Theme: EXPLAINABLE DEEP LEARNING MODELS
- Sub Theme: Explainable Models in Multi-modal Applications

The task of explaining Deep Learning (DL) models has gained a lot of interest from the research community in recent times. In this GRO, we propose studying explainability of DL models, specifically via two problems:

(a) ***Explainable Multi-modal Visual Dialog:*** There are many scenarios in mobile phone or desktop usage where a user inspects an image (e.g., a picture shared on the phone or an image obtained while browsing the web) and asking questions about it (e.g., where was this picture taken) – this is the problem of Visual Question Answering (VQA). The user may also ask for explanations for the answers generated in VQA (e.g., why you think so) – this is the task of Explainable Question Answering (XQA). However, while using a conversational assistant like Samsung Bixby, the user may be involved in a multi-modal dialog with the assistant, using text input, speech, etc. Those additional user input may contain rich context information for the assistant to understand and digest. As the assistant interacts with the user in a conversation across multiple modalities, the user may ask for explanations at different stages -- we call this the problem of Explainable Multi-modal Visual Dialog.

(b) ***Explainable Recommendations:*** The Bixby assistant often makes shopping suggestions or other purchase recommendations to the user (e.g., based on an image that is taken from the camera album, based on a spoken purchase request made by the user, etc.). One of the research goals in such a recommendation system could be explaining the underlying reason of the recommendations made during immersive interactive experiences (e.g., when shopping for items online using Bixby vision, using the point-and-shoot camera).

We encourage the applicants to characterize different problems and propose novel research approaches, related to these topics.

※ The topics are not limited to these examples and the participants are encouraged to propose original ideas.

※ Funding: Up to USD $120,000 per year