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Breadcrumbs
Dataset Sharing Licence Agreement

This Breadcrumbs Dataset Sharing Licence Agreement ("Agreement") is entered into as of .... ("Effective Date") by and between University of Lausanne, a non-profit, educational institution with offices at HEC Lausanne, Department of Information Systems, 1015 Lausanne, Switzerland ("Licensor") and .... ("Institution, Name and Address").

1. Scope

Subject to the terms defined in this Agreement, Licensor grants to Institution a license to use the Breadcrumbs dataset ("Dataset") described in Sections 2 and 3 hereafter and composed of data collected from smartphones disclosed on a voluntary basis by the concerned persons. The Dataset contains the actual data as well as any derivative work, based on all or part of the data. The use of the Dataset by the Institution is subject to the confirmation of the acceptance of these terms and conditions. Do not use the Dataset in case you do not accept these terms and conditions.

2. Data collection campaign

The Breadcrumbs data collection campaign ("Campaign") was conducted in 2018 by HEC Lausanne at the University of Lausanne under the supervision of professors Benoît Garbinato and Kévin Huguenin. The Campaign was officially approved by the ethical committee of HEC Lausanne at University of Lausanne and a consent form was signed by all the participants.

This campaign collected location and additional data of participants in the Lausanne region during three months for research data analytics purposes. During these three months, 80 participants had an iOS application on their smartphones collecting data related to their absolute locations, and their relative proximity. In addition, the participants had to participate in a survey about their transportation mode preferences and their demographics, and to indicate their points of interest, i.e., their frequently visited locations, and their relationships with other participants. At the end of the campaign, participants were paid CHF 100 each for their participation in the data collection campaign. Additional information about the data collection campaign can be found on the following website: https://bread-crumb.github.io

3. Dataset content

After the Campaign, the resulting dataset was sanitized by creating a subset of the collected data that contains no unique identifier. Pseudo-identifiers such as age and gender were processed in order to limit the risks of re-identification. In addition, sensitive data was hashed with a salt (i.e., sensitive information in userinfo, contacts, events, Bluetooth scans and Wi-Fi scans tables). The resulting sanitized dataset contains:

• Location data captured by smartphones;
• Proximity data wrt to Bluetooth devices and Wi-Fi access points captured by smartphones;
• Contact data (i.e., from the participants' address books);

- Event data (i.e., from the participants 'calendars);
- Relationship information between the participants (collected through a survey/interview);
- Point-of-interest information of the participants (collected through a survey/interview);
- General information about the participants — e.g., demographics, transportation modes — (collected through a survey/interview).

An extensive document, presenting the various tables of the database in detail, will be provided together in Annex 2.

4. Copyright

The Dataset is the sole property of the Licensor and protected by copyright and other applicable laws.

5. Licensee

In consideration for the Institution's obligations defined in Article 6 hereunder, the Licensor grants to the Institution a non-exclusive, non-transferable, non-assignable, non-sublicensable, and fully paid-up license under copyright to use the Dataset for internal research and education purposes only during the Term (as defined in Article 14). The Dataset shall remain the exclusive property of the Licensor. The Institution acquires no ownership, rights or title of any kind in all or any parts with regard to the Dataset.

6. Institution obligations

The Institution shall commit and guarantee to hold Licensor harmless for any and all of their use of the Dataset. The Institution shall not be entitled to transfer nor disclose the Dataset to any third parties. The Institution is responsible for keeping track of its staff who have access to the Dataset ("Permitted Staff"). For this, the Institution designates a contact point ("Site Manager") who is in charge of ensuring the requirements listed hereafter.

- Each Permitted Staff member has read, understood and signed this Agreement.

- A scanned copy of each signed Data Sharing Licence Agreement (this document) by a staff member must be provided to the Licensor.

- Access to the Dataset is provided to Permitted Staff only.

- The Dataset is considered as confidential data among the Permitted Staff.

- Permitted Staff must not process or reverse engineer any part of the Dataset in order to re-identify participants or reveal personally identifiable information. Permitted Staff can only increase the anonymity of the Dataset, not lessen it.

- The data included in publications (including, but not restricted to, articles and technical reports), such as figures (including, but not restricted to, graphs and maps), should be aggregated on a sufficiently large number of users so as to prevent leakage of sensitive information about individuals.

The Institution represents that this Agreement is duly signed by an authorized representative of Institution. The Institution represents that the Site Manager has read and understood all elements contained herein.

7. International Data Transfer

If the Institution is located in a non-European Country, they are required to fill and sign Addendum 1 (SWISS TRANSBORDER DATA FLOW AGREEMENT). By doing so, the Institution commit to provide an adequate level of protection for the personal data entrusted to its use.

8. Access

Each Permitted Staff may only use the Dataset after the corresponding Permitted Staff Agreement has been signed and returned to the Licensor. The Institution must return each signed and dated individual Agreement by email, in PDF format to the Licensor at the following address: breadcrumbs@unil.ch. Instructions to obtain the Dataset will be provided by the Licensor to Institution's Site Manager at that time.

9. Commercial use

Any commercial use of the Dataset by the Permitted Staff is strictly prohibited. This includes but is not limited to: selling data, broadcasting data, testing commercial systems, testing the efficiency of systems.

10. Publication

The results of the data processing are published in a form which does not allow the data subjects to be identified or re-identified by known methods at the time of publication.

11. Citation and acknowledgment

The Institution shall reference the Dataset in any publications that report on research results obtained using the Dataset. Publications include but are not limited to: research papers and technical reports, conference and journal papers, presentations for conferences or educational purposes. All such publications should include the following acknowledgement: **"*(Portions of) the research in this paper used the Breadcrumbs Dataset made available by the University of Lausanne, Switzerland.*"**, and should reference the following research paper:

Moro, A., Kulkarni, V., Ghiringhelli, P. A., Chapuis, B., Huguenin, K., & Garbinato, B. (2019). Breadcrumbs: A Rich Mobility Dataset with Point-of-Interest Annotations (short paper). Paper presented at 27th ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL), Chicago, IL, USA.

12. Illegal or criminal use of the dataset

Any illegal or criminal use of the Dataset by the Permitted Staff is strictly prohibited.

13. Legal disclaimer

The Dataset is granted without any warranty. The Licensor shall not be held responsible for any damage (physical, financial or otherwise) caused by the use of the Dataset. Furthermore, the Licensor shall not be held responsible for any illegal or criminal use of the Dataset.

14. Contract Hierarchy

Where there's a conflict between this Agreement and its Addenda, the Agreement will control to the extent of the conflict unless otherwise specified in the Addendum.

15. Juridiction

This licence is subject to and interpreted according to the Swiss law. All claims arising on the basis of this licence must be submitted to the Courts of Lausanne (Switzerland), subject to appeal to the Courts of Vaud and to the Federal Court.

16. Amendments

All amendments or modifications to this Agreement shall be made in writing and signed by Licensor and Institution.

17. Term, termination and extension

This Agreement is effective on the Effective Date and has a duration of **2 years** ("Term"), unless otherwise terminated in accordance with this Agreement. Upon the expiration or termination, each staff must delete the Dataset and send an email to the Licensor accordingly. Extensions of the agreement are possible within 60 days of the end of the Agreement.

18. Statement of consent

I have read the above information and I consent to use the Dataset in conformity with the terms and conditions stated above.

Lastname	Firstname	Date	Signature
………………………..	………………………..	……………………..	…………………………………………..

Annex 1: Swiss Transborder Data Flow Agreement
(for transfer of data)

by and between
DOPLab, University of Lausanne, CH-1015 Lausanne
(hereinafter **Data Exporter**)
and
[Company Name] : ……………………………………………………………………………,
[Address] :…………………………………………………………………………………..
(hereinafter **Data Importer**)

1. Purpose

This Swiss Transborder Data Flow Agreement (the **Agreement**) is entered into by and between the Data Exporter and the Data Importer to provide adequate protection for Personal Data in situations in which such data is transferred from the Data Exporter established in Switzerland to the Data Importer established in another country. This Agreement, however, does not in any way oblige the Data Exporter to transfer Personal Data to the Data Importer.[1]

The purposes of the transfer to, and processing by, the Data Importer are described in <u>Appendix 1</u> to this Agreement. <u>Appendix</u> 1 forms an integral part of this Agreement and may be amended by the Data Exporter from time to time.

2. Scope

This Agreement applies to all Personal Data relating to third parties that is transferred (which shall include making it available for access) from the Data Exporter to the Data Importer.

The catalogue **[**and classification of sensitivity**]** of the Personal Data to be transferred is found in <u>Section 1</u> of <u>Appendix 1</u> to this Agreement.

3. Definitions

Unless defined otherwise herein, all terms shall have the same meaning as defined in the Swiss Federal Act of 19 June 1992 on Data Protection **(FADP)**. Any reference to the FADP shall always also include a reference to the Ordinance to the FADP (the **OFADP**) and any other provision of the substantive Swiss data protection law.

For the purposes of this Agreement:

(i)   '*Data Exporter*' means the natural or legal person, public authority, agency or any other body established in Switzerland which alone or jointly with others determines the purposes and means of the processing of Personal Data and which transfers such data to another country.

(ii)   '*Data Importer'* means a natural or legal person, public authority, agency or any other body established in another country which agrees to receive Personal Data from the Data Exporter after the transfer in accordance with his instructions.

(iii)   '*Subprocessor'* means any processor engaged by the Data Importer (or by any other Subprocessor of the Data Importer) who agrees to receive from the Data Importer (or

from any other Subprocessor of the Data Importer) Personal Data exclusively intended for processing on behalf of the Data Importer after the transfer in accordance with his instructions and the terms of the written subcontract.

4. Obligations of the Data Importer

The Data Importer undertakes and warrants that it will process any and all Personal Data received from or made available by the Data Exporter or derived from such data

(i) in accordance with the instructions of the Data Exporter **[**(which may be given by any means, including e-mail)**]**; and

(ii) in compliance with this Agreement.

The Data Importer undertakes, prior to any processing, appropriate technical and organizational measures as defined by the FADP (particularly Art. 7 para. 1 FADP and Art. 8 et seq. OFADP) and as set forth in <u>Appendix 2</u> to this Agreement to protect the transferred Personal Data from unauthorized processing, including any processing not expressly authorized by this Agreement and including accidental loss or destruction of, or damage to, such Personal Data.

The Data Importer will promptly inform, and cooperate with, the Data Exporter

(i) if it believes that it may no longer be able, or no longer is able, to comply with this Agreement, particularly in case it receives or must reasonably expect to receive a request or order of a competent authority requiring it to disclose, or refrain from further processing, some or all Personal Data to which this Agreement applies; or

(ii) if any accidental or unauthorized access has occurred.

The Data Importer shall not subcontract any of its processing operations without the prior written consent of the Data Exporter. No consent shall be given if (i) Personal Data or the processing of such Personal Data is to be transferred to an operation in a third country or to a third party (including an affiliate) which is not subject to substantially similar obligations as the Data Importer under this Agreement, or (ii) the enforcement of the present Agreement by the Data Exporter cannot be reasonably ensured.

In the event of subprocessing, the Data Importer undertakes that

(i) it has previously informed the Data Exporter and obtained its prior written consent;

(ii) the subcontracting of the processing of Personal Data may only consist of the processing operations agreed in this Agreement;

(iii) Data Importer and Subprocessor shall sign an agreement which will impose the same obligations on the Subprocessor as those imposed on the Data Importer under this Agreement[2];

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[2] This requirement may be satisfied by the Subprocessor co-signing this Agreement.

(iv)   it will promptly send a copy of any Subprocessor agreement it concludes under this Agreement to the Data Exporter.

Where the Subprocessor fails to fulfil its data protection obligations under such written agreement, the Data Importer shall remain fully liable to the Data Exporter for the performance of the Subprocessor's obligations under such agreement.

5.   Rights of Persons Affected

The Data Exporter is responsible that the Persons Affected are provided with their right of information (right of access), correction, blocking, suppression or deletion, as available under the FADP. The Data Importer (and any Subprocessor) will fully and without delay cooperate with the Data Exporter in, and provide to the Data Exporter the necessary services for, fulfilling such requests or inquiries of Persons Affected.

6.   Term and Termination

This Agreement shall be binding between the parties upon execution by both parties and shall remain in place for an indefinite period of time. Each party may terminate this Agreement at any time with immediate effect by providing a written notice. The Data Exporter may also suspend the transfer of Personal Data and|or its processing at any time.

Upon termination of this Agreement for whatever reason, the Data Importer (and any Subprocessor) shall,

(i)   immediately return any Personal Data and copies thereof to which this Agreement applies, including the Personal Data transferred by the Data Exporter; and, to the extent this is not possible,

(ii)   destroy such Personal Data and copies thereof, and certify to the Data Exporter in writing that it has done so;

unless legislation imposed upon the Data Importer prevents it from returning or destroying all or parts of the Personal Data to which this Agreement applies, in which case the Data Importer informs the Data Exporter and undertakes to keep such Personal Data confidential and not actively process it anymore.

7.   Miscellaneous

Each party will provide any court or supervisory agency, and the Data Exporter will provide any Person Affected, a copy or the content of this Agreement upon its request or if required by law. In case of a production request by a Person Affected, the Data Exporter may summarize any part of this Agreement (including its Appendixes) to the extent necessary for confidentiality and data protection reasons.

This Agreement may only be modified in writing. The parties shall not assign this Agreement or any rights or obligations hereunder to any third party without the prior written consent of the other party. This Agreement (and any agreement signed by the Data Importer and any Subprocessor for the purposes of processing and transferring Personal Data under this Agreement) shall be governed by and construed in accordance with the substantive laws of Switzerland. Any dispute arising out of or in connection with this Agreement (or any subprocessor agreement signed by the Data Importer and any Subprocessor for the purposes of processing and transferring Personal Data under this

Agreement) or breach thereof, shall be exclusively settled by the ordinary courts of Lausanne, Switzerland.

Place, Date: …………………………………………………..............

For the Data Exporter: For the Data Importer:

_____   _____

Benoît Garbinato, Professor   **[Name]: …………………………………………………,**
DOPLab, University of Lausanne   **[Function]: ……………………………………………,**
                                         [Company]: …………………………………………

Appendix 1
Description of the Transfer

1. Catalogue of Personal Data to be transferred and processed:

See Annex 2

2. Purpose(s) of the transfer:

The dataset is transferred only for research purpose.

3. Categories of the Persons Affected:

Paid participants of the initial Breadcrumbs experiment.

4. Persons who may access or receive the Personal Data:

Permitted Staff who signed the Permitted Staff Agreement.

5. Data protection registration information of the Data Exporter:

Contact person: Prof. Benoît Garbinato (benoit.garbinato@unil.ch)

6. Additional useful information:

7. Contact Information for Data Protection Inquiries:

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Appendix 2
Technical and Organizational Measures implemented by the Data Importer

[Data importer's high-level data management plan from a security and privacy perspective.]

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Annex 2 : Dataset description

Tables and Columns

unique_user_id

- id: identifier of a user (primary key)

userinfo

- id: identifier of a userinfo (primary key)
- firstlastname: firstname and lastname of the user hashed
- email: email of the user hashed
- phone: phone number of the user hashed
- *user_id*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

location

- id: identifier of the location (primary key)
- timestamp: timestamp indicating when the location was captured
- latitude: latitude of the location
- longitude: longitude of the location
- altitude: altitude of the location
- speed: speed of the location
- horizontalAccuracy: horizontal accuracy of the location
- verticalAcuracy: vertical accuracy of the location of the location
- *user_id*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

contact

- id: identifier of the contact record (primary key)
- timestamp: timestamp indicating when the contact record was captured
- firstlastname: firstname and lastname of the contact record hashed
- email: email of the contact record hashed
- phone: phone number of the contact record hashed
- *user_id*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

If multiple emails or phones are indicated for a contact, this means that there can be multiple similar records with one single different email or phone attribute for each. 0 is indicated if there is no email or phone.

event

- id: identifier of the event record (primary key)
- timestamp: timestamp indicating when the event record was captured
- title: title of the event record hashed
- start: timestamp indicating when the event record started
- stop: timestamp indicating when the event record stopped
- organizer: organizer of the event record hashed

- attendee: attendee of the event record hashed
- *user_id*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

If multiple attendees are indicated for an event, this means that there can be multiple similar records with one single different attendee attribute for each. 0 is indicated if there is no attendee or phone.

bluetooth_scan

- <u>id</u>: identifier of the event record (primary key)
- timestamp: timestamp indicating when the bluetooth scan was performed
- deviceuuid: UUID hashed of the remote peripheral device detected through bluetooth
- *user_id*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

If multiple deviceuuids are captured for a bluetooth scan, this means that there can be multiple similar records with one single different deviceuuid for each. 0 is indicated if there is no deviceuuid captured.

wifi_scan

- <u>id</u>: identifier of the event record (primary key)
- timestamp: timestamp indicating when the wifi scan was performed
- wifissid: SSID hashed of the access point detected through WIFI
- *user_id*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

If multiple wifissids are captured for a wifi scan, this means that there can be multiple similar records with one single different wifissid attribute for each. 0 is indicated if there is no wifissid captured.

relationship

- <u>id</u>: identifier of the event record (primary key)
- *user_id_1*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)
- *user_id_2*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

point_of_interest

- <u>id</u>: identifier of the event record (primary key)
- poi_nb: number of the point of interest of a user
- latitude: latitude describing the point of interest
- longitude: longitude describing the point of interest
- *description*: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- *user_id*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

The description of a point of interest can be found in the « point_of_interest_description » table below (using the id of the table below). A point of interest may have several descriptions.

point_of_interest_description

- <u>id</u>: identifier of the event record (primary key)

- description: description of the point of interest (e.g., Home, Work)

survey

- <u>id</u>: identifier of the event record (primary key)
- gender: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- age_group: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- working_profile: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- car_week: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- public_transportation_week: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- bike_week: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- taxi_week: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- walking_week: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- car_weekend: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- public_transportation_weekend: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- bike_weekend: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- taxi_weekend: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- walking_weekend: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- job: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- university: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- section: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- field_of_studies: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- living_parent_s_home: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- parent_s_home_location: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- family_status: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- sport_exercises_frequence: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- student_association: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- nationality: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- smoking_cigarettes: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- seasonal_allergies: identifier of a description contained in the « point_of_interest_description » table (foreign key)
- diet: unique identifier of a description contained in the « point_of_interest_description » table (foreign key)
- *user_id*: unique identifier of a user (id) contained in the « unique_user_id » table (foreign key)

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survey_answer_description

- <u>id</u>: identifier of the event record (primary key)
- description: answer of the survey (e.g., Bachelor, Master)