THOMAS GRUNDY

🎓 EDUCATION

2021 | 2018

PhD in Statistics (in collaboration with Royal Mail)
STOR-i Centre for Doctoral Training 📍Lancaster University, UK
- Title: On Aspect of Changepoint Analysis Motivated by Industrial Applications.
- Research areas: time series analysis, changepoint detection, forecasting, sequential monitoring of stochastic processes, high-dimensional statistics.

2018 | 2017

MRes in Statistics and Operational Research (Distinction)
STOR-i Centre for Doctoral Training 📍Lancaster University, UK
- President of University Equestrian Team.

2017 | 2014

BSc in Mathematics and Statistics (1st with Hons.)
Project: Modelling Premier League Football 📍Lancaster University, UK
- Team Captain of University Equestrian Team & College Football Team.

🖥 RESEARCH EXPERIENCE

Present | 2020

Sequential Monitoring of Forecast Accuracy
Aim: Detect inaccuracies in forecasts of the number of parcels being processed at Royal Mail delivery offices in an online manner.
- Created statistical methodology to monitor for inaccuracies in forecasts.
- Produced software in R that identified start of Xmas peak season, allowing a timely switch to Xmas forecasting model

2021 | 2020

Detecting Changes in Motion Capture Data
Aim: Detect changes in human activities using motion capture data.
- Converted video file data to usable, multivariate time series data.
- Created statistical methodology to detect subspace changepoints.
- Detected changes in human activity to within 1 second of true time of change.

2019

Research Sprint: Investigating Bentley Vehicle Faults
Aim: Within a 1 day time frame, generate ideas and potential research directions for monitoring the occurrence of vehicle faults.
- As a team, we suggested Poisson-based models to forecast fault occurrences.
- I deployed changepoint techniques to improve forecasting capabilities.

2020 | 2019

Identifying Break Points in S&P500 data
Aim: Identify changes in daily closing stock prices of S&P 500 companies.
- Using novel methodology, I identified changes in closing stock prices that correspond to major events including Brexit.
- This could be used to improve stock market forecasts, allowing for a competitive edge in stock trading.

💼 WORK EXPERIENCE

Sep 21 | Oct 21

Data Scientist at AO
Worked in a newly formed data science team on projects in marketing and personalised discounts.
- Created a valuation model for predicting profitability of a discount scheme. Showed the effect of improving scheme's classification model on profit.
- Created RFM model for segmenting customers. This will be used for greater personalisation of email marketing to improve click-through rates.

2021 | 2018

Graduate Teaching Assistant at Lancaster University
Led workshops for a range of Maths modules.
- Modules include Time Series Analysis, Machine Learning & Medical Statistics.

📄 PUBLICATIONS

2020

High-Dimensional Changepoint Analysis via a Geometrically Inspired Mapping
Grundy T., Killick R., Mihaylov G.
Stat Comput **30**, 1155–1166 (2020), 10.1007/s11222-020-09940-y

CONTACT INFO

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For more information, please contact me via email.

SKILLS

Experienced in creating, developing and implementing statistical methodology.

Confident with machine learning models and data visualisation.

R (tidyverse, shiny).

Python (pandas, matplotlib, sklearn).

SQL, Git, LaTeX.

Azure DevOps, Microsoft Office.

Linux, Windows and MacOS.

Produced multiple R packages including changepoint.geo, changepoint.cov and changepoint.forecast.

PERSONAL PROJECTS

Shiny application for detecting changepoints grundy95.shinyapps.io/changepoint-shiny

Clustering Premier League and American Football sports teams grundy95.rbind.io/post/nfl-prem-matchup