

HANNAH KER

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I am interested in exploring the ways that (geospatial) data can contribute to making cities, towns, and communities more livable and sustainable. I conduct interdisciplinary, data-driven research and create tools and workflows that bring meaning to complex, messy datasets. I believe in reproducible research, data literacy education, and the power of data visualization.

EDUCATION

University College London

Sept 2019 - Sept 2020

MSc Candidate Spatial Data Science and Visualization

- Relevant coursework: Agent-based modelling, Quantitative methods, Geographic information science, Spatio-temporal data mining, Digital visualization, Programming for spatial analysts

McGill University

Sept 2014 - May 2018

BA Urban Geography (First Class Honours)

- Dean's Honour List, CGPA: 3.97/4.00
- Southeast Asia Urban Field Studies
- Relevant coursework: Advanced geographic information science, Principles of the geospatial web, Intro to computer science, Environmental policy and planning, socioeconomic applications of GIS

PROFESSIONAL EXPERIENCE

Research Assistant - *UCL Division of Psychiatry*

Oct 2019 - Jan 2020

- Visualized spatial patterns in predicted cases of psychosis throughout England.
- Cleaned data using Python (pandas) and developed templates and final outputs of cartographic visualizations in R (ggplot2).

Open Data Analyst - *Applied Research Lab, OpenNorth*

Aug 2018 - Aug 2019

- Proposed, managed, and implemented projects to improve data-driven decision making in government.
- Designed and developed online learning tools to improve data literacy in the Canadian Federal Government. Created sample workflows of basic text analysis with NLP tools in Python (gensim).
- Worked with public officials in Ukraine to improve data management during public consultations.
- Consulted on data management best practices for 'smart city' projects in ten cities across South America, Asia, and Africa.

Research Assistant - *Department of Geography, McGill University*

Jan 2019 - Sept 2019

- Collected/cleaned data from the Twitter API using Python (tweepy) and used social network analysis in Gephi to understand information dissemination on social media during an extreme flood event.
- Led the team of researchers in writing a paper accepted for publication with the Journal of Contingencies and Crisis Management.

TECHNICAL SKILLS

Data Science

Python, R, Java, SQL, STATA, SaTScan

GIS

QGIS, ArcGIS, Mapbox, OpenStreetMap, ENVI

Web Development

Javascript, HTML, CSS

Technical Communication

GitHub, Jupyter Notebooks, Markdown, LaTeX

NOTABLE PROJECTS

MSc Dissertation: *Understanding temporal accuracy in OpenStreetMap data*

In collaboration with Médecins Sans Frontières UK, I am working to improve approaches for assessing the temporal accuracy of OpenStreetMap (OSM) data. This work is applicable to humanitarian field operations that rely on OSM data in regions with geospatial data poverty. (Under the supervision of Dr. Sarah Wise). *Java, R*

Group Research Project: *Predicting Travel Times in London*

Alongside group members, I conducted a comparative analysis of spatio-temporal forecasting models to predict traffic speeds for roads in London. I personally applied support vector regression in R. Other models included spatio-temporal autoregressive integrated moving average (STARIMA), random forest (RF), and recurrent neural networks (RNN). *Python, R*

Group Digital Visualization: *Wildlife in the City*

In collaboration with three other students, I created interactive, web-based visualizations to display various dimensions of wildlife inhabiting cities. Individually, I created and deployed a website to host all the project content, and defined project coding standards. My individual work in this project is currently being integrated into educational material at the Albany Pine Bush Preserve Commission. *Javascript, Mapbox GL JS, HTML, CSS*

COMMUNITY INVOLVEMENT

Volunteer Geography Instructor - *Shree Mangal Dvip Boarding School* June 2018

- Developed geography lesson plans and activities for students in grades 5-8 in Kathmandu, Nepal
- Delivered lessons and led classes for students

Co-Founder and President - *Open Mapping Group of McGill* Sept 2017 - May 2018

- Co-founded and led a student-run group that aims to connect students with open geospatial data and technologies, and build community resilience through both local and remote humanitarian mapping efforts

Team Captain - *McGill University Sailing Team* Nov 2016 - Nov 2017

- Member of the executive committee of a competitive, student-run sports team of 30 athletes
- Managed and hired team coaches
- Maintained the team's fleet of twelve (12) sailboats

HONOURS AND AWARDS

London Goodenough Association of Canada Scholarship 2019

Awarded for academic excellence, to support graduate studies in London

Canadian Association of Geographers Undergraduate Award 2018

Honoured as one of Canada's top graduates of an Undergraduate Geography program

ESRI Canada GIS Scholarship 2018

Awarded for excellence in the field of GIS

Robert Bruce Scholarship 2017

Awarded by the McGill Faculty of Arts for a high level of academic achievement