

FACULTY MENTOR

Nguyen, Truong

PROJECT TITLE

Human Activity Dataset Collection and Annotation

PROJECT DESCRIPTION

Description: Human pose and activity recognition has been an active research field for a long time. With deep learning revisiting this problem, we will most likely to witness a boost of recognizing accuracy.

Sufficient and well-designed dataset is fundamental to achieve such improvement. In this project, you will be asked to direct a data collection on several scenarios such as customers' behavior in a store scenario, and/or sport action (tennis). The project will cover the entire process of data collection, including designing atomic actions, collecting dataset with volunteers, and annotating dataset afterwards.

Responsibilities:

1. Design atomic activities to be collected
2. Setup recording environment
3. Recruit volunteers to help data collection
4. Clean and annotate recorded dataset

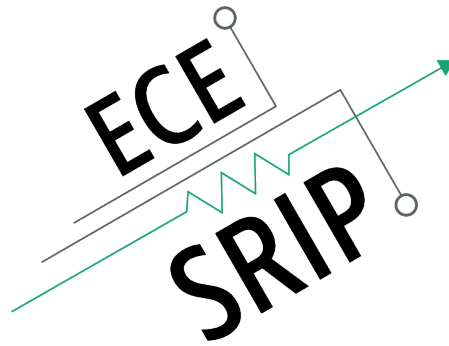
INTERNS NEEDED

2 MS/ BS Students

PREREQUISITES

Qualifications:

1. Motivation and Communication skills
2. Experience with object oriented language (C++, python)
3. Background in computer vision
4. Preferred: Experience with C# and .Net framework
5. Preferred: Experience in human activity recognition



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PROJECT TITLE

Human Pose and Activity Recognition

PROJECT DESCRIPTION

Description:

Human pose and activity recognition has been an active research field for a long time. With deep learning revisiting this problem, we will most likely to witness a boost of recognizing accuracy.

In this project, you will mainly explore different deep learning based algorithms on human pose and activity recognition, including two-stream network with optical flow and LSTM with body joints. You will be asked to utilized/reimplement existing algorithms and improve them to work better on our own human activity dataset.

Responsibilities:

1. Learn existing algorithms on human pose and activity recognition
2. Implement and run codes for existing algorithms
3. Modify and improve these algorithm to work better with our dataset

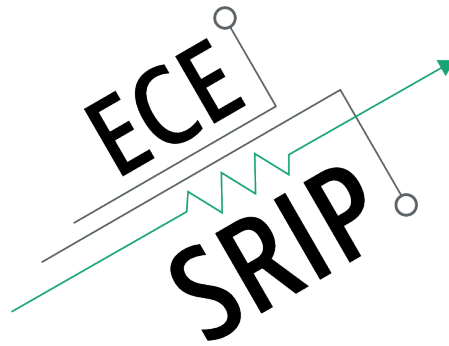
INTERNS NEEDED

2 MS/ BS students

PREREQUISITES

Qualifications:

1. Experience on Python
2. Experience on deep learning libraries like TensorFlow, Caffe, Pytorch
3. Background of computer vision
4. Preferred: Experience on human activity recognition



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PROJECT TITLE

3D Scene Reconstruction for VR

PROJECT DESCRIPTION

Description: 3D scene reconstruction is a very powerful tool with many applications. The goal of the project is to be able to interface with point clouds in VR. A separate team in the video processing lab is working on the camera system and processing of data. The camera system scans a scene and creates a depth map which allows the team to create a point cloud of the scene with rgb information. This project focuses on taking these point clouds and rendering it in VR, so that the user can navigate within the scene. We also create a UR for the users so that they can manipulate said point clouds.

Responsibilities:

1. Improve the current project which can render the scene in VR
2. Fix and clean any bugs in the code
3. Improve on the UI system
4. Extend the project for more features like important multiple point clouds and simulating motion

INTERNS NEEDED

1 BS Student

PREREQUISITES

Qualifications:

1. Proficient with multithreading and OOP
2. Should know how to program in at least one of the following: JAVA or C#
3. Knows how use Unity for VR
4. Understands how to read other people's code
5. Good documentation and communication skills