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**Replication package explanatory file**

**Data Title:** Electric Vehicle Trip Energy Consumption Data

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**Keyword(s):** Electric Vehicle; Energy Consumption

**Data description:**

The data consists of normal driving records for dozens of private cars over several months (from June 5, 2015 to June 30, 2016), with a sampling frequency of one minute. The basic specifications of the vehicles are as follows: Roewe E50 is a pure electric vehicle, weighing 1080 kilograms. It is equipped with a 22.4 kWh battery pack, and is reported to have a driving range of 170 kilometers. The raw data has been preprocessed and denoised, resulting in a final dataset containing 10,000 trips.

This dataset offers substantial potential for reuse in research and analysis focused on electric vehicle energy consumption. Researchers, engineers, and policy makers can leverage this data to understand patterns, develop optimization algorithms, and inform energy-efficient practices.

The dataset adheres to all applicable legal requirements. All sensitive information has been removed, and the data has been preprocessed to ensure confidentiality. There are no known legal or ethical obstacles to its use.

Table 1. Field description.

| **Field Name** | **Description** |
| --- | --- |
| Trip Energy Consumption | The energy consumption for each trip (in kWh). |
| Vehicle ID | Unique identifier for the vehicle. |
| Trip Distance | The distance traveled during the trip (in kilometers). |
| Time of Day | The departure hour of the trip. |
| Day of the Week | The departure day of the week for the trip. |
| Longitude | The average longitude of the trip. |
| Latitude | The average latitude of the trip. |
| Speed | The average speed of the trip (in km/h). |
| Current | The average current during the trip. |
| Total Voltage | The average total voltage during the trip. |
| Maximum Cell Temperature of Battery | The mean value of the maximum cell temperature. |
| Minimum Cell Temperature of Battery | The mean value of the minimum cell temperature. |
| Trip Time Length | The duration of the trip (in minutes). |