

Matthew Knowles

07794235668 | mk1320@york.ac.uk | [linkedin.com/in/matthew-knowles-51a717145/](https://www.linkedin.com/in/matthew-knowles-51a717145/) | github.com/mattknowles314

RESEARCH INTERESTS

I am interested primarily in Theoretical Computer Science. More specifically, problems in Optimisation, Complexity Theory and Computational Algebra.

EDUCATION

University of York

York, UK

MMath Mathematics, Grade: First (Expected)

October. 2018 – June 2022

- Focus on Pure Mathematics, namely Algebra. I have also taken modules in Statistics.
- Third year group dissertation: *Numerical Solutions to Equations of In-Host Viral Dynamics*.

Droitwich Spa High School

Worcester, UK

A-Levels in Maths, Further Maths and Physics, Grades: ABB respectively

September. 2014 – June 2018

EXPERIENCE

Healthcare Market Analyst

November 2020 – Present

The Griff Investment Fund

York, UK

- Pitching equities for the fund to purchase
- Keeping on top of financial news to make informed decisions about stocks held by my sector of the fund
- Producing reports on instruments held

Undergraduate Research Intern (Bioinformatics)

July 2020 – September 2020

Department of Biology, University of York

York, UK

- Developed a pipeline in Python to using the Burrows-Wheeler-Aligner and SAMTools to collect, sequence, align and call the peaks of ChIP-Seq data
- Further developed an R pipeline to apply machine learning libraries to the acquired data
- Identified transcription factors for further study into breast cancer treatment
- Collaborated with other interns to write up a report giving our findings

Research Intern (Particle Physics)

July 2017 – August 2017

School of Physics and Astronomy, University of Birmingham

Birmingham, UK

- Using Python to visualise HiSPARC Cosmic ray data
- Applying statistical methods to the data to locate stars which are potential sources of cosmic radiation
- Presented results at the 6th annual HiSPARC conference at the University of Bath

PROJECTS

Stock Price Prediction using Neural Networks | *Numpy, Yahoo Finance API, SciKitLearn*

September 2020

- Implemented a simple program to fetch stock price data using Yahoo Finance
- Time-series of price on close plotted using Matplotlib
- Used a recurrent neural network to predict future stock prices

Pandemic Modeller using S.I.R equations | *Python, Matplotlib, Numerical Integration*

March 2020

- Implemented a python program to solve SIR equations using Numpy and Scipy
- Plotted results on a graph using Matplotlib
- Worked collaboratively with someone to develop a UI for the program

SKILLS

Programming Languages: Python, R, C/C++

Developer Tools: Git, Vim, VS Code, Rstudio, UNIX Operating Systems

Communicative Languages: **Fluency:** English, Norwegian **Intermediate:** Russian, German