

Raphaëlle ROFFO

Geospatial Data Scientist with a Sustainable Development background

Future Stars of Tech Awards 2020 finalist

[GitHub - Portfolio](#)

RELEVANT WORK EXPERIENCE

Etalab (French government task force for Open Data)

Paris, France

Tech Lead, Public Innovation Fellows Programme

September 2020 – June 2021

- Provided technical and strategic support to the 26 data scientists and developers who joined the 4th cohort of the “Entrepreneurs d’Intérêt Général” (EIG) fellowship and, for 10 months, worked across 16 technical projects within central government agencies.
- Maintained the fellowship’s open-source software infrastructure (website, GitHub, documentation, collaboration software...), and initiated new meeting formats that successfully enabled collaboration and sharing among fellows during Covid-19 remote work.
- Designed and developed a full-stack Python Dash interface to process applications for the EIG fellowship. This self-hosted website automates and centralizes a previously heavily manual process. It was used by 30 people to assess 450 applications received in 2021.
- Developed a R Shiny dashboard for skills sharing, discovery and matching across EIG fellows from current and past cohorts.
- Led and coordinated 3 bootcamps and 10 technical sessions with experts, designed to challenge the fellows and promote best practices on open-source, open data, data ethics, eco-conception, but also data visualization, spatial data management, and DevOps.

Sciences Po, Urban School

Paris, France

Teacher, Master’s level

September 2020 – Current

- Two technical modules: Introduction to GIS (open-source GIS), followed by Advanced GIS (spatial data analysis and visualization)

Arup, Advanced Digital Engineering

London, UK

Geospatial Data Scientist

August 2018 – present

- Delivered a range of geospatial services and products for specialist teams across Arup (Transport Planning, Climate Change, International Development, Energy) and external clients (utility companies, public bodies, non-profits): requirements gathering, data engineering, MySQL & PostgreSQL database management, automation of geo-processes (Python, R), geospatial models & geospatial analysis (ModelBuilder, FME), map production, Web maps & Web applications development (ESRI ArcGIS Suite).
- Carried out research on Sustainable Development Goals Reporting and on Remote Sensing for Climate Change Monitoring.
- Supported large bids with extensive Excel and MS Projects costing and resourcing models as well as technical documentation.
- Built a PowerBI dashboard to centralise financial and technical data on projects managed by the Community Engagement funds.
- Developed an internal intermediate QGIS training for Arup data scientists. Initiated engagement with DataKind UK by offering an introduction to geospatial data science for DataKind’s charity partners, focused on open-source tools and datasets.
- Single-handedly organized an office-wide GIS Day 2019 event attended by over 400 colleagues to showcase state-of-the-art GIS methods and tools used across Arup offices.

University of Chicago x Imperial College London

London, UK

Data Science for Social Good (DSSG) Fellow

June 2019 - August 2019

- As one of 38 fellows selected among 800+ candidates, received a three-month intensive training in data science, data mining, machine learning, big data and data ethics while working on a real-life project with social impact for a partner NGO. The programme also promoted immersion in the Data for Good community in London (Turing Institute, AI for Good, etc.)
- Using Natural Language Processing and Information Retrieval, my team built an intelligent system that reduces response time to citizens’ legal questions in Uganda. The system was successfully deployed and is integrated in the partner’s digital platform. Our repository is open-sourced at: <https://github.com/dssg/barefoot-winnie-public>

United Nations Development Programme (UNDP) Asia Pacific Regional Hub

Bangkok, Thailand

Innovations and Sustainable Urban Development Consultant

August 2014 – December 2015

- Co-authored the ‘UNDP Strategy for Urban Programming: Asia and the Pacific’ guidance paper that provides a foundation for UNDP’s emerging Global Urban Framework.
- Main coordinator of the multi-disciplinary task force on urban issues which comprises of separate UNDP divisions. Organised workshops, interviews, meetings to coordinate common action to promote visibility of urban-related projects within UNDP.
- UNDP Consultant to the Mayor of Gazipur (Bangladesh). Applied an innovative design thinking methodology to develop a one-stop governmental service centre. Beyond the prototype centre in Bangladesh, some UNDP country offices in Asia Pacific are using the toolkit for south-south exchange initiatives.
- UNDP Consultant to the Iskandar Regional Development Authority. Researched and presented 3 case studies and a set of recommendations to support the development of the Urban Observatory in Iskandar, Malaysia.
- Conceptualized and implemented a pilot project that aimed to identify key non-economic indicators of urban poverty. This was achieved through collaboration with leading grassroots NGOs and the provincial government in Yogyakarta, Indonesia.

EDUCATION

University College London (UCL)

London, UK

MSc Geospatial Analys (71% – Merit)

2017-2018

- **Modules:** GIS Principles & Technology (ArcGIS, Python), Principles of Spatial Analysis (R), Mapping Science, Spatiotemporal Data Mining, Structures & Algorithms (QGIS), Network Analysis, Surface Water Modelling, Carbon Monitoring & Modelling.
- **Dissertation:** “Mapping risks of faecal contamination of shallow groundwater in Dakar, Senegal: an evaluation of culture-based methods and a real-time technique using tryptophan-like fluorescence.” Research, including two-month sampling field trip, conducted under the AfriWatSan project funded by DFID, the Royal Society and the British Geological Survey.

Sciences Po Paris, Urban School

Paris, France

Master's degree in Urban & Metropolitan Governance (15,5/20 – Distinction)

2012-2014

- **Modules:** Public Policy Analysis, Political Economy of Utilities, Risk Studies, Qualitative & Quantitative Research, GIS, etc.
- **Capstone project:** “Safe and continuous Water Indicators” (Monitoring & Evaluation Indicators), Veolia Water India.

Sciences Po Paris

Paris, France

Bachelor's degree in Social Sciences & Economics (15/20, Cum Laude)

2009-2012

- **Modules:** Micro and Macro Economics, Econometrics, Welfare Economics, International Relations, History of the EU, European Institutions, International Law, Political Science, Sociology, Theory of Environmental Activism, Humanitarian Studies, etc.
- **Scholarship:** Government grant for Highest Honours high school graduates (Top Baccalaureate student in Provence region, 2008)
- **Year abroad:** two internships in education NGOs: Shanghai Young Bakers (Shanghai, 6months), Children of Ningxia (Beijing, 6months)

PUBLICATIONS & PUBLIC INTERVENTIONS

1. **DataDay Mexico**, Mexico City 2020 : *"Lessons learned working with real-life data in resource constrained settings, with limited domain knowledge"* (postponed due to Covid19)
2. **GIS R UK**, London 2020: *" Mapping risks of faecal contamination of shallow groundwater in Dakar, Senegal: an evaluation of culture-based methods and a real-time technique using tryptophan-like fluorescence"* (postponed due to Covid19)
3. *In-situ fluorescence spectroscopy indicates total bacterial abundance and dissolved organic carbon*, Sorensen et al., Science of The Total Environment, 2020.
4. *Eau, énergie et autres services essentiels, plaidoyer pour une approche intégrée*, (Re)sources, éditions Descartes & Cie, 2018.
5. **Asia Pacific Youth Assembly (APUFY)**, Jakarta 2015, UNDP panelist : *" Challenges to Democratic Youth Engagement in East Asia"*
6. *UNDP Strategy for Urban Programming: Asia and the Pacific*, UNDP, 2015.
7. **Colloque (Re)sources:** L'eau abordable pour tous dans les pays en développement, Paris 2014: *"Expérience du tarif social de l'eau à Bogota et à Santiago du Chili"*
8. *Accès à l'eau potable dans les pays en développement : Les composantes des systèmes tarifaires à visée sociale et leurs réels impacts sur les populations cibles. Comment mettre en place un véritable tarif social ?* Sciences Po, 2013.
9. *Safe and continuous Water Indicators*, Sciences Po, Veolia Water India, 2013.

SKILLS

Data Science:

- **Data Wrangling, Analysis & Visualisation:** R, Python, FME
- **Machine Learning:** Random Forests, SVM, Clustering, NLP, Remote Sensing
- **Dashboarding:** Python Dash, R Shiny, PowerBI
- **GIS:** QGIS, ESRI Desktop & ArcGIS Online, GeoDa, kepler.gl, GeoServer
- **Databases:** SQL Server, Oracle, PostgreSQL, PostGIS, SQL & DAX queries
- **Version Control:** GitHub, GitLab

Languages:

- **French:** Native speaker
- **English:** Full proficiency
- **Mandarin Chinese:** Advanced proficiency
- **German:** Intermediate proficiency

INTERESTS

- **Missing Maps** and **Humanitarian Open Street Maps** volunteer, tracing satellite imagery into OpenStreetMap to support humanitarians on the ground. Launched monthly “Mapathons” for the Arup London office (average attendance of 20-30 participants).
- Active member of **DataKind UK**, a charity that provides data science support to non-profit organisations
- Long distance **cycling** and **running** (raised over £1,050 for blood cancer research running the 2017 Stockholm Marathon)
- **Analogue photography** (my photos can be found on [my portfolio](#))