CS491 – Autonomous Vehicle Design

Engineering Notes No. 10.2

INFORMATION

NAME: William Reimer

DATE: 02/26/25 - 03/04/25

Sprint: 10

JIRA BACKLOG

Responsible for:

Looking into the possibility of repurposing the current simulated environment created for PolyVerif into the new model that Quentin made

Contributed to:

Scenic-Sumo (QSS) test simulation setup

Reviewing test cases and ML behavior designs

RESOURCES & DOCUMENTS CONTRIBUTED TO

Table 1 - Contributions

Date	Resource/Document	Location	Contribution Description
02/27/25	Scenic-Sumo Model Setup	Micaplex	Installed Scenic, planned SUMO install, ran basic test sim (no mesh)
02/27/25	Team Role Allocation Notes	Meeting Notes	Helped establish AI vs. simulation/doc roles across team
03/04/25	NEAT Test File	Micaplex	Got NEAT test file running for initial ML exploration

COMPONENTS TESTED

Table 2 - Testing

Date Tested	Component	Result	Comments
02/27/25	Scenic test simulation	Partially working	Lacked texture mesh; base functionality was present
03/04/25	NEAT test file	Working	Confirmed NEAT is operational for potential ML integration

PROBLEMS SOLVED

Table 3 - Solutions

Date	Problem	Solution & Notes
mm/dd/yy	Problem description	Solution and notes if applicable
02/27/25	Scenic not fully configured	Installed Scenic; SUMO pending; basic test run achieved
03/04/25	Need for AI/machine learning structure	Defined team roles and started NEAT integration; referenced Scenic-Sumo tests

PROBLEMS TO ADDRESS NEXT

Table 4 – Future Problems

Problem	Description
SUMO not yet installed	SUMO must be installed to fully enable the Scenic-Sumo simulation pipeline
Scenic lacks mesh/texture	The current test sim runs but does not display the environment properly
Integration of real-time data	Need to determine if Quentin's model can support real-time inputs
OpenStreetMap integration	Consider using OSM's 2D mapping capabilities instead of 3D Riddle model
Behavior modeling	Plan for implementing different driving styles using ML

MEETING NARRATIVE NOTES:

Table 5 – Meeting 1

MM/DD/YY	**Meeting Type:** **StandUp**/Class/ETC
Met with Product Owner(s): Y/N	
Problems Brought Up:	
Problem	**Proposed Solution**
Scenic is installed, SUMO has yet to be installed.	Read through documentation and ask Quentin to get issue resolved ASAP
Scenic test simulation is functional, but lacks texture mesh.	Read through documentation and ask Quentin to get issue resolved ASAP
Other Items Updated on:	
SDD due in a week, Clay and Akbas want us to focus on and update the document to reflect the NeuroEvolution tasks that we will be focusing on.	
Additional Notes:	
Isabella and Davian will NOT be learning the AI stuff (focus on simulation and documentation), Serena and Hannah will focus on the AI stuff.	

Table 6 – Meeting 2

MM/DD/YY	**Meeting Type:** StandUp/**Class**/ETC
Met with Product Owner(s): Y/N	
Problems Brought Up:	
Problem	**Proposed Solution**
ERAU Map needs to be 2-D to accommodate Scenic-SUMO Model	Will either use OSM, or convert blender file from 3D to 2D
See if Quentin's model can take real-time data, to be implemented.	Get into contact with Quentin and discuss more specific

	ideas, try to meet his requests
Other Items Updated on:	
Mission planning needs to be handled.	
Additional Notes:	

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NOTES:

Unedited log of Notes:

02/27

Met in the Mica Plex.

Moving Quentin's model on to the computer.

Isabella and Davian will NOT be learning the AI stuff (focus on simulation and documentation), Serena and Hannah will focus on the AI stuff.
SDD due in a week, Clay and Akbas want us to focus on and update the document to reflect the NeuroEvolution tasks that we will be focusing on.

Fresh start of Scenic-Sumo (Quentin's model) or QSS (Quentin-Scenic-Sumo)

User: ScenicSumo

Pass: Fall2024

Scenic is installed, SUMO has yet to be installed.

Scenic test simulation is functional, but lacks texture mesh.

03/04

Mission planning needs to be handled.

Resources for Scenic-Sumo about developing test cases.

Focusing on the machine-learning aspect of things.

2D map of Riddle as opposed to 3D model

SDD/SDS is due on 03/06/2025

Test cases seem to running fine on the Scenic-Sumo model

Get into contact with Quentin and discuss more specific ideas, try to meet his requests.

See if Quentin's model can take real-time data, to be implemented.

Want it to react using machine learning, mimic aggressive and offensive/passive driving. May or may not use NeuroEvolution.

"Sounds interesting" - Akbas

Open-Street map is capable of doing 2D views as well.

Got the test file running for NEAT