

UNIVERSITY OF OTTAWA

DOCTORAL THESIS

Thesis Title

Author:

Nicolas FLEECE

Supervisor:

Dr. Robert LAGANIÈRE

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UNIVERSITY OF OTTAWA

Abstract

Faculty of Engineering

School of Electrical Engineering and Computer Science

Master of Computer Science, Specialization in Applied Artificial Intelligence

Thesis Title

by Nicolas FLEECE

The Thesis Abstract is written here (and usually kept to just this page). The page is kept centered vertically so can expand into the blank space above the title too. . .

“Thanks to my solid academic training, today I can write hundreds of words on virtually any topic without possessing a shred of information, which is how I got a good job in journalism.”

Dave Barry

Acknowledgements

The acknowledgments and the people to thank go here, don't forget to include your project advisor...

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List of Abbreviations

LAH List Abbreviations Here
WSF What (it) Stands For

Chapter 1

Introduction

People interact with their environment in unique and nuanced ways,

1.1 Action Recognition

For humans, the problem of Human Action Recognition is rather simple. We use past experiences throughout childhood and adult life to be able to pick out the various ways a person moves, and translate that into a familiar action that we have seen before. Combine that with objects that a person may be interacting with, and humans are remarkably good at discerning what actions other humans are involved in. However, as is with most things in the domain of computer vision, this ability does not translate well into the realm of artificial intelligence. The slightly different ways that people may perform these tasks add a layer of complexity that is difficult for a model to overcome.

1.2 Applications

1.2.1 Ethical Challenges

1.3 Challenges

1.4 Problem Definition

1.5 Thesis Structure

Chapter 2

Convolutional Neural Networks

2.1 Structure

2.2 Kernel Dimensions

2.2.1 3 Dimensional Convolutions

Chapter 3

Literature Review

3.1 Image Classification

3.2 RGB Frame Based Models

3.2.1 CNN + LSTM Models

3.2.2 3D CNN Models

3.3 Optical Flow

3.3.1 Optical Flow Models

3.4 Datasets

3.5 Skeleton-Based Action Recognition

3.5.1 Intermediate Representations

Appendix A

Frequently Asked Questions

A.1 How do I change the colors of links?

The color of links can be changed to your liking using:

```
\hypersetup{urlcolor=red}, or  
\hypersetup{citecolor=green}, or  
\hypersetup{allcolor=blue}.
```

If you want to completely hide the links, you can use:

```
\hypersetup{allcolors=.}, or even better:  
\hypersetup{hidelinks}.
```

If you want to have obvious links in the PDF but not the printed text, use:

```
\hypersetup{colorlinks=false}.
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