Abdullah Altaweel

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Education

Georgia Institute of Technology | Atlanta, GA *August 2020 – Present*
Bachelor of Science in Computer Science: People and Media Concentration

Experience

Georgia Tech Undergraduate Research Intern | Atlanta, GA *May 2022 – August 2023*
GT Glacier Geophysics

- Worked as a student researcher developing software tools for Ph. D students and professors in the School of Environmental and Atmospheric Sciences.
- Digitized radar film data recorded in the 1970s by detecting ice-sheet surfaces and beds and interpreting their thickness via pixel-to-meter models.
- Training AI to detect important artifacts within images using computer vision and machine learning (YOLOv8).
- Achieved runtime optimization gains (from 120sec to 30sec per image on average) and maintained code documentation.

Projects

DRY *Fall 2022*
Team Lead, GT Videogame Development Club

- Developed a horror game in Unreal Engine 5 during the semester with 15 team members.
- Brainstormed game mechanics and iterated over 10+ level designs to balance emotional impact and game fairness.
- Integrated AI state modules for enemy behavior and implemented custom prop and puzzle mechanics.
- Maintained version control for collaborative work by tracking development and stable versions across team members.
- Managed weekly sprint meetings with team members to ensure a playable build by the project deadline.

Rate My Songs *Fall 2023 - Present*
Team Lead, Georgia Tech CS Junior Design Capstone Project

- Leading the design and implementation of a live music streaming and music making application on iOS and Android.
- Split and assigned tasks to 5 other team members while accounting for potential absences and emergencies.
- Using project management tools such as Jira and Trello to schedule sprints utilizing the Agile Scrum framework.
- Designed and implemented app ~10 interaction prototypes using Figma and tested their usability with Maze.

ICED *Spring 2023 - Present*
Lead Developer, Personal Game Project

- Developing a horror experience in Unreal Engine 5 with a focus on AI behavior and adaptive gameplay attributes.
- Implemented multiple behavior trees for different agents that communicate with each other to find the player.
- Constructed 3 reactive AI states depending on nearby smart objects, player interaction, and AI memory (blackboard).
- Designed AI decision-making based on environmental queries, perception (sight/hearing) and iterated over sensitivity parameters to ensure enjoyable gameplay.
- Created a unique gameplay antagonist that prioritizes intimidating the player over damaging them.

Stock Portfolio Forecaster *Fall 2023 - Present*
Personal Project

- Developing a statistical and machine learning model (ConvLSTM) that forecasts stock prices of a set of companies.
- Combined the results to generate an ensemble time-series result with minimal error with the validation data.
- Able to forecast results 60 days in the future and quantify risk and confidence intervals using Monte Carlo simulations.

Relevant Coursework

- ***Objects and Design:*** Learned Object-oriented design and programming and common good programming practices. Additionally utilizing industry tools and practices such as Scrum, Agile, GRASP and SOLID for scalable and collaborative software design and implementation.
- ***Computer Graphics:*** Learned and implemented the fundamentals of graphics processing and rendering, including topics such as camera projection pixel rasterization, ray tracing (global illumination and ambient occlusion), tessellation, and the graphics rendering pipeline. Learned about further camera and lighting effects such as DOF, aperture, and motion blur.

Skills

Programming: C++, C, C#, Java, Python (OpenCV, Numpy, Pandas, SciKi-Learn, Keras, TensorFlow, Statsmodels)
Software: Visual Studio, Git/GitHub, Perforce (P4V), Jira, Trello, Unreal Engine 5, Unity, Blender, Figma
Languages: English, Arabic