Grace **Llaw**

MPhill STUDENT · PALEOCLIMATE

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Education

Chinese Academy of Science, Institute of Tibetan Plateau Research *Beijing, CN*

MPHILL IN GEOSCIENCE *Sep. 2021 - Present*
- **Focus:** Probabilistic Machine Learning (Automatic annual layer identification in ice core dating). Supervised by Prof. Yao Tandong and funded by the 2nd scientific investigation on the Tibetan Plateau (2019QZKK0602).

Beijing Normal University, Zhuhai Campus *Zhuhai, CN*

BSC HONS IN ENGINEERING, **URBAN PLANNING MAJOR** *Sep. 2017 - Jun. 2021*
- **Awards:** Distinction (86%) (top 2%), Outstanding Student Leaders (2019-2020), Provincial Project Establishment-National College Students Innovation and Entrepreneurship Project (2020-2021) (UPSoc President, Student Union Exec).
- **Focus:** Building Information Management(BIM), GIS, urban economics, Quantitative Risk Management. **Project Areas:** Customs Port Design using BIM, Analysis of relocation and resettlement risks for national park, Coastal line protection strategies,rural construction guidelines.

Skills

Programming   MATLAB, Python, R (basic), Stan (basic)
Languages   English, Mandarin, Cantonese, Japanese (basic)
Others   Experienced with other geoscience model, GeoDetector, FLUS, CA-Markov, COPRA, and StratiCounter

Side Projects

Web   llaw.github.io: Personal projects and applied examples in urban planning and ice core dating. Projects include optimizing the StratiCounter algorithm for ice core dating, which enhances analysis efficiency by 30%, Contributed to Cross Validated (Stats Stack Exchange), top 2% contributor in 2020.focusing on spatial statistics and environmental models.

Code   Contributed to Guangdong(Province) comprehensive urban and rural planning guidelines, SraitiCounter (added a GUI visual interaction page and fixed a few bugs) . Co-wrote the code for the paper below , applied Geodetector and Geosus-Flus model for spatial analysis of habitat quality improvements linked to historical land-use policies.

Papers   **Luo Y. Q.**, Wang W.*Spatiotemporal Heterogeneity and Influence Factors of Habitat Quality: A Case Study of Golog*. Anthropocene. Under Review
Luo Y. Q., Yao T., Xu B., Yang D., Wang L., Wu G., Li Z., Wang N., Qu D., Wu X. (2023). *Application of Automatic Annual Layer Identification Method in Ice Core Dating on the Tibetan Plateau*. Journal of Glaciology and Geocryology. Accepted for publication.
Luo Y. Q., Zhang W. J. (2023).(Conference Paper) *A Community Household Waste Recycling and Classification System Under the Study of Zero-Waste Management*. Proceedings of the International Workshop on Geography and Sustainability: Smart Cities and Sustainability in Comparative Perspective, p. 16785. Abstract.
Yu Y. F., **Luo Y. Q.**, Wang S. J. (2023).*Characteristics of Lake Ice Phenology in Tibetan Plateau and Analysis of Influencing Factors*. International Symposium on Third Pole Environment. Poster.

Employment/Internship

Provincial Urban Planning and Design Institute *Guangzhou, CN*

ASSISTANT PLANNER + STATISTICIAN *Sep. 2020 - Aug. 2021*
- Focusing on building and maintaining end-to-end infrastructure/tech related solutions. This involved data cleaning, analysis, and modeling of regional layouts, environmental impact assessments(e.g., facilitating the implementation of a geospatial data integration platform using ArcGIS Server, which enabled real-time data analysis and collaboration across multiple project sites), and sustainable development strategies (using MATLAB, ArcGIS, and SketchUp). Also engaged in drafting project documentation and client presentations.
- On the geo-modeling side, I've used GIS and GeoDetector for spatial analysis and risk assessment in urban planning projects, applying spatial statistical models(Geosus-FLUS) to predict and manage the impacts of urban development on local ecosystems. Additionally, I've employed stochastic models to assess the feasibility and impacts of infrastructure projects, including Monte Carlo simulations for cost and risk analysis in large-scale urban redevelopment.

Guangdong-Hong Kong-Macao Port Research Center *Zhuhai, CN*

DATA ANALYST + MODEL DEVELOPER *Oct. 2019 - June. 2020*
- Design and produce large-scale BIM models for flow and traffic balance in customs halls, accounting for pedestrian behavior and evolving trends. Modelling primarily depends on Revit, SketchUp, and AutoCAD.
- In addition to this, I assisted with and reviewed other model implementations (e.g. for current accounts, savings and mortgages). I also piloted new tools, created knowledge-bases, worked on automation and performed exploratory work to identify areas of efficiency (e.g. with Spark, Rcpp, Docker). In some cases, I reduced execution times from days to seconds.