# Research Group: Automating CPS Design

In the **Automating CPS Design** research group, we develop methods to automate the design process of correct-by-construction cyber-physical/embedded system controllers and software to the greatest extent possible.

At the interface between applications and foundational research, we work on new approaches to solve the difficult computational problems that are at the core of this domain.

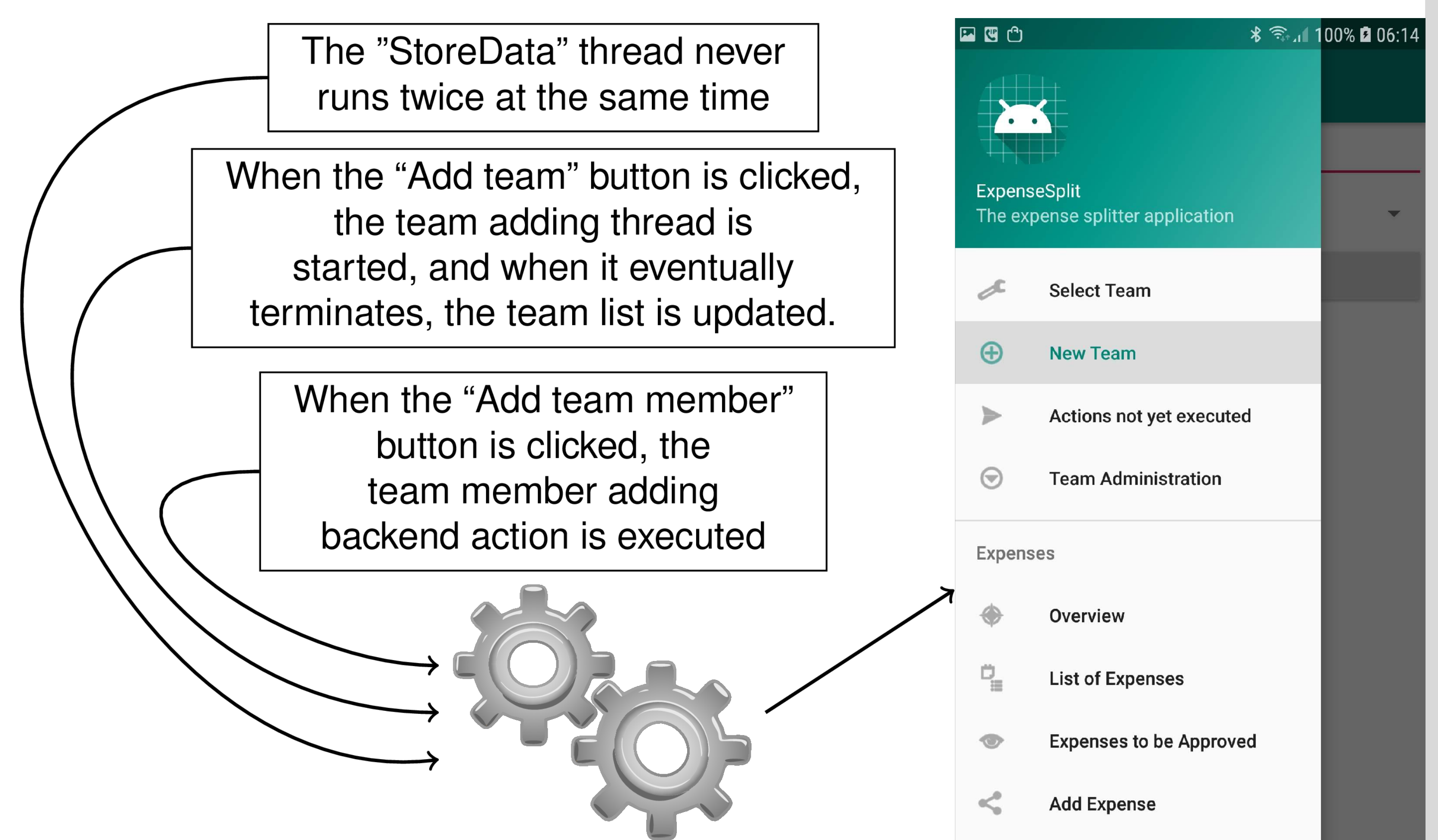## Example for a Difficult Computational Problem: 2D Barcodes
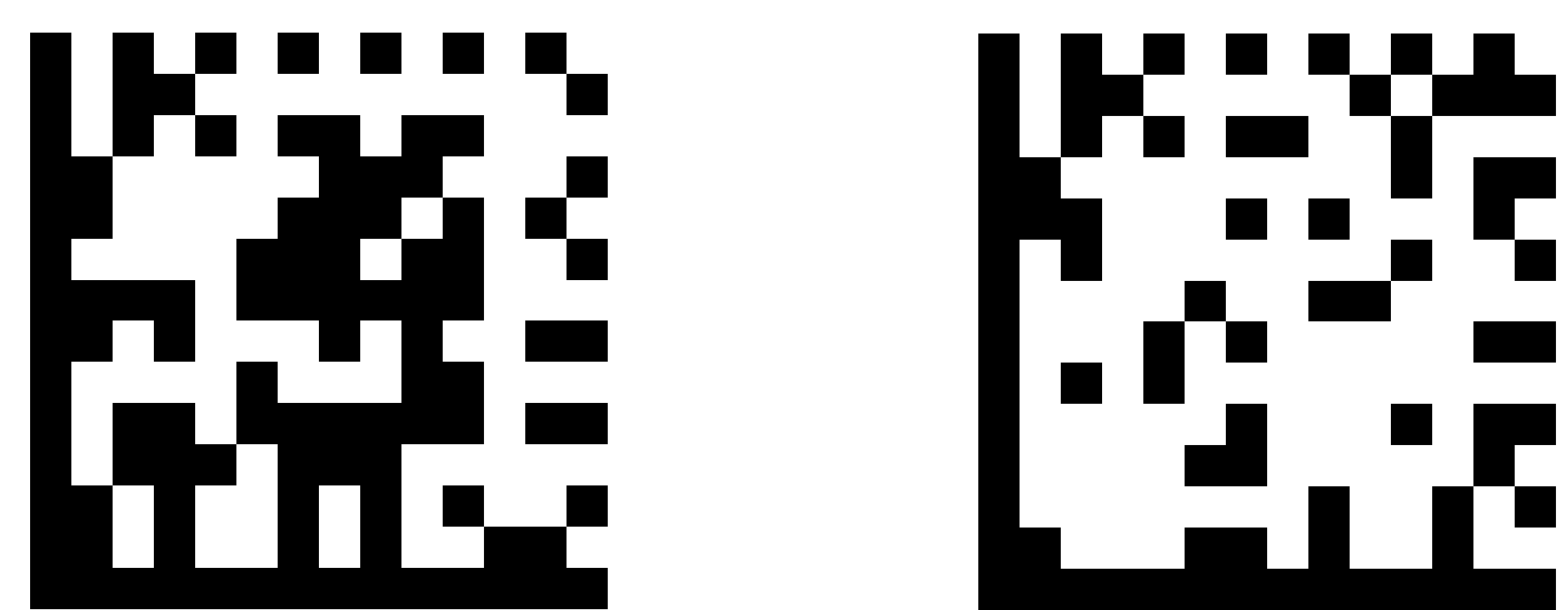
Both 2D barcodes contain the same information, but the right one has only 27 instead of 52 black pixels.

Based on work by Philipp Dargel und Gerrit Marquardt

Example for Design Automation: Synthesis of GUI Program Code

Automated synthesis of program code for graphical user interfaces (GUIs) based on formal specifications allows short development cycles with runnable prototypes.

Apart from programs with a graphical user interface, we research algorithms to synthesize controllers for cyber-physical and embedded systems.

The "StoreData" thread never runs twice at the same time

When the "Add team" button is clicked, the team adding thread is started, and when it eventually terminates, the team list is updated.

When the "Add team member" button is clicked, the team member adding backend action is executed

**If you are interested in our research topics, please contact us and join our team.
We are looking for YOU!**

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