

# Anonymous activity recognition in an office environment (office tasks dataset)

## Documentation

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### 1 General information

<b>Experiment title</b>	Anonymous activity recognition in an office environment (office tasks dataset)
<b>Experiment id</b>	D120213-ABC-FK
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<b>Location</b>	Smart Appliance Lab 321, Albert-Einstein-Straße 22, 18059 Rostock, Germany
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## 2 Description

This datasets contains measurements of pressure mats generated by users performing tasks in a faked office environment. Annotation describe the real activities performed by the users.

One, two or three persons enter an office room and two tasks to perform:

- get some coffee, and
- print a paper.

The coffee machine requires water and ground coffee, paper is required for printing. These resources may already be at the coffee machine or the printer, or must be obtained. There are six different distinct places:

- door
- printer
- coffee machine
- paper stack
- water tap
- coffee jar

Additionally, the printer may be jammed and needs to be repaired prior to printing.

The dataset contains measurements of pressure mats at the six locations as well as annotations of the real action sequence. Four recordings have been performed with a single user, one recording for two users and one recording for three users.

### 2.1 Objective

The task is to recognise which *action* has been performed by which *user*. The challenge is that the only observation are activations of the pressure mats. These sensors are anonymous (the user cannot be identified) and only boolean valued (it can only distinguish between no and one or more persons). The number of users inside the room is unknown, the datasets cover cases from one to three persons simultaneously in the room, pursuing their current task.

This dataset was used to answer the research question *To what degree can the activities of the persons be recognised by using anonymous location sensors only?*

### 2.2 Data format

For each recording, one file `data- $n$ - $i$ .txt` exists in the `001-Observation/` folder.  $n$  is the number of users, and  $i$  an identification letter. Each file has the header

```
Door Printer Coffee-Machine Paper-Stack Water-Tap Coffee-Jar
```

followed by the actual data rows. Each row contains either 0 for a deactivated or 1 for an activated pressure mat at the location corresponding to the column. The sampling rate is 1 Hz.

The `002-Annotation/` folder contains the corresponding annotations in the files `actions-n-i.txt`. The actions are S-Expressions of the form `(action-name [parameters]*)`. One parameter `user` is always present and identifies the user that is executing the actions. Possible actions are:

- `(start-walking user from to)`: the user is walking between the places, where `from` and `to` are the possible six locations `printer`, `door`, `paper-stack`, `coffee-machine`, `outside`, `water-tap` and `coffee-jar`.
- `(end-walking user from to)`: the movement has ended. This action always immediately follows the corresponding `start-walking` action.
- `(start-printing user)`: the user stands at the printer and prints a document.
- `(end-printing user)`: the user is taking the paper from the printer.
- `(take user object)`: the user is taking one of the objects `paper`, `coffee` and `water`.
- `(refill object user)`: the user is “refilling” the object (previously taken) at the printer (`paper`) or coffee-machine (`coffee` and `water`).
- `(make-coffee-start user)` and `(make-coffee-end user)`: the user is making coffee at the coffee machine.
- `(take-coffee-drink user)`: the user is taking the drink from the coffee machine.
- `(check user object)`: the user is inspecting the printer or coffee machine if its resources are missing.