



BINUS UNIVERSITY INTERNATIONAL

Final Project Report: Pedestrian Movement Prediction Model

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Course Code	: COMP6065001		
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1. Problem description

Among the most significant participants in the rapidly evolving field of modern transportation are pedestrians. For these new technologies to succeed, pedestrian safety must be taken into account during the design process. The detection and tracking system, which recognizes and follows pedestrians as they move, is essential to achieving this goal. Nevertheless, since pedestrians are dynamic objects that can abruptly change direction, detection and tracking alone are insufficient. This issue, known as pedestrian trajectory prediction, also arises in other domains, including social robotics and crowd surveillance. For that to succeed, one of the most important underlying technologies is computer vision and motion prediction. We can apply this technology to other things as well, not only to cars, trucks and buses. For example, drones and ships could use motion prediction for different tasks. We decided to look into this technology and develop a model that can be used for real-time motion detection.

2. Solution features, e.g. algorithms used, special technologies used, user interface, etc.

The model we will be using is the Constant Velocity Model (CVM), developed using data from the ETH Zurich and University of Cyprus trajectory prediction dataset. We chose this model, although it is more complicated than other models. When used in the context of a prediction model for pedestrian movement, it would be a lot more streamlined in terms of application compared to existing models. However, whether it would be better or not is something that we do not know currently. Algorithms used in the solution tend to be quite simple. We are talking about parsers or evaluation algorithms counting displacement for example.

3. Solution design architecture

Strength of CVM design is that it does not require “training”, CVM can be run with or without sampling. A call to the main function always generates one sample if the sample option is true. Solution includes five json data repositories “**eth_hotel**, **eth_univ**, ucy_univ, ucy_zara01, ucy_zara02”. It also features files named; Dataset.py (defines few classes), evaluate.py (define run confs, eval data), metrics.py (), pedestrian.py.

Maybe some general knowledge here on how the program runs?

4. Experiments or tests that you have done.

Using the existing dataset, we have tried to find the

5. Program manual (with screenshots)

6. Link to video of the application demo (with max. length of 2 minutes)

https://drive.google.com/drive/folders/16p3mErtQLaElVdshMhvh1BTSXHe5PLwn?usp=drive_link

7. Link to your GIT repository

<https://github.com/alfinrz/Artificial-intelligence-final-project.git>

Sources: