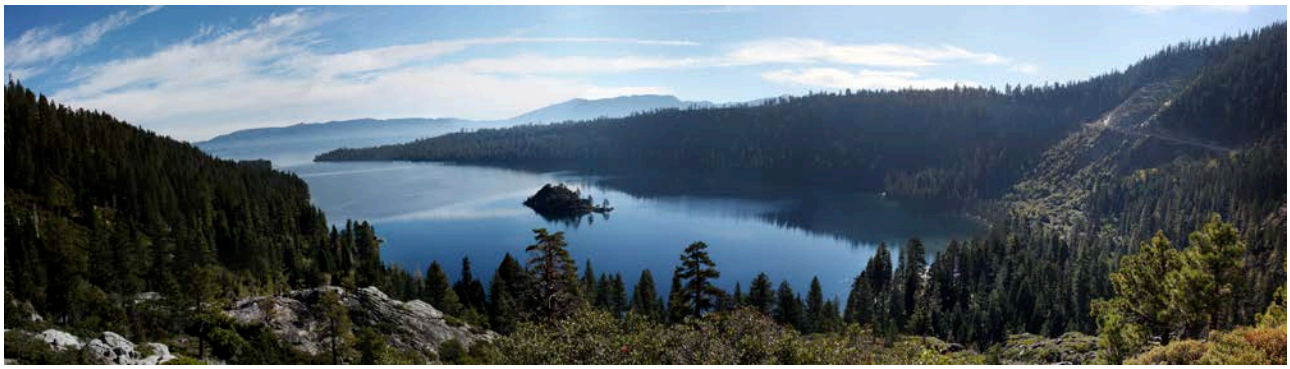

Visual Object Tracking Using Deep Learning

14th International Symposium on Visual Computing

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Tutorial abstract

Visual object tracking has become a significant research area. There are a huge number of tracking approaches are being proposed each year. The objective of this tutorial is to introduce and overview recent progress in object tracking, as well as to discuss, motivate and encourage future research in the field of deep-learning-based trackers. In this tutorial, a broad overview of techniques for object tracking especially deep-learning-based trackers and their architectures. Moreover, how various deep architecture networks can be made useful on object tracking problem. In the first part we will provide the classical methods of object tracking also, we will lay a taxonomy of deep-learning-based trackers, and explain each category conceptually and mathematically. The second part of the tutorial will explain how to design deep-learning-based trackers and how to pre-process the input data.

Tutorial description

- **Objectives**:
  - Introduction to classical methods of object tracking and deep-learning-based trackers.
  - Providing practical details about object trackers implementation.
  - State-of-the-art deep trackers.

- **Intended audience and any background requirements**:
  Could be researchers in the field of computer vision or graduate students. The required background to make this tutorial easier to be understood is computer vision principles, machine learning and/or deep learning fundamentals.

- **Duration**:
  Half-day

- **Agenda**:
  - What is the object tracking?
  - Object tracking taxonomy.
  - Classical methods of object trackers and deep learning architectures for object tracking.
  - How to benefit from end-to-end deep architectures in object tracking.
  - Object tracking datasets and metrics.

Organizers

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Received the B.S. degree with honors in computer engineering from Al-Azhar University, Egypt, in 2010, the M.S. degree in computer Engineering from the same university, in 2014. He is currently pursuing his Ph.D. degree with the Department of Electrical and Computer Engineering. Memorial university, Canada. His research interests include Computer vision, deep learning, and pattern recognition.

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Obtained his B.Sc. degree with honors in 1996, his M.Sc. degree in computer engineering in 2001 from Zagazig University, Egypt, and then his Ph.D. in 2005 from the University of Calgary, Canada.
Following his Ph.D., he worked as a Post-doctoral Fellow at the University of Calgary on a joint project between the University of Calgary and the Canadian Government, called Video Automatic Incident Detection. After that, he joined Intelliview Technologies Inc. as a Vice-President of the research and development department. In 2013, after seven years in the industry, Dr. Shehata joined Faculty of Engineering and Applied Science at MUN as an Assistant Professor of computer engineering. His research activities include computer vision, image processing, and software design.

Date

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