

Progress Report

Asean-IVO: Event Analysis Project Roadmap

present by: Somnuk Phon-Amnuaisuk

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Event Analysis: Applications of CV & AI in ST industry

The term *Event Analysis* is used here as the focus of the analysis is on the events and generic descriptive actions.



Event Analysis: Applications of computer vision and AI in smart tourism industry

**ASEAN IVO
2018**

INTRODUCTION

After the establishment of the AEC (ASEAN Economic Community), travelling has become easier for people living in this region. The main concerns when travelling are safety and well-being. Our 'event analysis' project explores a cost-effective approach that leverages on the recent advances in media streaming technology and AI technology. It is hoped to deliver 'visual event analysis' service to the tourism industries.



Project Members



NICT
National Institute of
Information and
Communications Technology



NECTEC
National Electronics
and Computer
Technology Centre



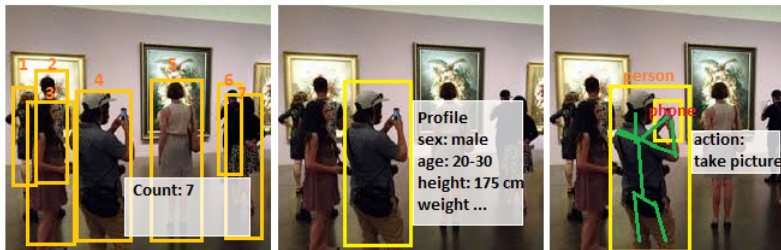
MMU
MULTIMEDIA UNIVERSITY

Target Applications

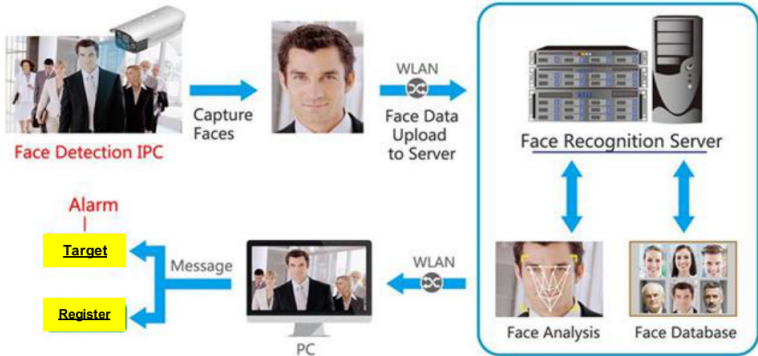
- ▶ Smart museum: profiling museum visitors (UTB)
- ▶ Smart building: summarizing content in a video footage (NTU)
- ▶ Smart surveillance: identifying a target person (MUT)
- ▶ Smart pedestrian safety monitoring: profiling pedestrian and traffic scene (NUOL)



Visions - contributions



Visions - contributions



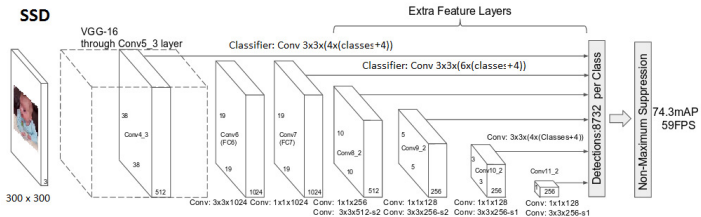
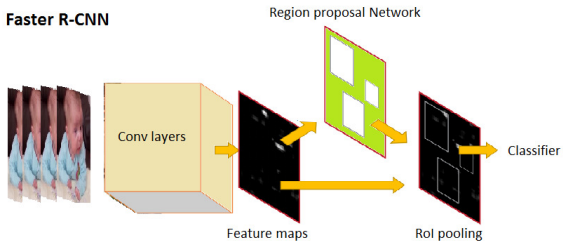
Visions - contributions



Tasks

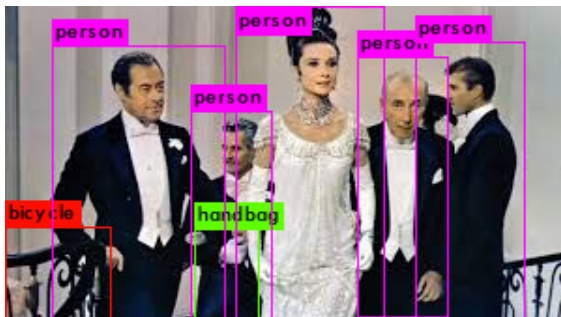
- ▶ Year 1
 - ▶ Detection & Tracking
 - ▶ ID tracking & profiling e.g., count
 - ▶ Physical characteristic profiling, e.g., age, gender, height, etc.
 - ▶ Port to HpVT.
- ▶ Year 2
 - ▶ Physical characteristic profiling, e.g., age, gender, height, etc.
 - ▶ Port to HpVT.
 - ▶ Activity recognition from skeleton data

Event Analysis



Tasks: Detection, Tracking, ID Tracking & Profiling

- ▶ Detect, Track
- ▶ Assign ID
- ▶ Count
- ▶ Profiling



Activities Recognition & Summary

- ▶ Image captions:
 - ▶ A man and a woman standing in a living room.
 - ▶ A man and a woman standing next to each other.
- ▶ Large training dataset, Frame problem, etc.



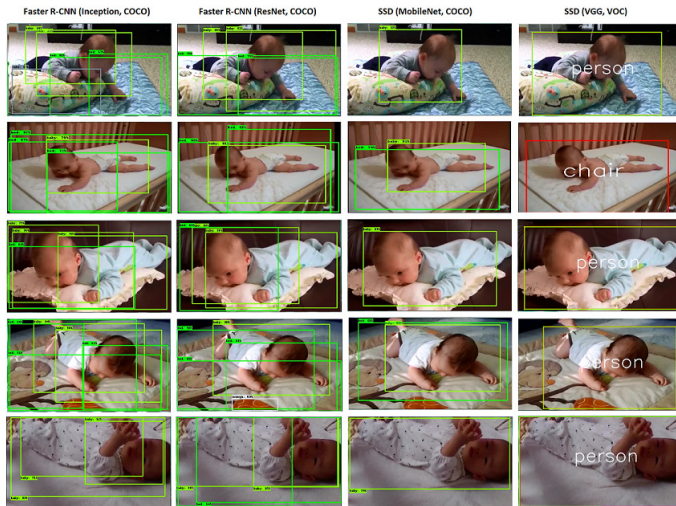
Activities Recognition & Summary

- ▶ Explicitly infer activities from skeletons.
- ▶ Issues: Frame problem and View point variants.



Activities Recognition & Summary

- ▶ Detecting human figures can be applied to various domains



Thank You, Q & A



HpVT provides

- low latency, high resolution
- low per unit setup cost
- ease of data accessibility

AI & Computer vision

- feature learning capability
- improve performance
- ability to learn and adapt
- ability to handle higher complexity

visual information

- Event analysis
- cloud side computation
 - edge side computation

Applications

- smart tracking & localization
- smart museum
- smart building
- smart transportation hubs
- smart traffic
- smart pedestrian monitoring
- smart surveillance
- etc.