PROJECT IDEAS 2018

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Project ideas

Mobile Application for Automatic Recognising of Fish From Images

Image	Type
	Three-spined Stickleback Fish
	Nine-spined Stickleback Fish

The automated recognition of fish in aquarium has many uses, including tourist attraction and educational experience.

Traditional methods of obtaining information about fish is asking an expert or by scanning through documentation in the aquarium. However, these methods are time-consuming and limiting factor on the amount of data which can be obtained.

In this project the student will engage with expert team in the field of computer vision and mobile development to benefit from excellent support to develop **a mobile application** for fish recognition that provides the user with instant information about a specific fish. The system will capture an image of the fish and display it on the screen. Then, the system **recognises the fish species** and displays the recognition result to the user.

Tuan Nguyen & Alaa Alzoubi

Project ideas

Monitor & track student performance

Tuan Nguyen (& Naseer ?)

Time consuming to keep track individual projects:

- Different starting date
- Change topic
- Keep records for all assessments from different staff members. Assessments includes Report 1, Report 2, Presentation, Poster, Final report and software
- Keep track project extension
- Check performance (attendance, quality and progress) of each project in each term
- etc.

Requirements: Develop a system/tool which allows Project Tutor/Coordinate monitoring all projects including MSc projects.

Project ideas

Auto generating captions for images

Tuan Nguyen (& Hongbo?)

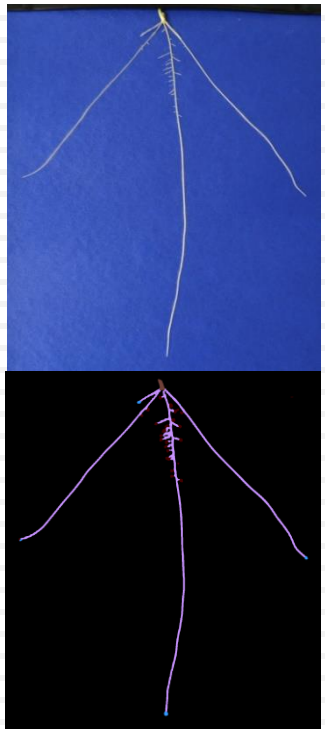
One of the most interesting uses of computer vision, from an AI point of view, is image recognition, which gives a machine the ability to interpret the input received through computer vision and categorise what it "sees."

Question: Can computers understand the context of images?

In this project, you will investigate existing machine learning techniques which allows computer understand images and implement one algorithm and try it on public data sets.

Project ideas

An application to measure root architecture



Write a Windows application using deep learning to detect different root tips and measure the root length.

All data and the algorithm has been developed. It just needs a software written in C# and Windows Presentation Foundation (WPF). And database is MySQL

Tuan Nguyen

Project ideas

Development of app for psychology researchers to use in collection of the Experience Sampling Method (ESM) data

The ESM is a way that researchers collect data from people as they go about their everyday life (Larson & Csikszentmihalyi, 1983). Participants are asked to answer the same questions over a period of time which enables changes in their psychological state to be explored. Questions can be:

- Open text response, e.g. Describe what happened?
- Likert scale: e.g. Rate this for how pleasant it was from 0 - 4

Tuan Nguyen
& any staff member

Develop an app. that :

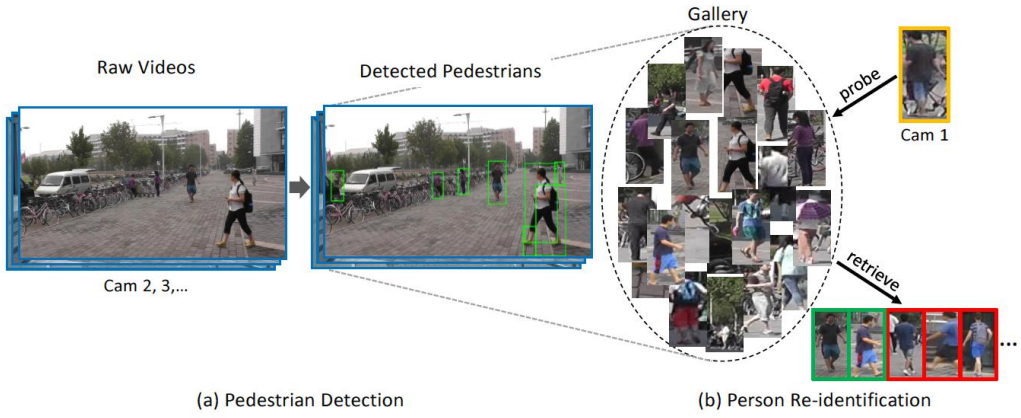
- A psychology researcher can set up to ask a participant specific questions at specific times of day.
- Can be easily downloaded to a participant's smart phone
- Stores and then uploads data to researcher
- Gives an output data file in CSV format required to analyze the data.

Client:
Dr. Gillian Hill.
Psychology Lecturer. University of Buckingham.

See ESM_app_spec_Gill.pdf for details

Project ideas

Object/Person re-identification



"Given an image/video of a person taken from one camera, re-identification is the process of identifying the person from images/videos taken from a different camera with non-overlapping fields of views. Re-identification is indispensable in establishing consistent labeling across multiple cameras or even within the same camera to re-establish disconnected or lost tracks." [1]

Athar Ali & Tuan Nguyen

In this project, you will investigate existing machine learning techniques for Object/Person re-identification, then implement one algorithm for occluded object/person and try it on public data sets.

[1] Gala, Apurva and Shishir K. Shah. "A survey of approaches and trends in person re-identification." *Image Vision Comput.* 32 (2014): 270–286.