SCIENTIFIC DATA

A Large-scale Topological Database of Road Networks

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Abstract

This is a manuscript template for Data Descriptor submissions to *Scientific Data* (http://www.nature.com/scientificdata). The abstract must be no longer than 170 words, and should succinctly describe the study, the assay(s) performed, the resulting data, and the reuse potential, but should not make any claims regarding new scientific findings. No references are allowed in this section.

Background & Summary

The quantitative understanding of urban and territorial systems have recently beneficed contribution from various disciplines. At the conjunction of various factors, the availability of new types of dataset (e.g. mobile phone data to understand mobility , social network data to understand spatial structures , etc.) is specifically determinant. Concerning transportation networks, various studies have obtained significant results having theoretical implications and practical applications for planning and policy. For example, [2] obtain scaling laws for suburban transportation networks all over the world, whereas [1] construct a typology of urban street patterns that give insight into historical planning processes.

Methods

The Methods should include detailed text describing any steps or procedures used in producing the data, including full descriptions of the experimental design, data acquisition assays, and any computational processing (e.g. normalization, image feature extraction). Related methods should be grouped under corresponding subheadings where possible, and methods should be described in enough detail to allow other researchers to interpret and repeat, if required, the

full study. Specific data outputs should be explicitly referenced via data citation (see Data Records and Data Citations, below). Authors should cite previous descriptions of the methods under use, but ideally the method descriptions should be complete enough for others to understand and reproduce the methods and processing steps without referring to associated publications. There is no limit to the length of the Methods section.

Code availability

For all studies using custom code in the generation or processing of datasets, a statement must be included here, indicating whether and how the code can be accessed, including any restrictions to access. This section should also include information on the versions of any software used, if relevant, and any specific variables or parameters used to generate, test, or process the current dataset.

Data Records

Please explain each data record associated with this work, including the repository where this information is stored, and an overview of the data files and their formats. Each external data record should be listed in Data Citation section at the end of this template, and records should be cited throughout the manuscript as, for example (Data Citation 1).

Tables should be used to support the data records, and should clearly indicate the samples and subjects, their provenance, and the experimental manipulations performed on each. They should also specify the data output resulting from each data-collection or analytical step, should these form part of the archived record. Please see the submission guidelines at the *Scientific Data* website, and our Word templates for more information on preparing such tables.

Technical Validation

This section presents any experiments or analyses that are needed to support the technical quality of the dataset. This section may be supported by up figures and tables, as needed. This is a required section; authors must present information justifying the reliability of their data.

Usage Notes

Brief instructions that may help other researchers reuse these dataset. This is an optional section, but strongly encouraged when helpful to readers. This may include discussion of software packages that are suitable for analyzing the assay data files, suggested downstream processing steps (e.g. normalization, etc.), or tips for integrating or comparing this with other datasets. If needed, authors are encouraged to provide code, programs, or data processing workflows when

they may help others analyse the data. We encourage authors to archive related code in a DOI-issuing archive when possible, but code may also be supplied as supplementary information files.

For studies involving privacy or safety controls on public access to the data, this section should describe in detail these controls, including how authors can apply to access the data, and what criteria will be used to determine who may access the data, and any limitations on data use.

Acknowledgements

Text acknowledging non-author contributors. Acknowledgements should be brief, and should not include thanks to anonymous referees and editors, or effusive comments. Grant or contribution numbers may be acknowledged. Author contributions Please describe briefly the contributions of each author to this work on a separate line.

AK did this and that.

BG did this and that and the other.

Competing financial interests

The author declare no competing financial interests.

References

[1] Rémi Louf and Marc Barthelemy. A typology of street patterns. *Journal of The Royal Society Interface*, 11(101):20140924, 2014.

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[2] Rémi Louf, Camille Roth, and Marc Barthelemy. Scaling in transportation networks. *PLoS ONE*, 9(7):e102007, 07 2014.

KEY: 10.1371/journal.pone.0102007