

# HARRY SMITH, PHD

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## CONTACT

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## SKILLS

**LANGUAGES:** Python, SQL, Pyspark, Git & Github

**LIBRARIES:** pandas, matplotlib, seaborn, scikitlearn, keras  
**DATA VISUALIZATION:** Tableau, Plotly

**MACHINE LEARNING:**

Linear Regression, Logistic Regression, Random Forest, KNN, K Means, Natural Language Processing (NLP)

**DATA/CLOUD STORAGE:** AWS, MongoDB

## EDUCATION

University of Illinois at Chicago 2015 to 2020  
PhD Mathematics 2020

Durham University, UK 2010 to 2014  
MMath Mathematics 2014

## EXPERIENCE

### Metis

Chicago, IL

Data Scientist

Summer 2020

- Metis is an ACCET accredited 12week immersive data science bootcamp focused on project oriented learning
- The core curriculum is centered around Python, statistics, supervised and unsupervised machine learning, exploratory data analysis, databases, and visualization techniques
- Completed five self-designed data science projects from conception to presentation; including data collection, data management, exploratory data analysis, modeling, and visualizations

### University of Illinois at Chicago

Chicago, IL

Research Assistant

2015 to 2020

- Assisted faculty in the Mathematics department with preparing publications, organizing seminars and other research activities

### Teaching Assistant

2015 to 2020

- Independently ran discussion sections of 15-20 students for a variety of undergraduate Mathematics courses, primarily including Linear Algebra and Calculus

### Great Yarmouth High School

Great Yarmouth, UK

Secondary School Mathematics Teacher

2014 to 2015

- Taught classes of 20-30 students, aged 15-16, in preparation for the GCSE Mathematics exam

## PROJECTS

### Detecting Ransomware Payments

Created a model to detect Ransomware payments using publicly available data on bitcoin transactions. Also trained models for detecting specific types of Ransomware and to detect the emergence of new types of Ransomware. Modelling was done in pyspark and data was uploaded to a spark cluster created using the EMR service on AWS.

### Predicting the Stock Market with Daily New Headlines

Analysed headlines in the daily news using natural language processing, sentiment analysis and anomaly detection. Used the results to engineer features for a model predicting fluctuations in the Dow Jones Industrial Average.

### Bounded t-structures on the Category of Perfect Complexes

PhD Thesis in pure mathematics. Independently proved an original result in the fields of Algebraic Geometry and Algebraic Topology.

### Khovanov Homology of Knots and Tangles

Master's Thesis in pure mathematics. An expository paper in the field of Algebraic Topology.