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# Synthetic Aggregate Household Consumption Trace Generation with SHoCo

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**Abstract** – Smart meters have emerged as invaluable tools for utility companies, as they allow for the automated collection of energy consumption readings and enable multi-tariff billing. However, smart meters have not primarily been designed to provide collected data to customers; often, they do not even feature interfaces for users to view the data. A second line of products has hence emerged to bridge this chasm. Plug-level power sensors, also referred to as smart plugs, are tailored to provide consumption information to users. By making consumption data available for processing, both smart meters and smart plugs lay the foundation for many user-centric energy-based services, such as attributing consumption to individual appliances. However, there is one major obstacle for developing such services, namely the limited availability of previously collected data on which the efficacy of such services can be tested. We tackle this challenge by presenting our synthetic household consumption trace generation tool called SHoCo. It facilitates the generation of synthetic, yet realistic-looking, household power consumption traces based on the re-combination of snippets of existing device-level consumption traces. SHoCo is capable of creating traces for a set of different appliance types and models, and is easily extensible by new input data. In order to demonstrate its efficacy, we present and discuss generated traces for several synthesis configurations.