Funding initiative Final Report

Initiative Title: Development of spopt location modelling package to include the capacitated p-median problem

Applicants: Dr Qunshan Zhao (UBDC, University of Glasgow, AGILE member); Dr Nick Bearman (Geospatial Training Solutions & UCL); Dr Huanfa Chen (UCL); Dr Levi Wolf (Bristol); Dr James Gaboardi (ORNL, USA)

Funding initiative activities:

1. Workshop

As promised in the proposal, we have organized the spopt training workshop in the AGILE 2023 conference in June 2023 and it has received a very good turnaround and feedback. Dr Levi Wolf from Bristol led the workshop.
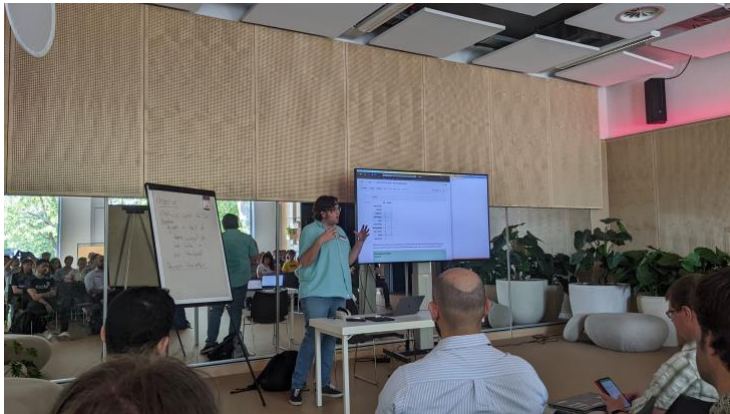
2. Research presentation

Furthermore, our accepted short paper in AGILE has been presented in the AGILE 2023 conference in June 2023. Dr Nick Bearman led the presentation in the geo-education session.

Bearman, N., Xu, R., Roddy, P. J., Gaboardi, J. D., Zhao, Q., Chen, H., & Wolf, L. (2023). Developing capacitated p-median location-allocation model in the spopt library to allow UCL student teacher placements using public transport. *AGILE: GIScience Series*, *4*, 1–7. https://doi.org/10.5194/agile-giss-4-20-2023

Research code: https://github.com/UCL/ioe-student-school-allocation

3. Spopt development work

After the AGILE conference, we have been funded by Google Summer of Code 2023 and the previous RA funded by the initiative (Ms Rongbo Xu) continued to work on the spopt development until Sep 2023. Here is the project page: https://summerofcode.withgoogle.com/programs/2023/projects/05jDO3IG and the development pull request has been submitted via GitHub (https://github.com/pysal/spopt/pull/397).

4. AGILE membership development

Because of the initiative, University of Bristol has joined the AGILE community since 2023.

5. Public blog from UBDC

We also summarize the outcomes from the AGILE funding initiative and the following Google summer of code into a public blog and published by UBDC: https://www.ubdc.ac.uk/news-media/2023/september/improving-the-p-median-model-with-capacity-and-near-far-cost-allocation-in-spopt/