4.
An outlook to computational social science

Computational Social Science (CSS)?

Beyond Social Media

"Each of these transactions leaves digital breadcrumbs which, when pulled together, offer increasingly comprehensive pictures of both individuals and groups, with the potential of transforming our understanding of our lives, organizations, and societies in a fashion that was barely conceivable just a few years ago."

Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabasi, A.-L., Brewer, D., … Van Alstyne, M. (2009). SOCIAL SCIENCE: Computational Social Science. Science, 323(5915), 721–723. http://doi.org/10.1126/science.1167742

Everyday life influenced by algorithms

"every day social interactions on the Web are increasingly mediated and shaped by algorithms and computational methods in general. This is the case with systems where, for example, knowledge about human social behavior is used to recommend contacts (such as Facebook friend suggestions), to recommend products (Amazon recommendations), or to filter and retrieve content (Digg.com or Google). "

Strohmaier, M., & Wagner, C. (2014). Computational Social Science for the World Wide Web. IEEE Intelligent Systems, 29(5), 84–88. http://doi.org/10.1109/MIS.2014.80

Hot topic:
Bias & discrimination

Example: Gender bias

- Different representations of men and women on Wikipedia.
- Different

Claudia Wagner, Eduardo Graells-Garrido, David Garcia and Filippo Menczer, Women through the glass ceiling: gender asymmetries in Wikipedia, EPJ Data Science Journal, 2016

Example: Racial bias

- AirBnB
- Image detection

Hot topic:
polarization and radicalization

Different types of data and approaches

Sensor technology

- Analysing human behaviour and movement
- Predicting, eg. disease spread, traffic

Smieszek, T., Castell, S., Barrat, A., Cattuto, C., White, P. J., & Krause, G. (2016). Contact diaries versus wearable proximity sensors in measuring contact patterns at a conference: method comparison and participants' attitudes. BMC Infectious Diseases, 16(1). http://doi.org/10.1186/s12879-016-1676-y

Web experiments

- Influence of Web users over one another (e.g. voting behaviour).
- Introducing a bot to an online community.

AIELLO, L.; DEPLANO, M.; SCHIFANELLA, R.; RUFFO, G.. People Are Strange When You're a Stranger: Impact and Influence of Bots on Social Networks. International AAAI Conference on Web and Social Media, North America, may. 2012. Available at: <http://www.aaai.org/ocs/index.php/ICWSM/ICWSM12/paper/view/4523>. Date accessed: 26 Jul. 2016.

Conclusions 3

Lessons learned

- Computational Social Science goes beyond social media data, though it often is based on digital traces of humans found on the Web. CSS applies computational approaches for studying human behaviour.
- CSS is a very young field which is related to social media research / web science / internet research – and which is still developing.
- CSS offers room to explore data analysis combined with theories from social science.

If you have time to read 3 papers…

- DellaPosta, D., Shi, Y., & Macy, M. (2015). Why Do Liberals Drink Lattes? *American Journal of Sociology*, *120*(5), 1473–1511. http://doi.org/10.1086/681254
- Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabasi, A.-L., Brewer, D., … Van Alstyne, M. (2009). SOCIAL SCIENCE: Computational Social Science. Science, 323(5915), 721–723. http://doi.org/10.1126/science.1167742
- Claudia Wagner, Eduardo Graells-Garrido, David Garcia and Filippo Menczer, Women through the glass ceiling: gender asymmetries in Wikipedia, EPJ Data Science Journal, 2016