Statistics Seminar

Department of Mathematics and Statistics

DATE:	Thursday, March 14, 2024
TIME:	1:15pm – 2:15pm
LOCATION:	WH 100E
SPEAKER:	Geran Zhao, Binghamton University
TITLE:	EDTER: Edge Detection with Transformer

Abstract

Convolutional neural networks have made significant progresses in edge detection by progressively exploring the context and semantic features. However, local details are gradually suppressed with the enlarging of receptive fields. Recently, vision transformer has shown excellent capability in capturing long-range dependencies. Inspired by this, we propose a novel transformer-based edge detector, Edge Detection TransformER (EDTER), to extract clear and crisp object boundaries and meaningful edges by exploiting the full image context information and detailed local cues simultaneously. EDTER works in two stages. In Stage I, a global transformer encoder is used to capture long-range global context on coarse-grained image patches. Then in Stage II, a local transformer encoder works on fine-grained patches to excavate the short-range local cues. Each transformer encoder is followed by an elaborately designed Bi-directional Multi-Level Aggregation decoder to achieve high-resolution features. Finally, the global context and local cues are combined by a Feature Fusion Module and fed into a decision head for edge prediction. Extensive experiments on BSDS500, NYUDv2, and Multicue demonstrate the superiority of EDTER in comparison with state-of-the-arts.