



E: s.m.labib@uu.nl / sml80@cam.ac.uk W: www.smlabib.com / www.uu.nl/staff/SMLabib/

 <https://bit.ly/2PzyH35>

 <https://github.com/labiblm>

Department of Human Geography & Spatial Planning, Utrecht University.

About

I am spatial data scientist specialised researching built environments, public health, in urban contexts. Most of my work is focused on understanding human-environment interactions through collaborative, inter-disciplinary research with strong data science and geographical information science (GIS) dimensions. I am also a teacher of spatial data science, health geography, environmental modelling, and an 'Associate Fellow' of the Higher Education Academy in the UK.

Education

September, 2017-
September, 2020

PhD in Geography

The University of Manchester

Thesis Title: Multiscale exposure to Urban Greenspace: A Spatially explicit approach. (Supervisors: Prof. Sarah Lindley, and Dr Jonny Huck)

August, 2017

Data Science and Big Data Analytics

London School of Economics – LSE Methods Summer School

Core Modules: Foundation to Data Science, Machine Learning modelling, Text mining (NLP), and R-Programming.

2016-2017

MSc. Geographical Information Science

The University of Manchester

Result: Distinction (Average: 78.87%, *Best student of the cohort*)

Core Modules: GIS and Environmental Application (85%), Environmental remote sensing (86%), GIS and the web (JavaScript course, 72%), Digital Image processing (85%), Understanding GIS (*Python* course, 78%).

Dissertation Title: The Potential of creating Green Infrastructure through enhancing linear waterways or derelict land In Manchester: A Neural Networking and fuzzy GIS approach (Supervisor: Prof. Sarah Lindley)

2009-2014

Bachelor of Urban and Regional Planning

Bangladesh University of Engineering and Technology (BUET)

Result: CGPA 3.86 out of 4.00 (Merit position 2nd)

Core Modules: Urban Planning, Transportation Planning, Environmental Planning, GIS and Remote Sensing, Urban Governance, Project Management.

Thesis Title: Green Transport Planning For Dhaka City: Measures for Environment-Friendly Transportation System (Published in *Journal of Environmental Management. Labib et al., 2018a*)

Relevant Technical Skills

- Programming languages for spatial analysis: **Python** (e.g., *rasterio, Fiona, panda*), **R** (e.g., *sf, rgdal, rgeos, tmap, spatialreg*), *JavaScript* (e.g., *leaflet*)
- Remote sensing: **Google Earth Engine**, *ENVI, eCognition, GRASS*.
- GIS Software Packages: **ArcGIS 10.x/pro, QGIS**.
- Data Source Platforms (regular use): **OpenStreetMap, EarthExplorer, Copernicus Open Access Hub, OS Master Map**.
- Database management: **PostgreSQL, MySQL, ArcGIS server**
- Statistical Packages & software: *R* (e.g., *CAR, spatialreg, mediation*), *SPSS*
- Qualitative data analysis software/packages: *Nvivo, Mozdeh*
- Transportation Modelling: *PTV VISSIM (micro-simulation)*
- Specialised Machine learning packages: *R* (e.g., *Caret, Orfeo, Matlab*)
- Deep learning packages and environment: *YOLOv4, Tensorflow*
- Version control: **GitHub, Google CoLab**

Research Experience and Skills

October, 2021-
Continuing

Assistant Professor of Data Science and Health (Tenure track)

Organisation: Department of Human Geography and Spatial Planning, Utrecht University

Responsibilities:

- Developing research projects on application of spatial data science in urban **environmental health and spatial planning**
- Conducting studies on **spatial data-driven exposure** modelling
- Leading **Health Geography** course, co-teaching applied data science MSc module, and developing new undergraduate course on Spatial Data Science
- Designing a **Data lab** on urban health research

September, 2020-
Continuing (as
visiting scholar up to
2023)

Research Associate and Co-investigator (CO-I)

Organisation: CEDAR, MRC Epidemiology Unit, University of Cambridge. *Public health Modelling Group*. Working in “*Joining Impact models of transport to spatial measures of the Built Environment*” (JIBE: <https://jibeproject.com/>) and “*METAHIT*” projects (*PI: Prof. James Woodcock*)

Responsibilities:

- Developing spatial indicators of **built environment** UK city regions (JIBE, WP2)
- **Developing & maintaining Git-repos/ package** for transport and health impact modelling
- Analysing spatial data for **air pollution impact** on health (METAHIT, WP2)
- **Managing** a part-time research assistant
- Writing scientific papers for peer-reviewed journals

June, 2021-
Continuing

Affiliated Researcher

Organisation: Virtual Reality and Nature Lab, Clemson Institute for Park, Clemson University (*Lab Head- Dr Matthew Browning*)

Responsibilities:

- Contributing in new project development for VRN-lab
- Conducting studies on nature and health using **virtual reality & spatial analytics**
- Publishing of scientific papers in peer-reviewed journals

November, 2017-
December, 2018 (Part
time)

Research Associate (GIS Specialties- lead)

Organisation: SEED, University of Manchester. Part of *RESIN project*, Horizon 2020 program (*PI: Dr. Jeremy Carter*)

Responsibilities:

- Managing **climate change modelled outputs** in spatial database
- **Spatial modelling** for assessment of climate risk **of transport network**
- **Co-authored policy report** for RESIN

October, 2017-
September, 2020

PhD Researcher

Organisation: SEED, University of Manchester. *Connected with “Green infrastructure and the Health and wellbeing Influences on an Ageing population (GHIA)” project (PI: Prof. Sarah Lindley)*

Responsibilities:

- Integrating **machine learning models with geospatial models**
- Developing a novel **composite green space exposure** metric using detailed land use land cover, digital elevation model, and Google Street view data considering challenges of big geospatial data

- Analyse the associations: **nature, health & socioeconomic** inequalities
- Publishing of scientific papers in peer-reviewed journals

September 2014-
December 2014

Research Assistant

Organisation: Department of Urban and Regional Planning (DURP), Bangladesh University of Engineering and Technology (BUET).

Responsibilities:

- Assisted in **designing a questionnaire** for accessing travel modes and locational preferences of university students for the new campus
- Assisted in writing **traffic and social impact** assessment reports

February 2012 –
March 2013 (Part-
time)

Research Assistant

Organisation/person: Md. Musleh Uddin Hasan (PhD research in the Bartlett Development Planning Unit, UCL), and Professor Bangladesh University of Engineering and Technology (BUET).

Responsibilities:

- Assisted in PhD survey (e.g. Traffic volume count, Spot survey, travel diary)
- Survey data entry and mapping traffic network data

Relevant Research Skills

- Analysis of spatial data from **diverse sources** (e.g., GIS, remote sensing, Street view images, social media- Twitter) using data science approaches
- Use of cutting-edge geospatial software (e.g. QGIS, ArcGIS, ENVI) packages and **programming languages** (e.g. R, Python, JavaScript)
- Applying innovative **machine learning & artificial intelligence** models
- **Integrating spatial data and model** with other modelling environments (e.g., Health impact models, Transport models)
- Applying **advanced statistical modelling** in analysing environmental exposure and health associations
- Managing big geospatial and non-spatial (e.g., health) datasets

Publications, Invited talks, and Package

Upcoming Journal Articles

Labib, S.M., Browning, M.H., Rigolon, A., Helbich, M., and James, P., Nature's contributions in coping with a pandemic in the 21st century: A narrative review of evidence during COVID-19. Under Review: *Current Environmental Health reports* [USA and Netherlands based collaboration]. Preprint: <https://ecoevorxiv.org/j2pa8/>

Ashik, F.R., Rahman, M.H., Zafri, N.M., **Labib**, S.M. Exploring the impact of built environment on sustainable travel behavior in a mega city context: a data driven machine learning approach. Under Review: *Sustainable Cities and Society* [as Senior author, supervising paper with MSc students in BUET, Bangladesh]

Labib, S.M., De Nazelle, A., Goodman, A., Zapata-Diomed, B., Oxley, T., and Woodcock, J. Developing air pollution impact factor for large scale health impact assessment of NO₂ and PM_{2.5} in UK City regions. Target Journal: *Environmental Pollution/ Environment International*

Carter, J., and **Labib**, S.M. *Climate change effects on urban vegetation and ecosystem functions- AR5 approach in risk assessment for urban Green infrastructure*. Target Journal: *Landscape and Urban planning* [RESIN project collaboration]

Labib, S.M., Lindley, S., De Nazelle, A., Gunn, L.D., Zapata-Diomed, B., and Woodcock, J. Viewing nature (blue and greenspaces) influence human health and wellbeing: A review of evidence and methodologies. Target Journal: *Health & Place*

Published Journal Articles (Google Scholar: 310 citations, as of 29th November 2021; H-

Larson, L. R., Mullenbach, L. E., Browning, M. H., Rigolon, A., Thomsen, W. J., Covelli, M. W. E., ... & Labib, S. M. 2021. Greenspace and park use associated with less emotional distress among college students in the United States during the COVID-19

index: 9; i10-index:
9)

pandemic. *Environmental research*, p.112367. DOI:
<https://doi.org/10.1016/j.envres.2021.112367> [Impact Factor: 6.49, US collaboration]

Shuvo, F.K., Mazumdar, S. M., **Labib**, S.M., 2021. Walkability and greenness do not walk together: investigating associations between greenness and walkability in a large metropolitan city context. *International journal of environmental research and public health*, 18(9), p.4429. DOI: [10.3390/ijerph18094429](https://doi.org/10.3390/ijerph18094429) [Impact Factor: 3.39] [**Cover Story**, Volume 18, Issue 9]

Labib, S.M., Lindley, S. and Huck, J.J., 2021b. Estimating multiple greenspace exposure types and their associations with neighbourhood premature mortality: A socioecological study. *Science of The Total Environment*, 789, p.147919. DOI: [10.1016/j.scitotenv.2021.147919](https://doi.org/10.1016/j.scitotenv.2021.147919) [Impact Factor: 7.96] [**PhD 4th Paper**]

Labib, S.M., Huck, J.J., and Lindley, S., 2021a. Modelling and mapping eye-level greenness visibility exposure using multisource data at high spatial resolutions. *Journal: Science of the total environment*, 755, p.143050. DOI: [10.1016/j.scitotenv.2020.143050](https://doi.org/10.1016/j.scitotenv.2020.143050) [Impact Factor: 7.96] [**PhD 3rd Paper**]

Labib, S.M., Lindley, S. and Huck, J.J., (2020)b. Scale effects in remotely sensed greenspace metrics and how to mitigate them for environmental health exposure assessment. *Computers, Environment and Urban systems*, 82, p.101501. DOI: [10.1016/j.compenvurbsys.2020.101501](https://doi.org/10.1016/j.compenvurbsys.2020.101501) [Impact Factor: 5.32] [**PhD 2nd Paper**] [*Among the most downloaded & highest altmetric score papers*]

Labib, S.M., Lindley, S. and Huck, J.J., (2020)a. Spatial Dimensions of the Influence of Urban Green-Blue Spaces on Human Health: A Systematic Review. *Environmental research*, 180, p.108869. DOI: [10.1016/j.envres.2019.108869](https://doi.org/10.1016/j.envres.2019.108869) [Impact Factor: 6.49] [**PhD 1st Paper**]

Labib, S.M., Shuvo, F.K., Browning, M.H. and Rigolon, A., (2020)c. Noncommunicable Diseases, Park Prescriptions, and Urban Green Space Use Patterns in a Global South Context: The Case of Dhaka, Bangladesh. *International Journal of Environmental Research and Public Health*, 17(11), p.3900. DOI: <https://doi.org/10.3390/ijerph17113900> [Impact Factor: 3.39]

Labib, S. M. (2019). Investigation of the likelihood of green infrastructure enhancement along linear waterways or on derelict sites using machine learning. *Environmental Modelling & Software*, 118, 146-165. DOI: [10.1016/j.envsoft.2019.05.006](https://doi.org/10.1016/j.envsoft.2019.05.006) [Impact Factor: 5.28]

Labib et al., (2019)a. Integrating Data Mining and Microsimulation Modelling to Reduce Traffic Congestion: A Case Study of Signalized Intersections in Dhaka, Bangladesh. *Urban Science*, 3(2), p.41. DOI: [10.3390/urbansci3020041](https://doi.org/10.3390/urbansci3020041) [New Journal]

Labib, et al., (2018)a. Carbon Dioxide Emission and Bio-capacity indexing for transportation activities. *Journal of environmental management*, 223, pp.57-73. DOI: [10.1016/j.jenvman.2018.06.010](https://doi.org/10.1016/j.jenvman.2018.06.010) [Impact Factor: 6.78]

Labib S.M. and Harris, A., (2018). The potentials of Sentinel-2 and LandSat-8 data in Green Infrastructure extraction, using Object-Based Image Analysis (OBIA) method. *European Journal of Remote Sensing*, 51(1), pp.231-240. DOI: [10.1080/22797254.2017.1419441](https://doi.org/10.1080/22797254.2017.1419441) [Impact Factor: 3.64]

Shakil, S., **Labib**, S.M. and Khan, M., (2016). Stakeholder Debate in Policy Implementation: An Evaluation of Bangladesh Leather Processing Industry Relocation Policy. *Bangladesh e-Journal of Sociology*, 13(1), pp.126-137.

Labib, SM, Mohiuddin, H., & Shakil, SH (2013). Transport Sustainability of Dhaka: A Measure of Ecological Footprint and Means for Sustainable Transportation System. *Journal of Bangladesh Institute of Planners* 6 (2014): 137-147.

Labib, S. M., Bhuiya, M. M. R., & Rahaman, M. Z. (2013). Location and size preference for apartments in Dhaka and prospect of real estate market. *Bangladesh Research Publications Journal*, 9(2), 87-96.

Labib S.M., Lindley, S. Huck, J.J. (2021). Novel spatial approaches to modelling and mapping composite greenspace exposure at high resolutions and multiple scales.

Conferences Presentation

and papers (Selected)

At *Nature & Health Virtual Conference (October 12 - 14, 2021)*, University of Washington, USA.

Labib S.M. (2020). Does Green and Blue Space Visibility Improve Human Health and Wellbeing? A Systematic Review. In *32 Conference of the International Society for Environmental Epidemiology*, Virtual.

Labib S.M., Huck, J.J and Lindley, S. (2020)d. Greenness visibility using viewshed analysis: A pilot study in Manchester. In *Proceedings of the 28th Annual GIScience Research UK (GISRUK 2020)*, London, UK.

Labib, S.M., Rahman, M.S., Ahmed, B. (2019). Social Media Analytics in understanding the Rohingya crisis: An exploration of public sentiment and geo-political responses. IRDR, University College London, London, UK.

Connelly, A., Ellis, M., Carter, J., and **Labib**, S.M. (2018). Assessing climate risk in Greater Manchester (UK) and prioritising adaptation options: a step by step approach. Resilient cities 2018, Bonn, Germany. [RESIN project collaboration]

Labib, et al., (2018). Environmental Cost of Refugee Crisis: Case Study of Kutupalong Balukhali Rohingya Camp Site a Remote Sensing Approach. In *Proceedings of the 26th Annual GISRUK, 2018*, Leicester, UK.

Labib, S.M., Siddiqueeb, M.Z., Khondokerc, M.S.I. and Sayfullahd, M., 2018. Exploring the Potentials of UAV Based Geo-Spatial Data Acquisition in Urban Environment: A Case study in Dhaka City, Bangladesh. *AGSE 2017*, p.69.

Labib, S. M. (2017). Volunteer GIS (VGIS) based waste management: A conceptual design and use of web 2.0 for smart waste management in Dhaka City. In *2017 Third International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN)* (pp. 137-141). India. IEEE.

Labib, et al. (2017). Participatory Vulnerability Mapping: A case study on community based disaster management. In *Proceedings of 25th GISRUK*, Manchester, UK.

Hira, S., & **Labib**, S. M. (2017). Conceptual study of Web-based PPGIS for Designing Built Environment: Identifying Housing Location Preferences in Littleborough. *Proceedings of 25th GIS Research UK (GISRUK)*.

Labib, S.M., Rahaman, Z. and Patwary, M.S.H., 2016. Comprehensive evaluation of urban public Non-Motorized Transportation Facility services in Dhaka. *The 8th MAC 2016*, p.124.

Technical & Consultancy reports (Selected)

Carter, J., Connelly, A., and **Labib**, S.M. (2019). *Assessing and responding to flood risk: a study of Greater Manchester's transport infrastructure*. RESIN – Climate Resilient Cities and Infrastructures report. [RESIN project collaboration]

Ngigi, W., Bahrami, N., and **Labib**, S.M. (2019). *The Potential Impact of Lawtech on Legal Services Consumer Purchase Decisions: Integrating artificial intelligence modelling in customer analysis*. [Business Report]

URP, BUET. (2015). *Report on Integrated WASH planning for local unions*.

Invited talks

Labib, S. M. (2 September, 2021). Modelling complex urban greenspace exposure using spatial methods and technologies. Interview for Environmental Epidemiology course by Dr Laura Corlin, *Tufts University*.

Labib, S. M. (26 February, 2021). Applications of Spatial and Data Science Approaches in Transportation Studies. Institute of Transportation Studies, *University of California, Irvine*. Talk link: <https://youtu.be/3Kr9wYgwBmE>

Labib, S. M. (17 November, 2020). Combined Multiscale exposure to urban greenspace. Spatial & Contextual Exposomics, Epidemiology Laboratory, Harvard T.H. Chan School of Public Health, *Harvard University*. Slides at: <https://bit.ly/38CG6WA>

Labib, S. M. (20 Feb, 2020). Applications of Geospatial data and methods in environmental epidemiology. MRC Epidemiology unit, *University of Cambridge*. Slides at: <https://bit.ly/3oPMH5B>

R-Package

Brinkmann, T.S., and **Labib**, S.M. (2021). *GVI: Greenness Visibility Index R package*. GitHub: <https://github.com/STBrinkmann/GVI> (Co-authored the package in collaboration with researcher from University of Erlangen-Nuremberg, Germany).

Teaching Experience

October, 2021 - Continuing	Assistant Professor; <i>Utrecht University</i>. <ul style="list-style-type: none">▪ Designing and delivering undergraduate health geography course (coordinator and lead professor)▪ Co-teaching “Spatial Statistics and Machine learning” course for MSc in Applied Data Science▪ Designing new spatial data science course (for undergraduate)
February, 2021- Continuing	MSc thesis Co-supervision; <i>Small Area Health Statistics Unit (SAHSU), Imperial College London</i>. <ul style="list-style-type: none">▪ Co-supervising MSc project titled “Greenspace exposure and health – a question of spatial scale?”▪ Supporting development of research questions, and spatial data modelling
February, 2018- July, 2020	Demonstrator; <i>SEED, University of Manchester</i>. <ul style="list-style-type: none">▪ Level 7 & 2, GIS and remote sensing modules (e.g., GEOG20502 Spatial Thinking with GIS; GEOG20381 Remote Sensing in Action; GEOG60951 GIS & Environmental Applications)▪ Level 7 Environment monitoring modules. Responsibilities: <ul style="list-style-type: none">▪ Providing pro-active support to students in practical activities▪ Developing practical handouts and delivering practical sessions
February, 2019- July, 2019	Dissertation and skills coaching; <i>SEED, University of Manchester</i>. <ul style="list-style-type: none">▪ Level 7, MSc dissertation support module (GEOG60662 Dissertation Support)▪ Level 2, Skill for Geographers module (GEOG20621 Skills for Geographers) Responsibilities: <ul style="list-style-type: none">▪ Conducting seminars (groups of up to 25 students)▪ Supporting students in different quantitative data gathering
February, 2018- July, 2018	Tutor; <i>SEED, University of Manchester</i>. <ul style="list-style-type: none">▪ Delivering tutorial sessions for undergraduate (Level 2) courses in Geography.▪ Prepare tutorial materials, delivery of the session, and grade assignments.
Relevant Teaching Skills	<ul style="list-style-type: none">• Delivering teaching in diverse settings (e.g., face to face, online)• Creativity in designing and delivering practical and seminars• Interacting with students during consultation hours

Awards and Internal Research Funding

September, 2020	Associate Fellow (AFHEA), Fellowship reference (PR201100) <i>Advance HE</i> . Value: Certification for teaching at UK higher education institutions
July, 2020	Award for the best Paper on Spatial Analysis at the GISRUUK Conference in memory of Sinesio Alves; <i>CASA (University College London)</i> Value: £150
June, 2020	ISEE 2020 Conference travel award. International Society for Environmental Epidemiology (ISEE) Value: \$190 (Conference registration)
October, 2017- September, 2020	School of Environment, Education and Development Postgraduate Research Scholarship. <i>The University of Manchester</i> . Value: £102,000 (approx.)
December, 2017	Best Student of MSc in GIS. <i>SEED, The University of Manchester</i> . Value: £100 & Certification

October, 2016- September, 2017	Equity and Merit Scholarship. <i>The University of Manchester.</i> Value: £32,000 (approx.)
July, 2014	Abdul Hamid Award (for best undergraduate thesis) and Dean's award. <i>Bangladesh University of Engineering and technology.</i> Value: £250 (approx.)

Additional Relevant Experience

July 2019- August 2019 (Part-time project)	Business Collaboratories for Early Career Researchers (Knowledge Transfer Partnerships Programme) Organisation: <i>The University of Manchester, and ESRC.</i> <ul style="list-style-type: none"> ▪ Consultancy services on artificial intelligence & spatial data science
February 2016-June 2016	Junior GIS Analyst Organisation: <i>Institute of Water Modelling (IWM), Dhaka, Bangladesh.</i> <ul style="list-style-type: none"> ▪ Spatial analysis for hydrological models for irrigation projects ▪ Creation of new data using satellite images and survey data
April 2015- January 2016	Urban Planner Organisation: <i>Department of Urban and Regional Planning (DURP)</i> <ul style="list-style-type: none"> ▪ Collecting data through primary survey and focus group discussions ▪ Stakeholder meetings arrangement at the district level ▪ Preparing WASH planning report for sub-district local authorities
Industry Related Skills	<ul style="list-style-type: none"> • Writing consultancy reports (e.g., Project definition, final report) • Applying project management tools (Basic- PRINCE2 method) • Collaborations with business and non-academic stakeholders

Relevant Professional Training

May 2019	Name: Social Media Data Analysis Organization: Cathie Marsh Institute for Social Research
September 2013 – November 2013	Name: Training on Remote Sensing Organization: Bangladesh Institute of Planners (BIP)
September 2012	Name: Training Course on TransCAD & Trans-modeler Organisation: Department of Urban and Regional Planning, BUET

External Engagements

June-July 2021	Black Internship Programme; Organisation: Health Data Research, UK <ul style="list-style-type: none"> • Mentoring a female intern with the public health modelling group
October 2020	Professional Development workshop for the Department for Transport; Organisation: Centre for Science and Policy, University of Cambridge <ul style="list-style-type: none"> • Participating in workshop for DfT members to disseminate research findings to be used for policy development for Post-COVID UK transportation strategies
July 2018- September 2018	Volunteering for Tree Surveying; Organisation: City of Trees <ul style="list-style-type: none"> • Assisting in managing tree survey data for i-Tree Eco modelling

Reviewer

I frequently review manuscripts for **multi-disciplinary and specialised** journals including: International Journal of Health Geographics, Science of the total environment, Journal of Environmental Management, International Journal of Environmental Science and Technology, Health and place, International Journal of Environmental Research and Public Health, Landscape and urban planning, Environment International, Urban Climate, Progress in Physical Geography, Scientific Reports, Sustainable Cities and Society, SAGE Open, Sustainability, and ISPRS International Journal of Geo-Information. **(Total 56 completed reviews)**