Deep mobile product recognition: applying deep learning on a smartphone

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Automatically detecting and recognizing the products that are on the shelves of a grocery store has many interesting applications. It can help visually impaired people to quickly find the groceries they need, it can help the store management to get a real-time status of the shelve inventory, and it can help sales representatives to quickly check that shelves comply with the agreements.

Previous work has already shown the potential of deep neural networks in solving this task. Their representational power, however, comes with a trade-off in computational complexity and storage requirements. These trade-offs make it impractical to use many of the current deep neural networks off the shelve in a real-world scenario, e.g. on the smartphone of a visually impaired person.

In this thesis, we will investigate how we can adapt such existing neural networks to make them suitable for a mobile environment.