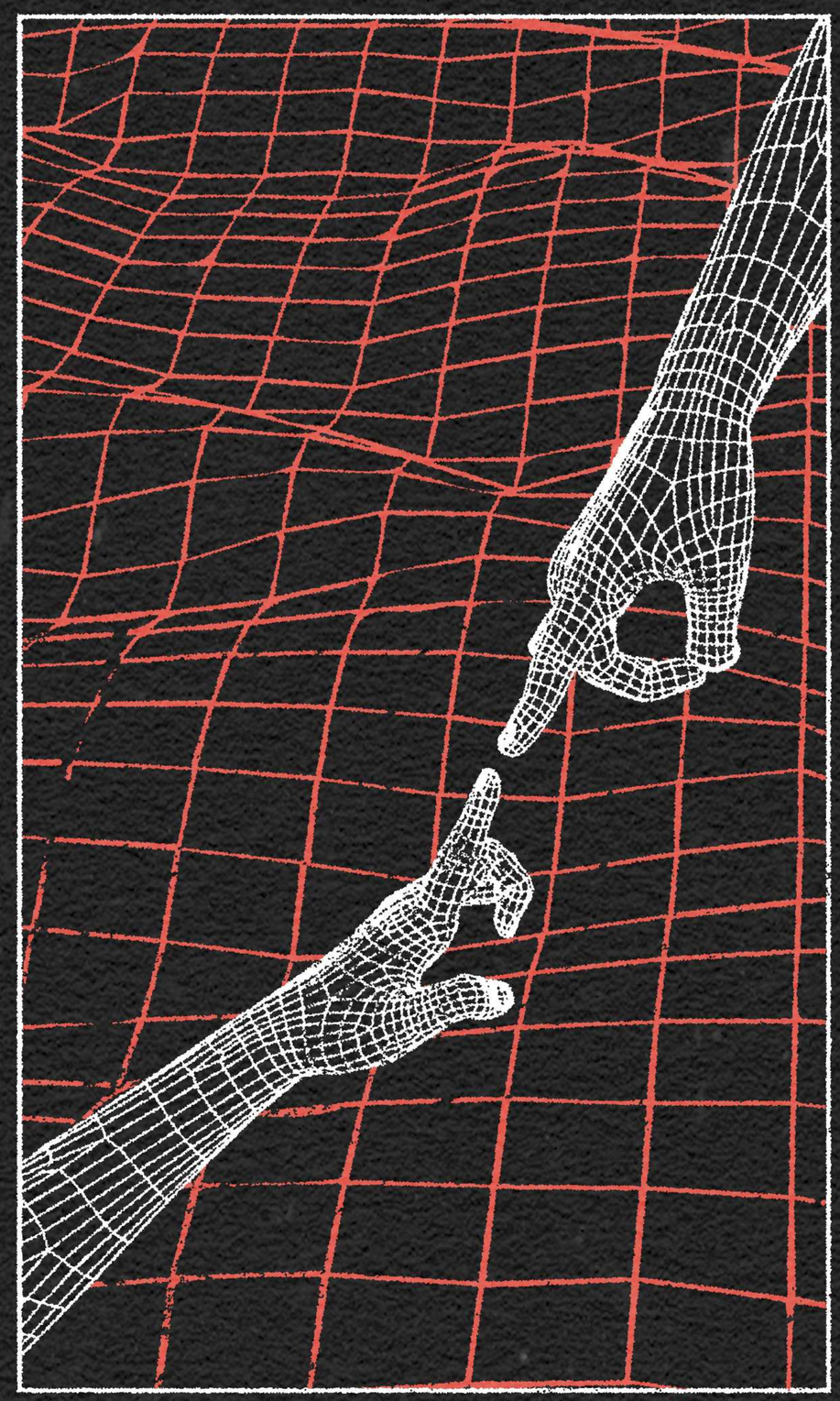
A.I. Generated NPC Dialogue

CAMERON MAIN NEWCASTLE UNIVERSITY 2023



MOTIVATION

NON-PLAYER CHARACTERS (NPCS) ARE A CRUCIAL PART OF VIDEO GAMES, BUT CONVENTIONAL NPC INTERACTIONS ARE OFTEN SCRIPTED AND LIMITED, RESULTING IN DECREASED ENGAGEMENT AND ENJOYMENT FOR PLAYERS.

THIS PROJECT AIMS TO EXPLORE HOW MACHINE LEARNING (ML) AND NATURAL LANGUAGE PROCESSING (NLP) TECHNIQUES CAN GENERATE A.I. RESPONSES FROM PLAYER INPUTS IN REAL TIME, CREATING MORE REALISTIC AND IMMERSIVE NPC INTERACTIONS.

THIS SYSTEM COULD BENEFIT GAME DEVELOPERS BY REDUCING COSTS, INCREASING PRODUCTIVITY AND CREATING MORE FULFILLING EXPERIENCES FOR GAMERS.

AIM

EVALUATE THE VIABILITY A GAME THAT EMPLOYS NPCS CAPABLE OF GENERATING THEIR OWN PROCEDURAL, REACTIVE, AND COHERENT DIALOGUE, ASSISTING PLAYERS TO COMPLETE A LEVEL OR QUEST OBJECTIVES.

SOLUTION

A SMALL PROTOTYPE GAME SET IN A MEDIEVAL CASTLE IN WHICH THE PLAYER IS TASKED WITH SOLVING A MURDER.

THE PLAYER IS TASKED WITH FINDING CLUES THROUGH NPC DIALOGUE INTERACTION.

CONTAINS A MIXTURE OF NPCS THAT USE CONVENTIONAL DIALOGUE TREES AND TEXT INPUT FROM THE PLAYER.

PLAYER SUBMITS WHO THEY SUSPECT THE MURDERER TO BE.

TECHNOLOGY

UNITY GAME ENGINE

SCRIPTS WRITTEN IN C#

EXTERNAL LIBRARIES
(PYTHONNET, SPACY, CORENLP)

OPENAI CHATGPT

FUTURE WORK

INCORPORATE A NAVMESH AND ALLOW NPCS TO TRAVERSE THE WORLD RATHER THAN REMAIN STATIC.

ADD A BEHAVIOURAL STATE MACHINE TO THE NPCS FOR MORE REALISTIC BEHAVIOURS.
(E.G. GOAP SYSTEM)

A.I. TEXT-TO-SPEECH SYNTHESIS THAT DELIVERS THE GENERATED TEXT AUDIBLY.