TECHNISCHE UNIVERSITÄT DRESDEN

Department of Computer Science Institute for System Architecture, Chair for Computer Networks

Application Development for Mobile and Ubiquitous Computing

Mushroom recognition
Final Presentation

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Outline

- Application scenario
- Architecture
- Technologies
- Use cases
- Challenges
- Solutions
- Summary

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Application Scenario

- Recognition of a type of a mushroom (edible or poisonous).
- Mushroom's picture analisys for gathering it's informations.
- Printing a list of possible mushrooms with option to see their details.
- Updating data of mushroom.

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Architecture

Providing GPS data

Client-Server architecture

NN and Mushroom Requests

Performing recognition
Searching for NN
Calculating optimal GPS usage

Searching for NN
Providing data

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Symbian OS - one of Nokia's mobile operating systems for mobile devices and smartphones, with associated libraries, user interface, frameworks and reference implementations of common tools.

Artificial neural network (ANN) - a mathematical model or computational model that is inspired by the structure and/or functional aspects of biological neural networks. A neural network consists of an an interconnected group of artificial neurons, and it processes information using a connectionist approach to computation.

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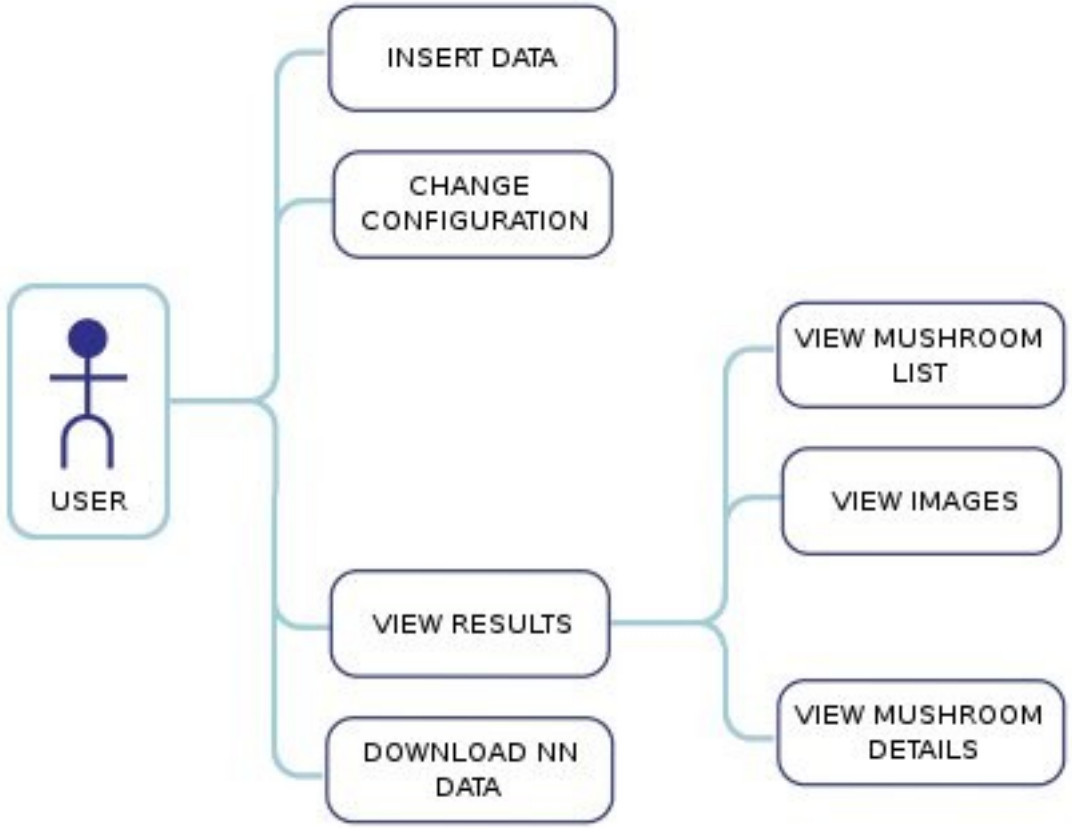
Use cases


INSERT DATA
CHANGE CONFIGURATION
USER
VIEW MUSHROOM LIST
VIEW IMAGES
VIEW RESULTS
VIEW MUSHROOM DETAILS
DOWNLOAD NN DATA

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Challenges

- Achieve neural network's high effectiveness.
- Recognize as much objects parameters as possible (from the picture)

  [some parameters can be added only by user, e.g. odor]
- Energy consumption (GPS, pictures).

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- Good results for edible / poisonous network

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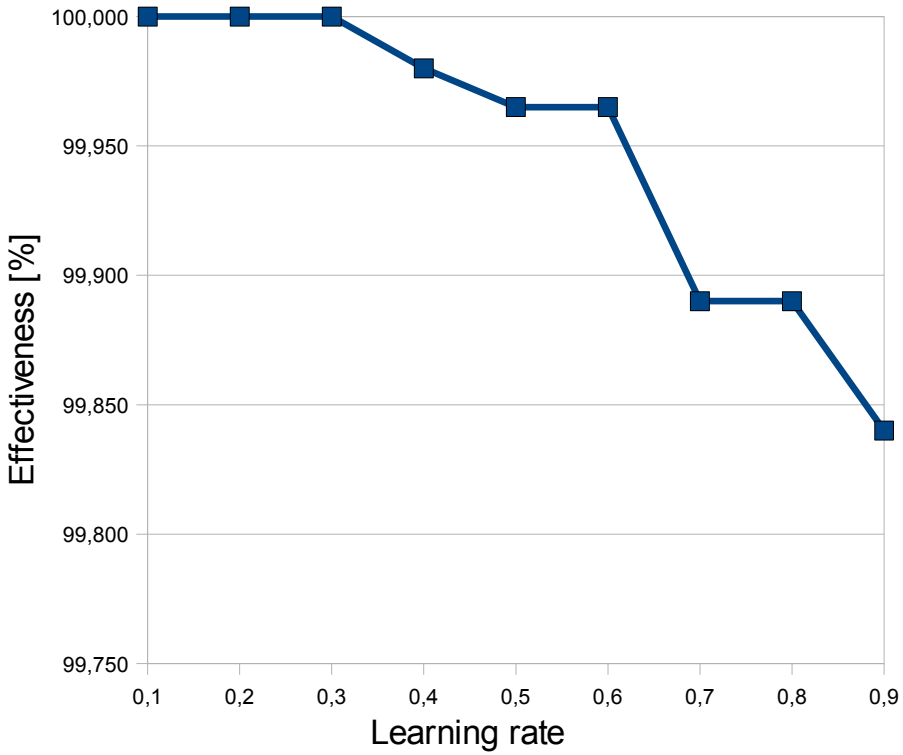

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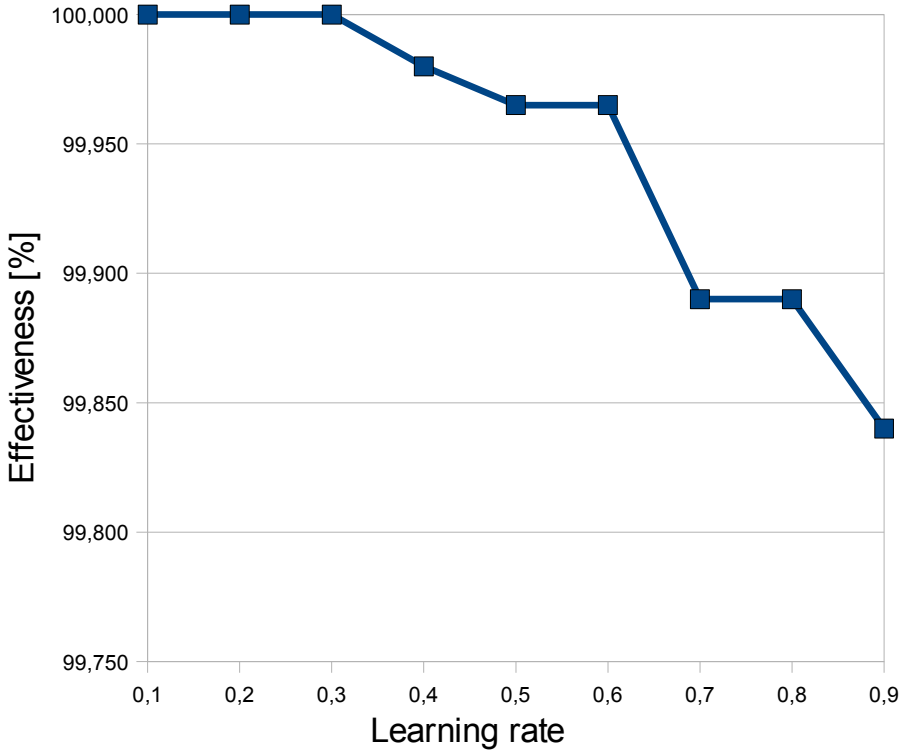

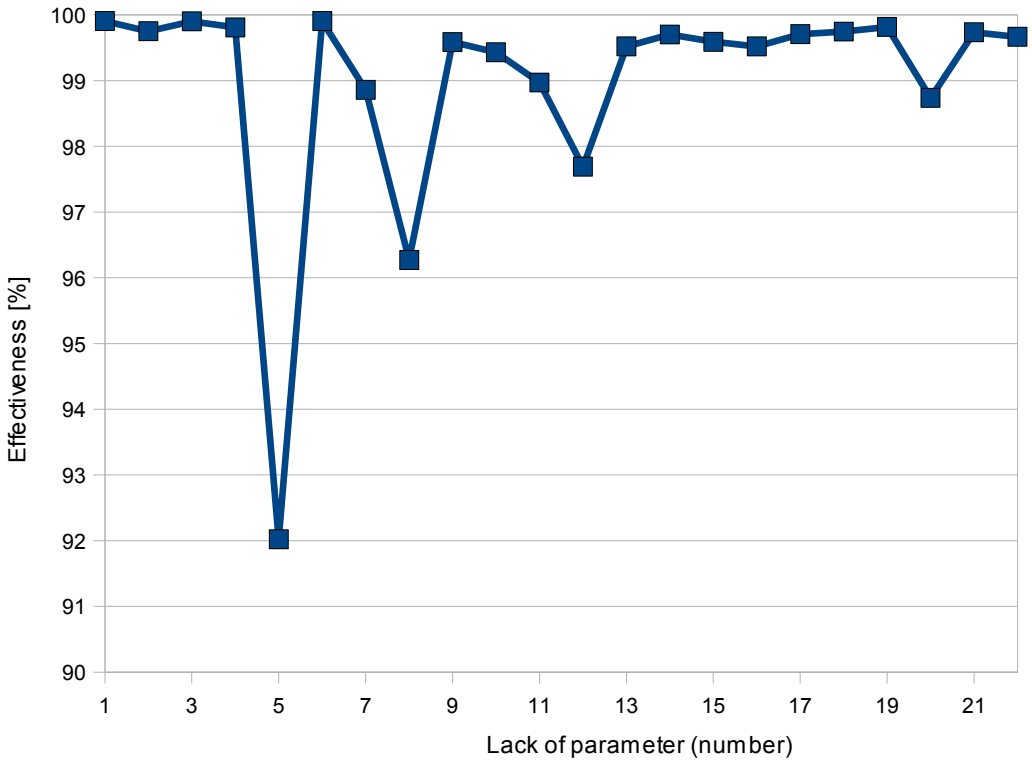

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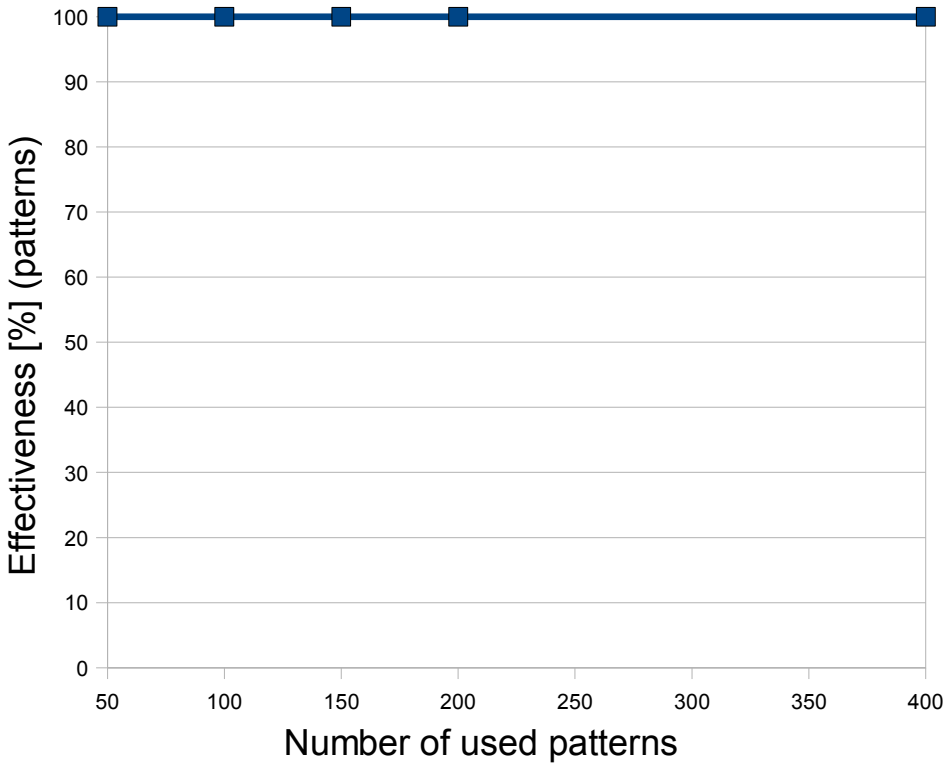

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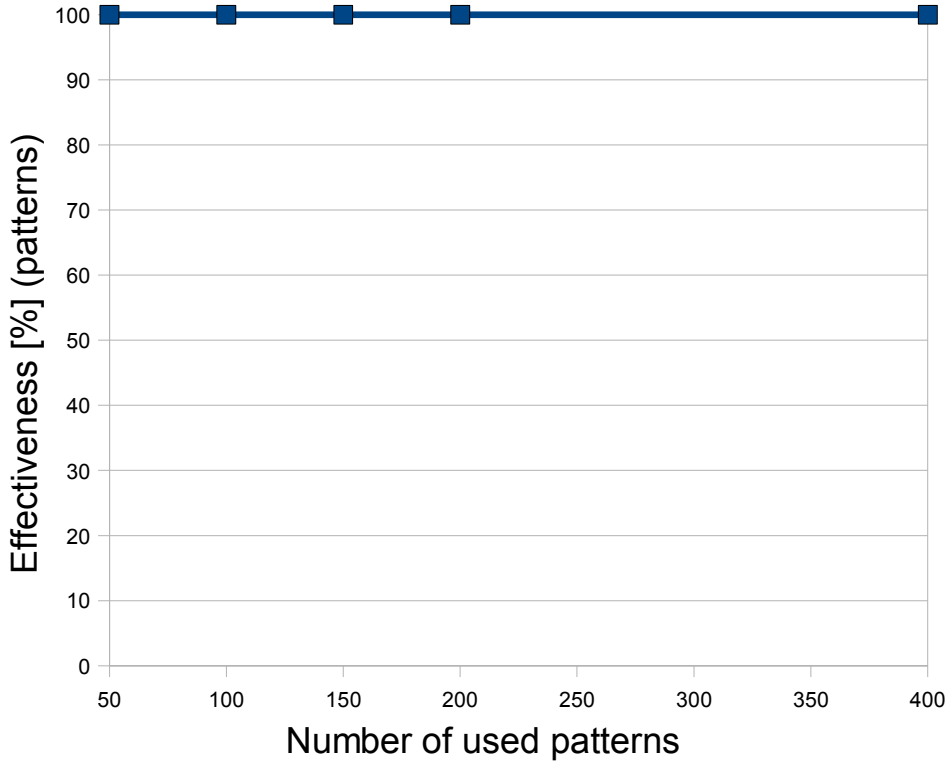

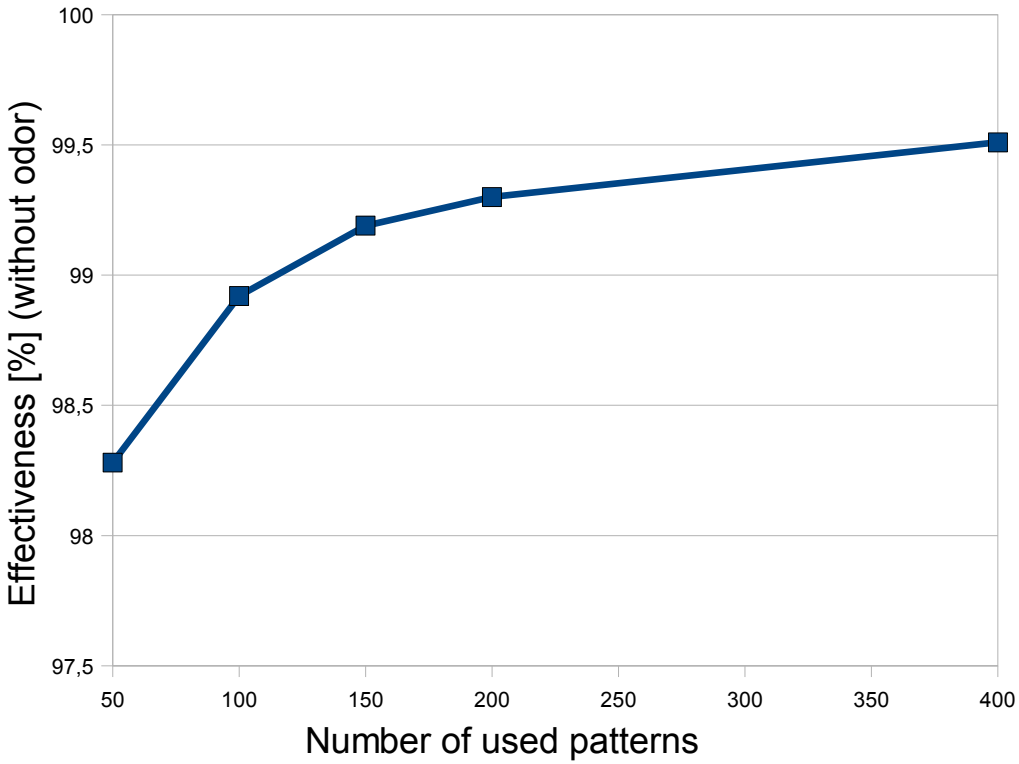

Energy consumption (GPS, pictures).

- Reading GPS data is important for finding NN of user's location area.

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- Checking if NN is out of date, before each recognition consumes a lot of resources

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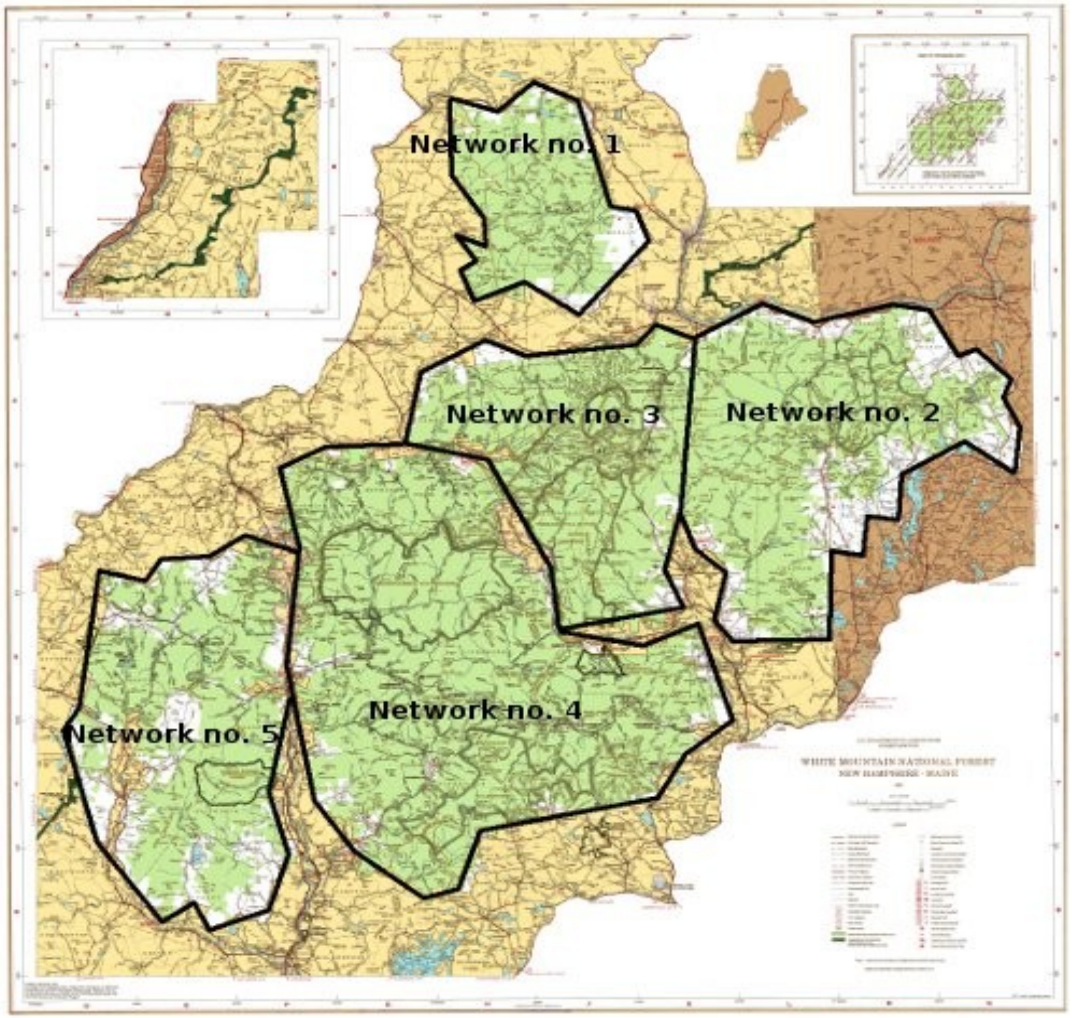
- Maps are divided into several parts with separate NN.



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- Basic calculations can provide probable time of border cross by user (need to reload NN)

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Thank you for your attention.