Abdul Jawad

abjawad@ucsc.edu | +1 831-419-3654 | jawadefaj.github.io | Santa Cruz, CA

RESEARCH INTEREST

Autonomous Vehicle Simulation, Scenario Generation, Procedural Content Generation, Artificial Intelligence

EDUCATION

PhD in Computational Media — June 2023 (Exp)
University of California, Santa Cruz
Advisor: Dr. Jim Whitehead

BSc in Computer Science & Engineering — Feb 2017
Bangladesh University of Engineering and Technology, Dhaka, BD — GPA: 3.34/4.00

PUBLICATIONS

- **A. Jawad**, and J. Whitehead, "CogMod: Simulating Human Information Processing Limitation While Driving", ***IEEE*** *Intelligent Vehicles Symposium* ***(IV)****, 2022*, Aachen, Germany.
- GM Muktadir, **A. Jawad**, I. Paranjape, J. Whitehead, and A. Shepelev, "Procedural Generation of High- Definition Road Networks for Autonomous Vehicle Testing and Traffic Simulations", ***SAE*** *International Journal of Connected and Automated Vehicles* ***(IJCAV)****, 2023.*
- I. Paranjape, **A. Jawad**, Y. Xu, A. Song and J. Whitehead, "A Modular Architecture for Procedural Generation of Towns, Intersections and Scenarios for Testing Autonomous Vehicles", ***IEEE*** *Intelligent Vehicles Symposium* ***(IV)****, 2020, Las Vegas, NV, USA*

EXPERIENCE

Graduate Researcher, ADL - Augmented Design Lab — **UCSC**
- Built game engine based simulation tools for AV testing — Sep 2018 – Current
- Worked with naturalistic driving datasets for validation of the simulation models

Teaching Assistant, Computational Media — **UCSC**
- Provided lectures on introductory python for Game AI course — Sep 2018 – Current
- Contrived meetings with the student game groups, evaluated student-made games

Game Developer, Portbliss Inc — **Dhaka, BD**
- Co-founded the Portbliss game studio — Oct 2015 – May 2018
- Published four Andriod games, each with 500K+ downloads

PROJECTS

CogMod: *Cognitively modeled human driver behavior* — **ADL, UCSC**
- Implemented the CogMod model in python for CARLA Simulator
- Used CogMod to model surrounding vehicles for creating AV testing scenarios
- Initial results show that CogMod can simulate human information processing limitations

JunctionArt: *Procedural road network generation tool* — **ADL, UCSC**
- Created road networks with complex intersections for testing AV path planning algorithms
- Performed expressive range analysis to evaluate the complexity of the generated intersections
- Published the results in the SAE International Journal of Connected and Automated Vehicles

CruzWay: *A modular architecture for AV simulation* — **ADL, UCSC**
- Worked on creating emergent scenarios with cars and pedestrians for testing AVs
- Modeled surrounding vehicles using Unreal Engine's built-in behavior trees
- Authored two Unreal Engine plugins for modular simulation

Heroes of 71: *Third-person shooter game on Andriod* — **Portbliss, BD**
- Worked as a game programmer, collaborated with gameplay and level design team
- Developed enemy AI and NPC manager
- Integrated game analytic tools in the Unity engine

SKILLS

Languages: Python, C++, JavaScript, Java.
Game Engines: Unreal, Unity, Phaser.
Tool: Git, Visual Studio, Anaconda, OpenCV, Numpy, Matplotlib

ACTIVITIES

- Reviewer for IEEE Intelligent Transportation Systems Conference (ITSC) 2022, IEEE Transactions on Games 2021