

## INTISARI

### EVALUASI SISTEM SIMULASI EMOSI DAN KEPERIBADIAN PADA *NON-PLAYABLE CHARACTER* DALAM SKENARIO PERCAKAPAN GAME MENGGUNAKAN SISTEM INFERENSI *FUZZY*

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Karakter virtual dalam video games atau disebut NPC (non-playable character) merupakan salah satu komponen penting dalam video games untuk menciptakan dunia games yang lebih natural dan masuk akal. Pada umumnya tingkah laku NPC sangat terbatas ketika player melakukan interaksi percakapan dengan NPC. NPC dinilai kaku dan selalu mengikuti pola decision tree yang gamblang. Pada penelitian ini upaya penyimulasian emosi dan kepribadian kepada NPC dilakukan untuk meningkatkan kualitas interaksi antara player dan NPC agar menjadi lebih bervariasi dan masuk akal seperti layaknya interaksi sosial antar manusia. Pengukuran player experience akan dilakukan untuk membandingkan video game dengan simulasi emosi dan video game tanpa simulasi emosi.

Simulasi emosi ini akan mengadaptasi model emosi OCC (Ortony, Clore & Collins) yang memiliki hubungan dengan model kepribadian big five OCEAN (Openness, Consciousness, Extraversion, Agreeableness & Neuroticism). Intensitas emosi akan dikomputasi menggunakan sistem inferensi fuzzy yang menerima faktor kepribadian dan variabel penentu intensitas emosi lainnya sebagai input. Ada tiga jenis sistem inferensi yang dibuat yaitu sistem inferensi fuzzy Mamdani, Sugeno, dan Tsukamoto. Perbandingan video game ini akan diukur menggunakan survei player experience GEQ (*Game Experience Questionnaire*) kepada player.

Hasil survei player experience video game dengan simulasi emosi dan kepribadian lebih baik dibanding video game tanpa simulasi emosi dan kepribadian ( $p < 0.05$  dan  $\alpha > 0.7$ ) dalam komponen positive affect (19.394%), sensory (16.190%), flow (9.938%), empathy (2.740%), positive experience (5.425%), returning to reality (8.450%).

**Kata kunci :** *logika fuzzy, simulasi emosi, karakter virtual, video game.*

## ABSTRACT

### EVALUATION OF EMOTION AND PERSONALITY SIMULATION SYSTEM ON NON-PLAYABLE CHARACTER IN GAMING CONVERSATION SCENARIO USING FUZZY INFERENCE SYSTEM

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Virtual characters in video games or called NPCs (non-playable characters) are one of the important components in video games to create a game world that is more natural and makes sense. In general, the behavior of NPCs was very limited when players had conversation interactions with NPCs. NPC is considered rigid and always follows a decision tree pattern. In this study, efforts to simulate emotions and personalities to NPCs were carried out to improve the quality of interactions between players and NPCs so that they became more varied and reasonable, just like social interactions between humans. Player experience measurements will be carried out to compare video games with emotion simulation and video games without emotion simulation.

This emotion simulation will adapt the OCC emotion model (Ortony, Clore & Collins) which has a relationship with the OCEAN big five personality model (Openness, Conscientiousness, Extraversion, Agreeableness & Neuroticism). Emotional intensity will be computed using a fuzzy inference system that accepts personality factors and other determinants of emotional intensity as input. There are three types of fuzzy inference systems created, Mamdani Inference System, Sugeno Inference System, and Tsukamoto Inference System. The video game comparison will be measured by conducting a survey using a GEQ player experience survey (textit Game Experience Questionnaire) to the player.

The results of the survey on the player experience of video game with emotion and personality simulation is better than video game without emotion and personality simulation ( $p < 0.05$  and  $\alpha > 0.7$ ) in component listed here : positive affect (19.394%), sensory (16.190%), flow (9.938%), empathy (2.740%), positive experience (5.425%), returning to reality (8.450%).

**Keywords :** *fuzzy logic, emotion simulation, virtual character, video game.*