





Education

University of California, Santa Cruz PhD, Computational Media	09/2018 – 09/2023
Bangladesh University of Engineering and Technology BS, Computer Science and Engineering	05/2012 – 02/2017

Work Experience

Graduate Researcher & Teaching Assistant Computational Media, UCSC	09/2018 – Present
<ul style="list-style-type: none">Developed simulation tools for Autonomous Vehicle (AV) testingEvaluated simulation models using naturalistic driving datasets (HighD, Argoverse)Delivered lectures on Game AI course to undergraduate students	
Co-founder & Game Developer Portbliss Inc., Bangladesh	10/2015 – 05/2018
<ul style="list-style-type: none">Launched 'Heroes of 71' based on Bangladesh Liberation War, 7M+ downloads, 300K+ monthly active userDeveloped 'Mukti Camp' - a strategy game under the same narrative with 500k+ downloads	

Projects

CogMod Cognitive modeling of human driving behavior 	
<ul style="list-style-type: none">Implemented the CogMod model in python for CARLA Driving SimulatorModeled surrounding vehicles with CogMod for critical AV testing scenario generation	
JunctionArt Procedural road network generation tool 	
<ul style="list-style-type: none">Created tools to generate synthetic roads with complex intersections to test AV path plannersPerformed expressive range analysis to evaluate the complexity of the generated intersections	
CruzWay A modular architecture for AV simulation 	
<ul style="list-style-type: none">Created models for surrounding vehicles to generate emergent scenarios for AV testingAuthored two open-source Unreal Engine plugins for modular AV simulation	
Heroes of 71 Third-person shooter game on Andriod 	
<ul style="list-style-type: none">Developed enemy AI and NPC managerIntegrated game analytic tools, Ads module and in-app purchase	

Skills

- Python, Anaconda, Carla, PyTorch, Matplotlib, Pandas, NumPy, OpenCV
- C++, C#, JavaScript, Unreal 4, Unity, Phaser.JS
- Git, OpenDRIVE, OpenSCENARIO

Activities and Awards

- Organizing 1st SceGen workshop in *IEEE IV 2023*
- Reviewer *IEEE ITSC 2022*, *IEEE TOG 2021*
- Recipient *Campus2Career Youth Award 2016* and *National ICT Award 2016*

Publications

- CogMod: Simulating Human Information Processing Limitation While Driving; *IEEE IV Symposium 2022*
- Procedural Generation of High-Definition Road Networks for AV Testing and Traffic Simulations; *SAE IJCAV 2023*
- A Modular Architecture for Procedural Generation of Towns, Intersections and Scenarios for Testing AV; *IEEE IV Symposium 2020*