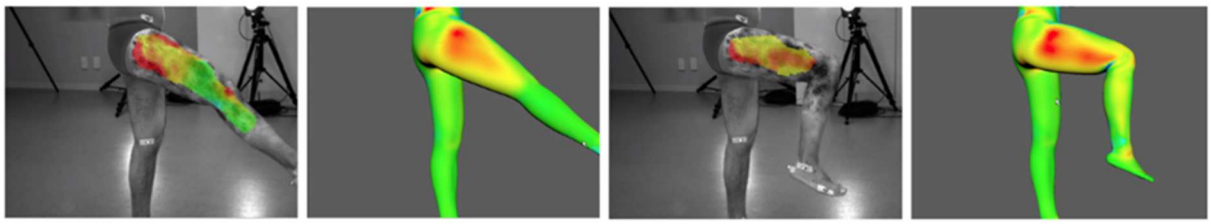
NEWS RELEASE

November 28, 2018

Company name	IMAGICA GROUP Inc.
Title and Name of Representative	Makoto Tsukada, Representative Director, President (Securities code: 6879, TSE 1st Section)
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OLM Digital and ASICS created a virtual human model for visualizing skin strain distributions during development of comfortable, ergonomic sportswear.
- Oral presentation at SIGGRAPH Asia 2018 -

For this project, OLM Digital, Inc., a consolidated subsidiary of IMAGICA GROUP Inc., supported ASICS Corporation in the creation of a CG virtual human that can simulate strain of the skin to aid the design of comfortable, ergonomic sportswear.



Skin strain distribution under various movements, with test subject and the results produced by our virtual human model shown side by side.

The ASICS Institute of Sport Science (ISS) embodies the corporate vision to “Create Quality Lives through Intelligent Sport Technology.” Maintaining “human-centric science”, the institute focuses on the analysis of natural movements and actions. Developing and working with unique materials, the ISS continues to lead innovation within the industry. ASICS develops comfortable and ergonomic sportswear which minimizes disturbance of the athlete’s motion by obtaining an understanding of the complicated mechanism of human skin strain during exercise and subsequently using different materials according to the degree of strain. However, the conventional approach requires considerable expenses and time for measuring strain of both the fabric and the skin under motion. The use of a virtual human that can simulate human skin deformations under any movement would greatly reduce this cost and time. Therefore, ASICS collaborated with OLM Digital to create such a model.

We first measure a test subject's 3D body shape and skin strain under motion, using a 3D body scanner and strain measurement device, respectively. Then, we create a surface model of the virtual human and set up a rig to animate it. To faithfully reproduce acquired skin strain, we incorporate a strain visualization into the rigging setup process to ensure the current rig will match the measured data. Thus, relative to the traditional workflow at OLM Digital, artists can quickly set up the desired rig for the virtual human. In future work, we plan to make the simulated skin strain of the virtual human more consistent. Additionally, we would like to develop a customization method of the model for personal adaptation. Finally, we plan to incorporate our virtual human into a simulator for sportswear design.

This result was achieved through interdisciplinary cooperation between sports science and computer graphics technology. We will present the details of our method during the technical brief session of the 11th ACM SIGGRAPH Conference and Exhibition on Computer Graphics and Interactive Techniques in Asia (SIGGRAPH ASIA 2018) on December 4th - 7th in Tokyo, Japan.

Related information:
SIGGRAPH ASIA 2018: https://sa2018.siggraph.org/en/
OLM Digital, Inc.: https://www.olm.co.jp/?lang=en
ASICS Institute of Sport Science:
https://corp.asics.com/en/about_asics/institute_of_sport_science

Detail of presentation:
Title: Creating a Virtual Human that Visualizes Skin Strain Distribution for Apparel Wearing Simulation
Authors: Akinobu Maejima, Yusuke Tonuma, Yoshiyuki Kubo, Tatsuo Yotsukura (OLM Digital, Inc.) Akihiro Ozawa, Ken Kusano, Hiroto Mori, Takehiro Tagawa (ASICS Corporation)
Date and time: December 7th 2:15pm-4:00pm
Venue: G402 (4F, Glass Building)

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