CMM507 Research Project

Group 2 Meeting Summaries

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# FEB 11

Time & Location: 2.30pm to 3.30pm, SIWB Cafeteria  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

1. Narrow down project’s scope of research
2. Divide research areas to each member for the week.

Notices:

1. With 4 votes from the poll on Slack, “Plastic Pollution” is the general topic.
2. A github repository has been set up to store project documents
3. We will adopt a central listing of all source links: to share resources and as the source for eventual bibliography element.

Decisions:

1. Current project scope: building a predictive model of plastic accumulation size in the ocean given the factors of: rate of pollution, rate of extraction, shipping lanes, currents and other factors

Actions:

All members to research their areas in the week

* sources, datasets and literature;
* collect and update slack with key updates on the go;
* prepare to present findings on 18 Feb to converge research.

|  |  |
| --- | --- |
| Alex | Shipping lanes - location, timeseries and plastics in lanes |
| Georgios | Plastic islands - location, size and timeseries |
| Karen | Plastic sources – location, size and timeseries;  Evidence of existing scope research |
| Roshi | Reasons/motivations for research;  Evidence of existing scope research |
| Stuart | Ocean currents and other factors leading to plastic accumulation |

Discussion Notes:

1. Wildlife, types of plastic, other debris (incl. rubber), and under-surface plastics are removed from project scope but can be alluded to in the motivations for research and further research sections.
2. Larger plastics are easier to remove at surface, before it is disintegrated into microplastics.
3. Microplastics are harmful to plankton production (aquatic life), ingestion by marine animals, ingestion by humans of which effects are still largely unknown.
4. We are interested in where plastic accumulates and why (shipping, currents, location of deposits).
5. Timeseries information is important for model training.
6. We will have to consider interpolation and methods for relating distinct sources of non-overlapping data.
7. We may be interested in the impact of plastic-reduction campaigns (for later research/conclusion)
8. We don’t know if plastic accumulation will increase or decrease in time, but we are building a model to attempt to predict it given different test scenarios.
9. The project scope may still change/ be refined based on research found, especially if a model already exists.

# FEB 18

Time & Location: 2.30pm to 3.30pm, SIWB Cafeteria  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

1. Create hypothesis

Notices:

1. None

Decisions:

1. None

Actions:

1. Everyone to find more insights in their respective datasets/areas

Discussion Notes:

1. There was some…

# FEB 25

Time & Location: 2.30pm to 3.30pm, SIWB Cafeteria  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

1. Summarise project to date to consult Eyad about scope legitimacy

Notices:

1. BibliTex for final R Sweave file now working
2. Stuart found new data set on plastic debris: type and location found

Decisions:

1. Will consult Eyad on Wednesday to confirm project scope is ok.

Actions:

1. Each member to post summary of their findings and any material to slack/github by end of day.
2. Karen to consolidate project summary to date.

Discussion Notes:

1. Stuart talked through plastic debris findings
   1. Debris by type and location
   2. Bias in dataset – rubber recorded only on 1 region
   3. Some regions are land-locked: lakes and lochs
   4. Some long/lats may be using differing long/lat systems
2. Georgios talked through coastline source findings
   1. High relationship: plastic waste as % of waste generated
   2. Medium and low income countries highest contributors
   3. Stuart: is M & L income highest contribution because of population density? Opportunity to bring in population dataset.
3. Could we overlap plastic debris dataset with coastline/10 rivers dataset?
4. Alex presented review article on plastic pollution from shipping activity. Will review to find figures behind article and develop key message.
5. Roshi working on source list and motivations. Key message to be developed by next week so to include in presentation.

# MAR 4

Time & Location: 10am to 11am, SIWB Cafeteria  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

1. Prepare presentation for next week
2. Prepare pre-report for submission 12 mar

Notices:

1. Karen: Presentation template has been started, will need graphics.
2. Georgios: Model for predicting label being built

Decisions:

1. Agreed to subset data.
2. Agreed to re-class some labels.

Actions:

1. Stuart, Georgios to continue with exploration and model building respectively.
2. Karen to finish presentation, initial report and update final report
3. Roshi to wrap up motivations and provide to Karen
4. Alex to prepare writeup on dataset description, which will lead to a section on dataset cleaning.

Discussion Notes:

1. Data set is too large for model
   1. Georgios: Building model to predict label name based on location, qty, error radius
   2. Georgios: 247k instances described as plastic, will need to subset as processor cannot cope.
2. Re-categorising
   1. Georgios: need to re-categorise some of the labels, the variance is too high.
   2. Stuart: Roshi has provided re-classification groupings on slack
   3. Georgios: will integrate
3. Valid variables for model
   1. Stuart: error radius may not be a good variable to use
   2. Stuart: each entry is an observation, not a raw count of items, but count at the time.
   3. Georgios: agree radius is not good to use, but count still is.
4. Correlations
   1. Roshi: Are there any correlations in there?
   2. Karen: We will be looking at correlations between items occurring and events. E.g. fireworks in north America and July, fireworks and six pack rings
5. Presentation
   1. Karen: Initial structure of presentation is drafted. 5 sections of: what we started with, problems we found, turning point, what we’ve found since, what we’re doing next.
   2. Karen: will start combining all work on Saturday for presentation and final report, please upload latest material by Friday, amendments can be made after
6. Final Report
   1. Karen: Will need a section in report to describe the original dataset, this will describe what is in it, what is wrong with it (missing values, incorrect values, relevance -e.g. Stuart’s point about error radius) this will then lead to a following section about how the data was treated (e.g. re-classing) before we processed it.
7. Code review
   1. Stuart: request for code review isn’t to check every line for accuracy, but to check the logic is sound and if any steps missed.

# MAR 10

Time & Location: 2.30pm to 3.30pm, SIWB Cafeteria  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

1. Prepare presentation for next week

Notices:

1. Georgios: Model was able to work on smaller samples of data, will run on the full set of data soon.

Decisions:

1. New model to predict plastic type % by Month and Location

Actions:

1. Karen to complete and submit group presentation.

Discussion Notes:

1. Stuart: Unsure how to assess new model for accuracy.

# MAR 17

Cancelled due to Coronavirus arrangements

# MAR 24

Time & Location: 2.30pm to 3.30pm, Skype virtual meeting  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

1. Decide presenter for tomorrow.

Notices:

1. Karen: Group presentation was submitted in time.
2. Roshi: Have added list of articles to review

Decisions:

Actions:

1. Everyone to clean up their submissions on github
   1. Includes data wrangling code
   2. Data sources
   3. Text files
2. Alex & Roshi: Update “references.bib” file
3. Alex & George: Review list of refer

Discussion Notes:

George:

# MAR 31

Cancelled

# APR 07

Time & Location: 2.30pm to 3.30pm, Skype virtual meeting  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

1. Updates over the last 2 weeks.

Notices:

1. Roshi: Introductions have been updated as have references.bib. Please use Roshi3 text.
2. Karen: All code combined in Final Report but issues with making it work.
3. Georgios: Reviewed 4 papers, 3 not relevant and have sent list to Roshi.
4. Alex: Reviewed 4 papers, no issues.
5. Alex: Found a new paper which uses the same dataset we are using. Their focus was on the use of the data to predict global trends and was inconclusive because of the data unreliability.

Decisions:

1. Karen to further final report and contact individuals in the week for more details on the section if necessary. Contact will be through Slack.

Actions:

1. Karen to update Final Report with new introduction.
2. Karen to finish Final Report for review by end of this week.
3. Alex to share new paper found on slack.
4. Roshi to continue on “Research” section and Alex to support.
5. Stuart to review Georgios’ model more in-depth.

Discussion Notes:

1. Stuart: Not sure if we need a predictive model or if a statistical assessment is enough.
   1. Georgios and Karen: Model already exists, could develop on it further and compare to statistical assessment as content for the “Discussion” section.
2. Georgios: for any meetings note that Greece is GMT +2 hours.

# APR 14

Time & Location: 2.30pm to 3.30pm, Skype virtual meeting  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

1. Walked through final report as currently stands – discussing highlighted items in detail.

Notices:

Decisions:

Actions:

1. Alex to update Data Description section with notes as in current report.
   1. Tables
   2. Screenshots from referenced paper.
2. Roshi, Alex and George to continue with Research Section
3. Stuart to update charts in sections 3 and 4 as per notes in current report.
4. Karen to continue writing in sections 3 & 4.

Discussion Notes:

1. Karen: Should the recategorized data feed into section 4?
   1. Roshi: Agreed
2. Stuart: Item Name shouldn't have blanks anymore as was issue with initial computation. Ok to rerun.
3. ItemID and MaterialID can potential be removed

# APR 22

Time & Location: 11.30pm to 12.15pm, Skype virtual meeting  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

Notices:

Decisions:

Actions:

Discussion Notes:

1. Everyone is still working on their individual parts – but requirements of other assignments are slowing this work down.
2. Karen asks everyone to upload all and any work when it becomes available, even if incomplete so that integration into the final report can start.
3. No other concerns raised.

# APR 28

Cancelled to support other modules

# May 05

Cancelled to support other modules

# May 08

Time & Location: 11.30pm to 12.15pm, Skype virtual meeting  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

Notices:

1. Alex has another module resit due 12May. Limit on availability.

Decisions:

1. Use data from 2012-2020 only.

Actions:

Discussion Notes:

1. Objectives need to merge & find new home
   1. Combine the problem statement
   2. Ocean should change to marine environment
   3. 3rd objective needs changing
2. Make motivations smoother. There is lack of transition into Research section
3. Use research like the ICC classification in section 3 categorisation
   1. Show we understand the context of the research
   2. Identify gaps in the research
4. Discussion – plastic is worldwide pollution
5. After the recategorization, present the final dataset and link back to research.
6. Modelling
   1. Use “Modelling\_per\_category”
   2. Linear regression for plastic type
   3. No cross validation because linear
   4. Backward/forward elimination but no point because there aren’t enough variables. It’s just years.
   5. P value could be chi-square

# May 09

Time & Location: 12pm to 1pm, Skype virtual meeting  
Present: Alex, Georgios, Karen, Roshi

Objectives:

Notices:

1. Stuart has limit on availability for personal reasons.

Decisions:

Actions:

Discussion Notes:

1. Showed how to view changes in github
2. Agreed 2pm Monday cutoff for final report compile
3. Reviewed guidelines – code needs to be shown as only pdf is submitted. Each person submits a file
4. Roshi to edit section 3, Karen 4 and Georgios 5.
5. For future updates to report, extract the changes only or annotate the PDF and tell Karen if it replaces or adds to section.

# May 10

Time & Location: 11am to 12pm, Skype virtual meeting  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

Notices:

Decisions:

Actions:

Discussion Notes:

1. Section 1 – do we need the problem statement?
2. Section 5 – needs updating to remove years 2010, 2011 and 2020
3. Sections 1-3 have been reviewed and edited.
4. Drop section 4.5 on Item pairing?
5. Sections 6 and 7 remining need conclusions
6. Karen to finish section 8

# May 11

Time & Location: 12pm to 1pm, Skype virtual meeting  
Present: Alex, Georgios, Karen, Roshi, Stuart

Objectives:

Notices:

Decisions:

Actions:

Discussion Notes:

1. Short descriptions of what each person did need to be added.
2. Georgios: issue with data impacting modelling, need to review.