関係各位

システム制御研究会
主査 吉澤 誠
幹事 杉田 典大

　下記のとおり，<u>第 104 回システム制御研究会</u>を開催しますので多数ご来聴くださいますよう，ご案内申し上げます．

記

- 日時：平成 30 年 5 月 25 日（金）13:00 ～ 14:00
- 会場：東北大学星陵キャンパス　医学部 1 号館 2 階中会議室
  https://www.tohoku.ac.jp/japanese/profile/campus/01/seiryo/areab.html
- 共催：スマート・エイジング学際研究重点拠点

- 講演者：Jiří Borovec
  (Czech Technical University in Prague)
- 演題：Automatic analysis of gene activations in microscopic images of Drosophila ovaries
- 講演要旨：

  he biologists are interested in observing various gene activation in early development stages of Drosophila ovary and imaginal disk. They aim at finding relationships in gene activity and its positions which we solve by determining a spatial atlas of gene activation for each development stage and compute sparse encoding for each sample which can be used further in data mining. We introduce a pipeline composed of (i) semantic segmentation & ovary detection, (ii) stage classification, (iii) chamber registration co common prototype, and (iv) extracting spatial atlas. In this presentation, we focus on steps (i, iv). We decompose egg segmentation & detection of ovaries (i) into three subtasks: (a) semantic image segmentation into classes with biological meaning, (b) object center detection for each possible egg, and (c) instance segmentation of individual eggs initialized by estimated centers on pre-segmented images. On top of it (iv), we aggregate observed genes activations into an atlas (a small set of non-overlapping spatial patterns) by proposing a novel Binary Pattern Dictionary Learning, which benefits from using spatial information.

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以上