## **Population Science**

Francisco Rowe, Carmen Cabrera-Arnau, Elisabetta Pietrostefani01/10/2022

#### Table of contents

Welcome		3
1	Introduction	4
2	Data Privacy, Ethics and Biases	5
3	Geodemographics	6
4	Sequence Analysis	7
5	Network Analysis	8
6	Sentiment Analysis	9
7	Topic Modelling	10
8	Modelling Time	11
9	Assessing Interventions	12
10	Machine Learning	13
References		14

#### Welcome

This is a Quarto book.

To learn more about Quarto books visit https://quarto.org/docs/books.

Rowe, Lovelace, and Dennett (2022)

1 + 1

### 1 Introduction

This is a book created from markdown and executable code.

See Knuth (1984) for additional discussion of literate programming.

1 + 1

# 2 Data Privacy, Ethics and Biases

- Rowe (2021b)
- $\bullet\,$  Green, Pollock, and Rowe (2021)

## 3 Geodemographics

This is a book created from markdown and executable code.

See Knuth (1984) for additional discussion of literate programming.

1 + 1

### 4 Sequence Analysis

This chapter shows the use of sequence analysis to study population decline and draw on the following papers:

- Rowe, Neville, and González-Leonardo (2022)
- Newsham and Rowe (2022)
- Rowe, Robinson, and Patias (2022)

### 5 Network Analysis

This is a book created from markdown and executable code.

See Knuth (1984) for additional discussion of literate programming.

1 + 1

## **6 Sentiment Analysis**

This chapter will draw on:

- Rowe (2021a)
- Rowe et al. (2021)

## 7 Topic Modelling

This is a book created from markdown and executable code.

See Knuth (1984) for additional discussion of literate programming.

1 + 1

# 8 Modelling Time

```
Tao et al. (2018)

1 + 1

[1] 2
```

## 9 Assessing Interventions

This is a book created from markdown and executable code.

See Knuth (1984) for additional discussion of literate programming.

1 + 1

## 10 Machine Learning

This is a book created from markdown and executable code.

See Knuth (1984) for additional discussion of literate programming.

1 + 1

#### References

- Green, Mark, Frances Darlington Pollock, and Francisco Rowe. 2021. "New Forms of Data and New Forms of Opportunities to Monitor and Tackle a Pandemic." In, 423–29. Springer International Publishing. https://doi.org/10.1007/978-3-030-70179-6\_56.
- Knuth, Donald E. 1984. "Literate Programming." Comput. J. 27 (2): 97–111. https://doi.org/10.1093/comjnl/27.2.97.
- Newsham, Niall, and Francisco Rowe. 2022. "Understanding the Trajectories of Population Decline Across Rural and Urban Europe: A Sequence Analysis." https://doi.org/10.48550/ARXIV.2203.09798.
- Rowe, Francisco. 2021a. "Using Twitter Data to Monitor Immigration Sentiment." http://dx.doi.org/10.31219/osf.io/sf7u4.
- ——. 2021b. "Big Data and Human Geography." http://dx.doi.org/10.31235/osf.io/phz3e.
- Rowe, Francisco, Robin Lovelace, and Adam Dennett. 2022. "Spatial Interaction Modelling: A Manifesto." http://dx.doi.org/10.31219/osf.io/xcdms.
- Rowe, Francisco, Michael Mahony, Eduardo Graells-Garrido, Marzia Rango, and Niklas Sievers. 2021. "Using Twitter to Track Immigration Sentiment During Early Stages of the COVID-19 Pandemic." *Data & Policy* 3. https://doi.org/10.1017/dap.2021.38.
- Rowe, Francisco, Ruth Neville, and Miguel González-Leonardo. 2022. "Sensing Population Displacement from Ukraine Using Facebook Data: Potential Impacts and Settlement Areas." http://dx.doi.org/10.31219/osf.io/7n6wm.
- Rowe, Francisco, Caitlin Robinson, and Nikos Patias. 2022. "Sensing Global Changes in Local Patterns of Energy Consumption in Cities During the Early Stages of the COVID-19 Pandemic." Cities 129 (October): 103808. https://doi.org/10.1016/j.cities.2022.103808.
- Tao, Sui, Jonathan Corcoran, Francisco Rowe, and Mark Hickman. 2018. "To Travel or Not to Travel: 'Weather' Is the Question. Modelling the Effect of Local Weather Conditions on Bus Ridership." *Transportation Research Part C: Emerging Technologies* 86 (January): 147–67. https://doi.org/10.1016/j.trc.2017.11.005.