

Math 4MB3 Project Notebook 2018

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March 28, 2018 @ 10:51

Friday 9 March 2018

Group Meeting

Approximate Duration: 1/2 Hour

- We discussed and chose a project topic. We settled on ‘Spatial Epidemic dynamics: Synchronization’

Wednesday 14 March 2018

Group Meeting

Approximate Duration: 1 Hour

- We discussed next steps for the project. We planned to read the recommended paper today (and in the next few days individually).
- We will aim to have the spatial SIR model that must be checked by Dr. Earn (part b of the synchronization question in the project outline) done by 19 March

Friday 16 March 2018

Group Meeting

Approximate Duration: 1 Hour

- Worked on our spatial SIR model (based on n identical patches).

Monday 19 March 2018

Group Meeting

Approximate Duration: 1 Hour

- Discussed the spatial model constructed.
- Planned next steps. The two Daniels will work on finding an analytic criterion for guaranteed synchrony. Michael and I will work on implementing the stochastic model in R.

Tuesday 20 March 2018

Group Meeting (Michael and I)

Approximate Duration: 3 Hours

- Learned Rcpp (C++ addon to R) to construct deterministic discrete patch model previously created.

Wednesday 21 March 2018

Group Meeting (Michael and I)

Approximate Duration: 2 Hours

- Continuation of meeting from yesterday to learn Rcpp. We got the patch based deterministic model working.
- Next step is to make this stochastic. We will be working on that in the coming days.

Wednesday 21 March 2018

Group Meeting (with everyone)

Approximate Duration: 1 Hour

- Met in class to discuss our progress.

Friday 23 March 2018

Group Meeting (with everyone)

Approximate Duration: 1 Hour

- Met in class to discuss our progress. The two Daniels are running into some deadends with analytical stuff. We've decided to switch it up a bit. Michael and I will try out the analytical stuff, and they will switch to numerical stuff. The next steps for numerical stuff (for them to attempt) is adding seasonal forcing and stochasticity.

Monday 26 March 2018

Individual work

Approximate Duration: 0.5 Hours

- Started writing my section of the draft on numerical methods and results.

Group Meeting (with everyone)

Approximate Duration: 1 Hour

- Discussed the progress so far and changed our project plan a bit. We will stop doing analytical stuff and just focus on numerical (because the analytical stuff was not working).
- Nailed down a plan for what exactly we want to do with the numerical simulations. The new outlook of our project will be investigating what changing parameters (R_0), seasonal forcing, and the connectivity matrix do to the deterministic model. We will additionally investigate the effects of adding stochasticity to the patch model.

Group Meeting (with everyone)

Approximate Duration: 1 Hour

- Met in the evening to continue discussing our plan for the draft.

Tuesday 27 March 2018

Individual work

Approximate Duration: 5 Hours

- I worked on the R code for my section (the section examining the effect of changing R_0)
- I wrote my draft section and put the relevant R code in the supplementary file

Group meeting (with everyone)

Approximate Duration: 1 Hour

- Discussed issues people were having with getting code to run. Fixed these in group meeting.
- Final discussion on what we should do for draft. Coordinated what should be said in each section and some formatting.

Total time spent on this project

Group work: 13.5 hours

Solo work: 5.5 hours