

氏名(本籍)	GUO Zhixing (中華人民共和国)		
学位の種類	博士(学術)		
学位記番号	甲第 425 号		
学位授与年月日	令和 6 年 9 月 24 日		
学位授与の要件	学位規則第 4 条第 2 項		
研究科・専攻名	工学研究科・基盤工学専攻		
学位論文題目	Reframing Game Difficulty in Player-Game Interaction: Concept, Measurement, and Design プレイヤーとゲームのインタラクションにおけるゲームの難易度の再構築: コンセプト、測定、設計		
論文審査	(主査) 高知工科大学	教授	任 向實
	高知工科大学	教授	西野 裕樹
	高知工科大学	教授	星野 孝総
	高知工科大学	教授	吉田 真一
	会津大学	特任教授	程 子学 (外)

審査結果の要旨

1. 論文の評価

Toward the goal of Human-Engaged Computing (HEC), a harmonious relationship between computers and humans, the candidate explored video games to realize engaging computers. Game difficulty, as a basic element in video games, faces challenges in the Human-Computer Interaction (HCI) community. Therefore, the candidate performed original, fundamental, and innovative scientific research on game difficulty. The candidate first conducted a systematic and thorough literature review on current game difficulty research to identify three challenges of game difficulty: concept, measurement, and design. Subsequently, theoretical, exploratory, quantifying, and empirical studies were conducted on game difficulty. Regarding concept, the candidate proposed new definitions of objective game difficulty (OGD) and subjective game difficulty (SGD), and an interpretive interaction model. Regarding measurement, the partial matching relationship between SGD and OGD was determined, and effective measuring methods for the two difficulties were provided. In design, the candidate proposed a new definition and the design methodology of the Dynamic Difficulty Adjustment (DDA) mechanism and validated this theoretical innovation with a case study.

The dissertation provides theoretical fundamentals, valid measuring methods, and promising design solutions for game difficulty, which benefits game difficulty research in the HCI community and contributes to the achievement of the HEC vision. During his presentation, he demonstrated his great passion for exploring game difficulty in the HCI community. His mature research skills, fluent communication, and thoughtful answers were impressive to committee members.

2. 審査の経過と結果

- (1) 令和 6 年 6 月 26 日 5 名の審査委員のもと協議され、博士後期課程委員会で学位論文の受理を決定した。
- (2) 令和 6 年 8 月 23 日 公開論文審査発表会及び最終試験を実施した。
- (3) 令和 6 年 9 月 4 日 博士後期課程委員会で学位授与を可とし、教育研究審議会で承認された。