Automated LEGO Assembly Construction by Interactive Selection from Multiple Optimization Techniques

Jae Woo Kim*, Kyung-Kyu Kang*, JiHyung Lee*

*Electronics and Telecommunications Research Institute, Korea

jae_kim@etri.re.kr, kangk2@etri.re.kr, ijihyung@etri.re.kr

***Abstract*—This paper presents a software environment to create a Lego model from input 3D mesh data. We added flexibility to the process of Lego assembly creation by providing user interaction. To achieve this, we implemented three different optimization algorithms. Users can interactively select a region of the input model data and then apply optimization algorithms with the feedback of stability evaluation.**

***Keyword*—3D Modeling, Lego Assembly Construction, Optimization**

Jae Woo Kim is a principal researcher at Computer Graphics Research Section, Visual Content Research Department, Creative Content Research Laboratory, Electronics and Telecommunications Research Institute (ETRI), Daejeon, Korea. He received his D.Sc. in Computer Science from the George Washington University and MS. in Computer Science and Bs. in Physics from Hankuk University of Foreign Studies. His research interest includes geometric modeling, computer animation, and visualization.

Kyung-Kyu Kang is a researcher at Computer Graphics Research Section, Visual Content Research Department, Creative Content Research Laboratory, Electronics and Telecommunications Research Institute (ETRI), Daejeon, Korea. He received his Ph.D, MS, and BS in Media Engineering at Soongsil University in 2013, 2006, 2004. His interests include real-time rendering algorithms and physically-based simulation.

Ji Hyung Lee is a principal researcher at Computer Graphics Research Section, Visual Content Research Department, Creative Content Research Laboratory, Electronics and Telecommunications Research Institute (ETRI), Daejeon, Korea. He received his Ph.D in Computer Eegineering at Chungnam National University and MS in Computer Science at Korea University in 2011, 1996. His interest includes computer graphics and digital imaging.