGPT, Copilot) for rapid prototyping, debugging, and automated code generation.

Student Software Engineer, Capstone: Senior Seminar in Software Engineering 01/2025 – 05/2025
Southwestern University, Georgetown, TX

- Collaborated with an Agile team using GitHub for version control, feature branching, and issue tracking to develop an educational game in Godot Engine for teaching data science to middle school-aged children.
- Built a drag-and-drop mini-game with a state-driven tutorial system and dynamic validation logic.
- Integrated a YAML-based dialogue manager and tween animations to support in-game guidance and feedback.

Student Researcher 05/2024 – 08/2024
DREU Program, INVITE Institute, University of Illinois Urbana-Champaign, Champaign, IL

- Built a SQL-to-Python pipeline for analyzing student log data in a virtual learning environment.
- Applied Ordered Epistemic Network Analysis (ONA) to study engagement and persistence.
- Partnered with developers to trace and resolve logging errors between the game and database.

Student Ambassador 06/2022 – 07/2022
Temple College Temple, TX

- Supported faculty by mentoring middle school students in robotics, circuitry, and coding basics.

LEADERSHIP ACTIVITIES

- **Chapter President**, Upsilon Pi Epsilon National Honorary Computer Science Society 08/2024 – 05/2025
- **Vice President**, Lambda Theta Chapter, Phi Theta Kappa Honor Society 07/2022 – 05/2023