Theme: Machine Intelligence

- Sub theme: Controllable 2D/3D Generative Models

Generative AI technology has demonstrated impressive capabilities in generating visually stunning and realistic imagery from simple text-based or image-based inputs. This technology has significant implications across various industries, and its potential impact in the field of graphics is particularly promising. However, generative AI still has limitations in terms of controllability, because its representations are not directly linked to intuitive and real-world-friendly features, such as 3D geometry, appearance, and lighting. This hinders the widespread application of generative AI in graphics and prevents it from replacing laborious and time-consuming tasks in 2D or 3D content creation that typically require professional skills.

This research program aims to explore the integration of controllable generative AI technology into the field of graphics, specifically focusing on achieving real-time and precise control over low-level attributes including 3D geometry, appearance, illumination, and camera parameters.

This program is highly related to the following topics, but not limited to them:
· Advancing towards photo-realistic 2D/3D generative AI with intuitive and precise control
· Exploring low-level controllability closely connected to graphics attributes
· Investigating real-time interactive rendering and control techniques for generative AI

By addressing these topics, the program aims to push the boundaries of generative AI in graphics, enabling more efficient and realistic results while enhancing intuitive and precise controllability.

※ *The topics are not limited to the above examples and the participants are encouraged to propose the original idea.*
※ *Funding: Up to USD 150,000 per year*