Project Work Statement

Sponsor

The Shanghai Municipal People's Government

The Transportation and Highway Administration

Participants

Jing Huang(Rachel), jhuang63@jhu.edu

Potential Participants

Academic Mentor: Nam Lee, nhlee@jhu.edu

Co-worker: Rong Fan, rfan@jhu.edu

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Any apparent association of this work to The Shanghai Municipal People's Government is fictional one, and the sole purpose of this work is a class exercise

1 Background

The Transportation

2 Problem Statement

Consider the tracks reported in Figure **??** extracted from an "image" taken from a satellite. To simplify our problem, we assume that the track is generated by a

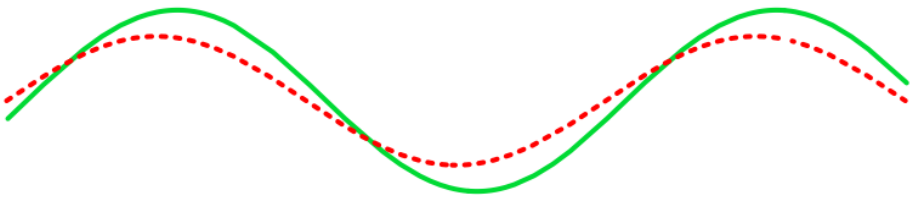

Figure 1: A bicycle track

moving bicycle. It is easy to see that the bicycle is swerving left and right, but the general direction of the movement is not so obvious. Nevertheless, one can also identify the direction of the bicycle.

The sponsor currently has a limited capability to make such inference from a track of moving object from an image, and our task is to provide them with a reasonably large collection of such features and algorithms to detect them.

3 Approach

Given a limited amount of our times, we will assume that extraction of tracts from an image is already completed.

4 Milestones

We have the following major deadlines:

- Work Statement due date, Sep 28, 2012,
- Midterm Presentation due date, Oct 12, 2012,
- Progress Report due date, Oct 26, 2012,

- Final Presentation due date, Nov 6, 2012,
- Final Report due date, Nov 30, 2012.

5 Deliverable

5.1 From Team to Sponsor

The following outputs are expected from this project:

- List of features of ground track useful for determining the target object and disambiguating the objects' moving direction
- Algorithms for detecting the aforementioned features from images
- Numerical experiment results reporting performance of the developed algorithms
- R package with a complete set of documentations along with some test codes that can be used to reproduce our numerical and simulation test results,
- Technical report and presentations summarizing the work.

5.2 From Sponsor to Team

In order for our project to be of successful one, we will need:

- Images for training the numerical algorithms
- Computing resources
- Timely responses to inquiries,
- Symposium attendance travel expenses.