

## Project II

(due: Thursday, March 5, 9:30 am )

paper due at beginning of class, presentations in class

1. Use your traffic flow program or the solution programs to the in-class work (see below). Do your own variation on the traffic flow program and/or its analysis. For example add a traffic light, construction site (e.g. causing VMAX to be less for some of the sites), or change the rules of the one dimensional model, or any other change of your choice.
2. Run your program with varying parameters such as PCAR. Observe carefully and take precise notes. Advanced programmers might want to measure the average velocity  $v_{av}(t)$ , and/or  $v_{eq}(c) = \frac{1}{(t_{tot} - t_{eq})} \sum_{t > t_{eq}}^{t_{tot}} v_{av}(t)$ , and/or  $j_{eq}(c) = cv_{av}(t)$  where  $c$  is the concentration of cars  $c = \frac{\text{number of cars}}{\text{ROADLENGTH}}$  (see programs `traffic10.cc`, `traffic11.cc`, `traffic12.cc`).
3. Write a **paper** about 1. and 2. The paper (2 pages or more) should contain a short introduction which explains clearly which task you tried to do The next section should explain precisely what your new model is, such that everybody in class could write a program, which does exactly the same as what your program does. View this section as the “Model/Simulation” section you have seen in many of the papers you read for your project. For completeness include also the unchanged rules of traffic flow. Include a description of all parameters you used (VMAX, ROADLENGTH, etc.) Then describe your results. What have you observed. End with conclusions and possibly some ideas for future work.
4. Prepare a mini **talk** (6 min each student so that everybody can talk in next class, March 5) The content of your project II talk is the same as the content of your project II paper: model, variation(s), results. Prepare what you will say and some slides. Make sure that you can get to your talk slides (latex beamer, powerpoint etc.) on the computers in RCHM017. As it would be at a conference, I will give you a warning after 5 min and I will stop you after 6 min. Therefore time your talk with a practice talk and prepare such that you will not spend time on editing, compiling or copying.
5. **Comments** As always, any comments about the course and/or assignment are welcome! Thank you for all your feedback! It is fun working with you!

### Solutions:

`~kvollmay/classes.dir/capstone_s2009.dir/traffic.dir/traffic2a.cc` etc.

### Schedule:

- March 5: Project II
- March 6 – 20: Spring Break :-)
- March 17 cancelled, March 19 you meet without me to work on talks
- March 24 9:30 – 11:00 am and 7:30 – 9:00 pm : Talks