Dr Dimitra (Mimie) Liotsiou

BA (Hons) Cambridge University, MSc & PhD Southampton University
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EXPERIENCE

2/2020- **Research Data Scientist, dunnhumby, London, UK**
- I developed advanced ranking algorithms, significantly improving KPIs, for the company's flagship software. I built predictive machine learning models (e.g. tree ensembles) to determine the development of internal composite metrics. Main stakeholder: a leading global retailer.
- I started & lead the development of the company's observational causal inference capacity.
- I have been co-developing a new social media analytics initiative.
- Tools: Python, PySpark, JupyterLab, GCP, SQL, Git, GitLab, shell, external APIs.

1/2018-1/2020 **Postdoctoral Researcher in Data Science, University of Oxford, UK**
At the Oxford Internet Institute, analysing the impact of online misinformation.
- I lead a team of three and built the Junk News Aggregator, an interactive platform exposing in real-time the content and popularity of Facebook posts from US & EU junk news sources.
- I analysed and built predictive machine learning models of large-scale disinformation activities on Facebook & Instagram during the 2016 US elections, producing extensive and novel insights.
- Tools: Python, MySQL, Git, shell, external RESTful APIs.

10/2014-10/2016 **Teaching Assistant in Computer Science, University of Southampton, UK**
Data science and machine learning from text data in Python, software engineering, programming.

6-9/2014 **Operational Research Intern, Department of Health, London, UK**
Award-winning MSc thesis project. Projecting dental care need in England over the next 20-30 years. Used age-period-cohort modelling on nation-wide dental health survey data.

6-9/2011 **Software Engineering Intern, Morgan Stanley, London, UK**
I built scheduling algorithms that achieved a 30% improvement on SLA KPIs, & built a fully extensible computer grid simulator for interest rate derivatives. Learned Scala from scratch.

7/2010 **Programming Intern, Aristotle University of Thessaloniki, Greece**
Solved computational solid-state physics problems in Java using Monte Carlo simulation.

EDUCATION

2014-18 **University of Southampton, PhD Computer Science.**
- **Awards:** Full scholarship; Best Poster award & paper (SocInfo-16)
- Thesis: Measuring the social influence of online communications at the individual and collective level: A causal framework.
- Tools: Python data science & machine learning stack, Git, Unix shell.
- Methods: Graphical causal models, machine learning & NLP, mining large text & network data.

2013-14 **University of Southampton, MSc Operational Research. Grade: Distinction.**
- **Awards:** Full scholarship, thesis prize.
- Thesis: Projecting dental care need in England over the next 20-30 years.

2009-12 **University of Cambridge, BA (Hons) Computer Science. Grade: 2.1 (67.2%).**
- **Awards:** Final-year thesis prize; first prize in industry-commissioned group project competition (role: team manager & regular member).

- Thesis: Parallelising ant colony optimisation-based solutions to the vehicle routing problem in Scala.

2007-09 **International Baccalaureate Diploma, Score: 45/45, Anatolia American College, Thessaloniki, Greece.** Globally only 0.19% of students achieved 45 out of 45.

TECHNICAL SKILLS

- **Languages:** Python (pandas, scikit-learn, numpy, scipy, statsmodels, matplotlib, seaborn, keras, spaCy, nltk, networkx, requests), SQL, Scala, Java, Unix shell (incl. cron for job scheduling), Markdown, LaTeX.
- **Frameworks, Tools & Practices:** PySpark and Spark (running on Hadoop with Yarn); Google Cloud Platform (GCP); Git and GitLab; Jupyter Notebooks/JupyterLab; Spring, Perforce, JIRA, Scrum, Agile, continuous integration/ deployment (CI/CD), unit testing, documentation, code reviews/QA.
- **APIs:** RESTful APIs (HTTP-based), including the Facebook Graph API and Twitter API.
- **Operating Systems:** Experienced in Mac OS X, Linux, MS Windows.
- **Software Packages:** MS Office (incl. VBA), SPSS, SAS.

SELECTED PUBLICATIONS

- Liotsiou, D., Ganesh, B., & Howard, P. N. (2020). Predicting Engagement with the Internet Research Agency's Facebook and Instagram Campaigns around the 2016 US Presidential Election. arXiv preprint arXiv:2010.14950.
- Savolainen, L., Trilling, D., & Liotsiou, D. (2020). Delighting and Detesting Engagement: Emotional Politics of Junk News. Social Media+ Society, 6(4), 2056305120972037.
- Liotsiou, D., Kollanyi, B. & Howard, P.N. (2019) The Junk News Aggregator: Examining junk news posted on Facebook, starting with the 2018 US Midterm Elections. arXiv preprint arXiv:1901.07920
- Liotsiou, D., & Howard, P.N (2019) Measuring the influence of online misinformation: A hierarchy of social media data. *The 5th Annual International Conference on Computational Social Science (IC2S2), Amsterdam, Netherlands.* (Author copy)
- Howard, P.N., Ganesh, B., Liotsiou, D., Kelly, J., & Franois, C., (2018) The IRA, social media and political polarization in the United States, 2012-2018. (University of Oxford)
- Liotsiou, D., Moreau, L. & Halford, S. (2016) Social influence: From contagion to a richer causal understanding. In *International Conference on Social Informatics (pp. 116-132). Springer, Cham.* (Journal website) (Author copy) (Full-length paper in proceedings, **Best Poster Award**, short talk)

AWARDS & HONOURS

- **Interview and research feature on the European Commision/ European Research Council (ERC) website**, 2019.
- **Best poster award** and paper, 8th International Conference on Social Informatics, USA, 2016
- **Full PhD scholarship**, tuition and stipend, by the UK EPSRC and Roke Manor Research, University of Southampton, 2014-17.
- **Sponsor prize for MSc thesis**, Department of Health UK University of Southampton, 2014.
- **Full MSc scholarship**, University of Southampton, 2013-14.

- **Prize for final-year BA thesis, University of Cambridge, 2011-12. Score: First Class (82%).** I wrote multi-agent biologically-inspired Reinforcement Learning AI algorithms in Scala, to solve the capacitated Vehicle Routing Problem (strongly NP-hard combinatorial optimisation problem). Wrote and compared several variants of sequential and parallel code, and ran them on a 32-core machine, achieving state-of-the-art performance.
- **First prize ("Most Impressive Professional Achievement"), University of Cambridge Group Project Competition, 2010-11.** Project manager in a team of six, plus contributing as a regular member. We built a Twitter analytics web app for the tech company Red Gate.

SELECTED PRESS COVERAGE & IMPACT

My data science research on misinformation and junk news (2018-20, Oxford University) was featured in:

- **Press:** Leading media outlets, such as: on the front page of The Washington Post and of The New York Times; and also on: MSNBC (interview), the BBC, TechCrunch, and Ars Technica (interview).
- **Impact:** The UK Paliament's 'Final Report on Disinformation and 'fake news" (2019).

LANGUAGES

English (native-level), Greek (native), French (intermediate/fluent)

OTHER INTERESTS AND STUDIES

- **Music critic, Southampton University culture magazine, 2013-15.** Award nomination.
- **Model United Nations, 2007-08.** Several international conferences.
- **Music studies, at music school (conservatoire), 1998-2007.** Certificate in Theory of Music equivalent to ABRSM Music Theory Grade 7 (Advanced Harmony, Figured Bass, Solfège, Dictée, Counterpoint, History and Morphology of Music, Choir, Piano). Advanced classical guitar studies (level 6/9).
- **Other interests:** Playing guitar, ukulele, piano; drawing, painting, analog and digital photography; reading books and independent magazines especially on art and culture; swimming, squash; travelling.