

Artificial Intelligence in Embedded Environments

Andrea Agiollo – University of Bologna

Supervisor: Andrea Omicini

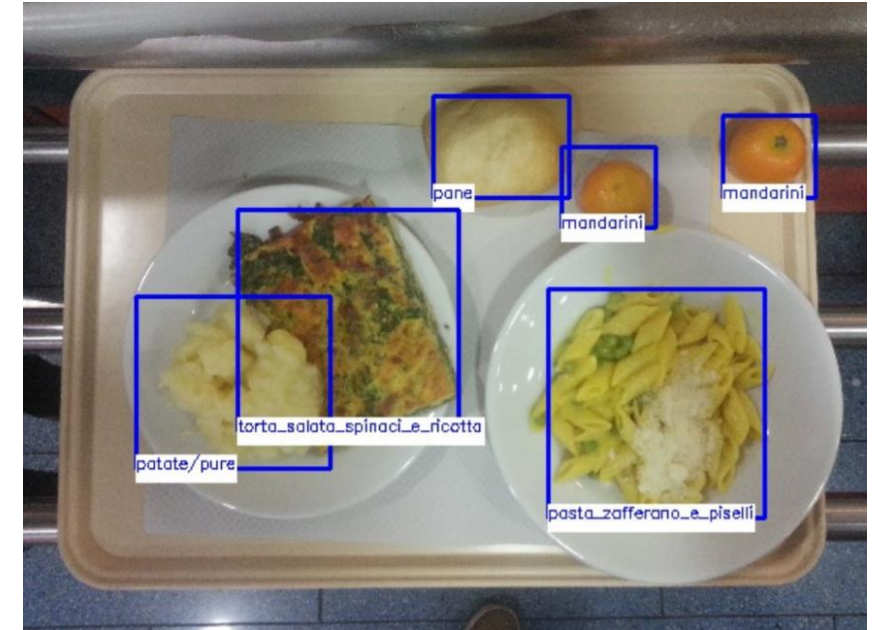
Technical coordinator: Emidio Tiberi

Research Aims

- Automate visual tasks in food industry
- Deploy Artificial Intelligence solutions (i.e. Neural Networks) in embedded systems

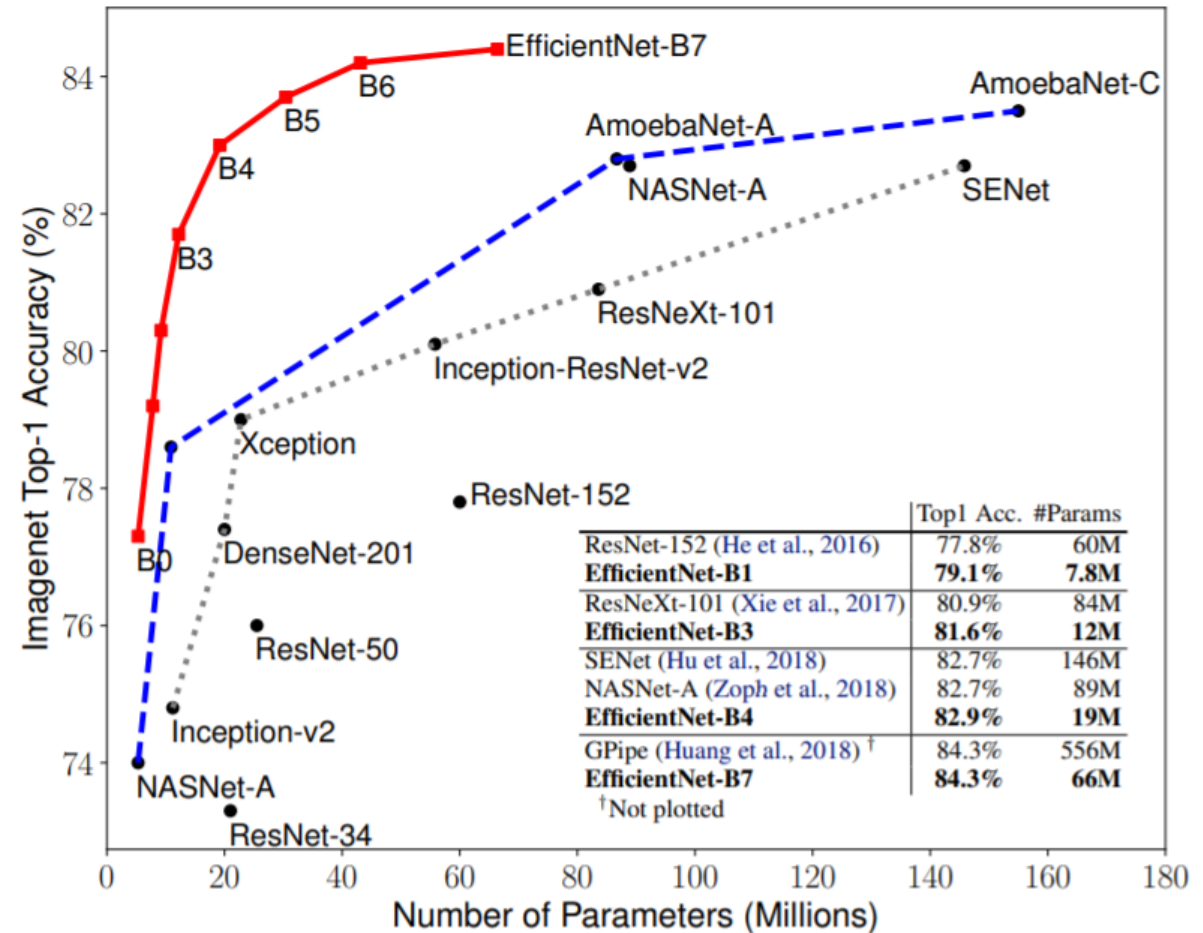
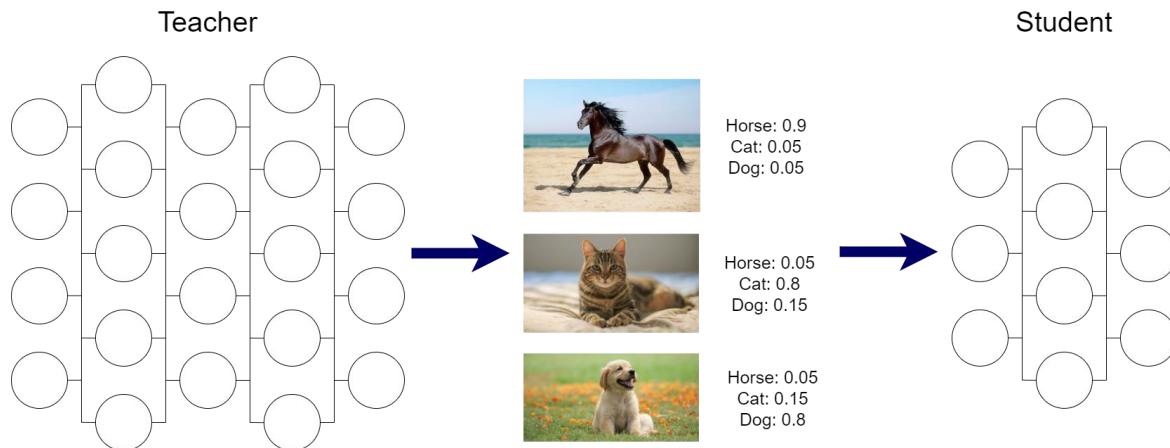


- Calamari
- Oil
- Flour
- Salt
- Lemon
- Ketchup



Research Interests

- Light NN solutions for computer vision tasks
- NN simplification/compression
- NN explainability



Roadmap

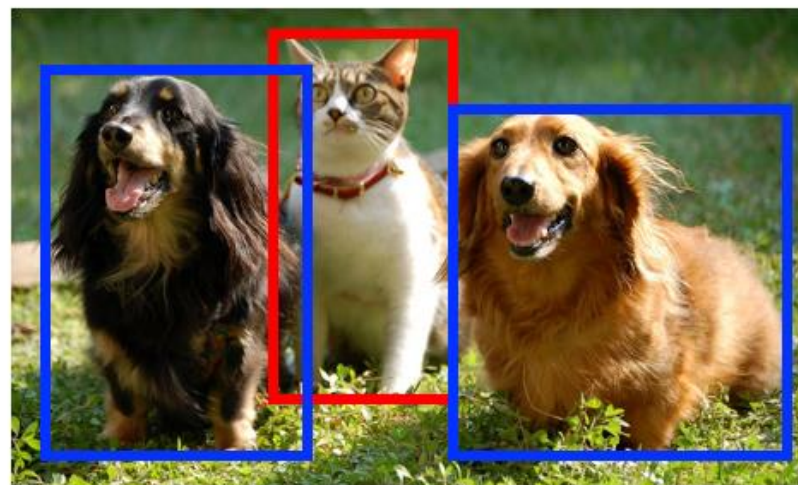
1. Image classification

2. Object Detection

3. Image segmentation



CAT

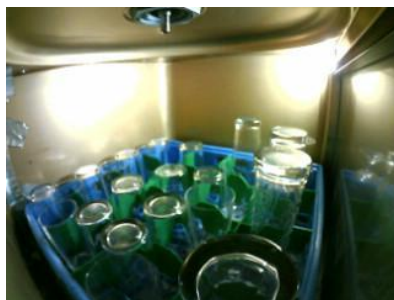


CAT, DOG



CAT, DOG

Dishwasher load classification



Dishes



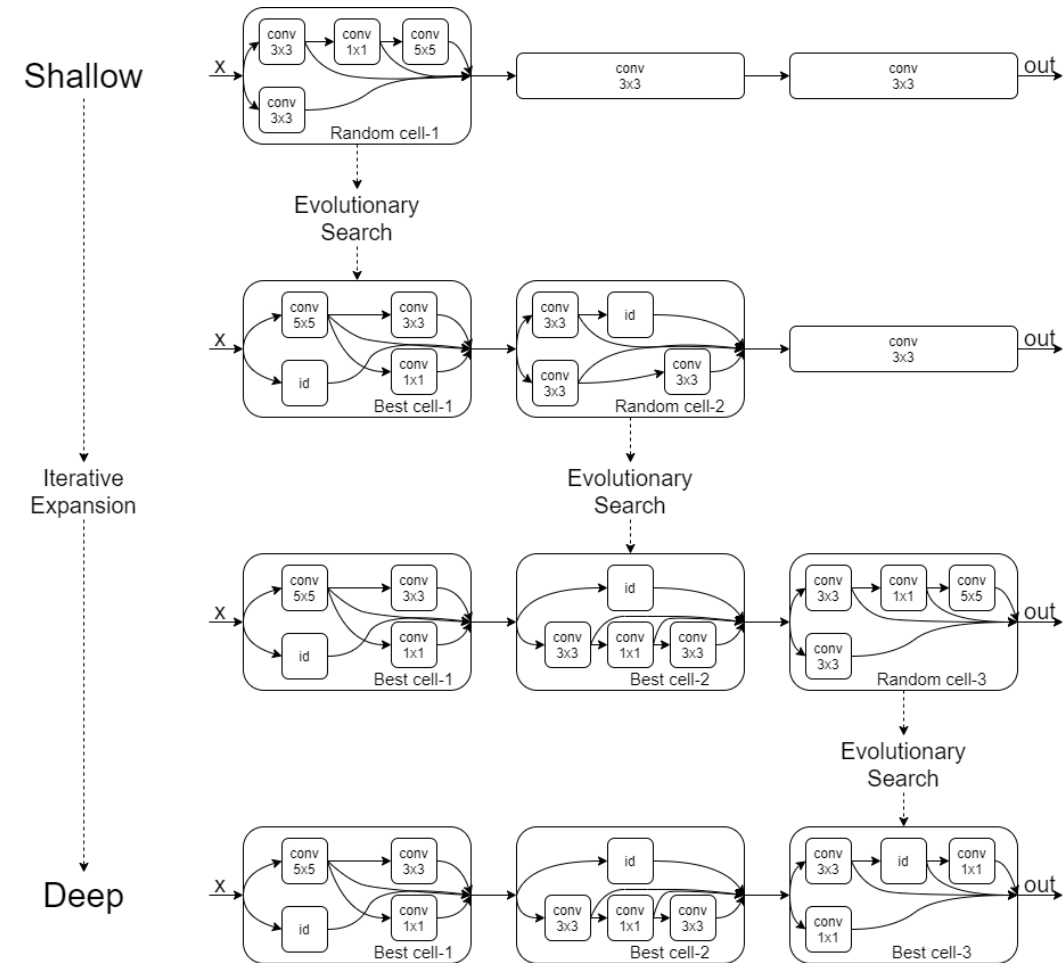
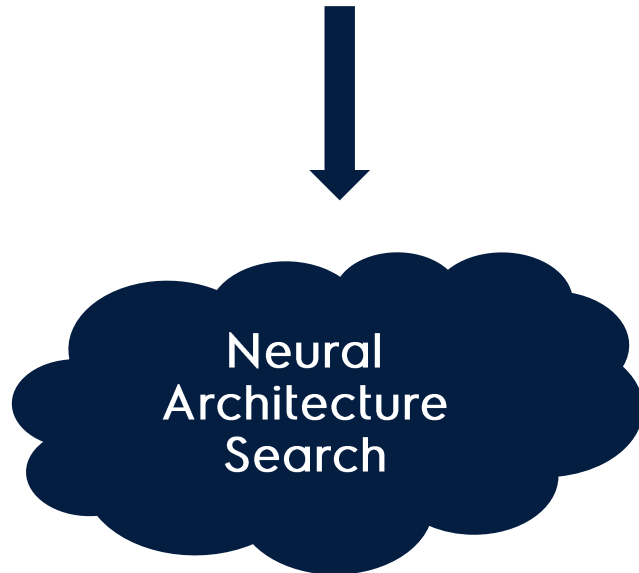
Glasses



Cups

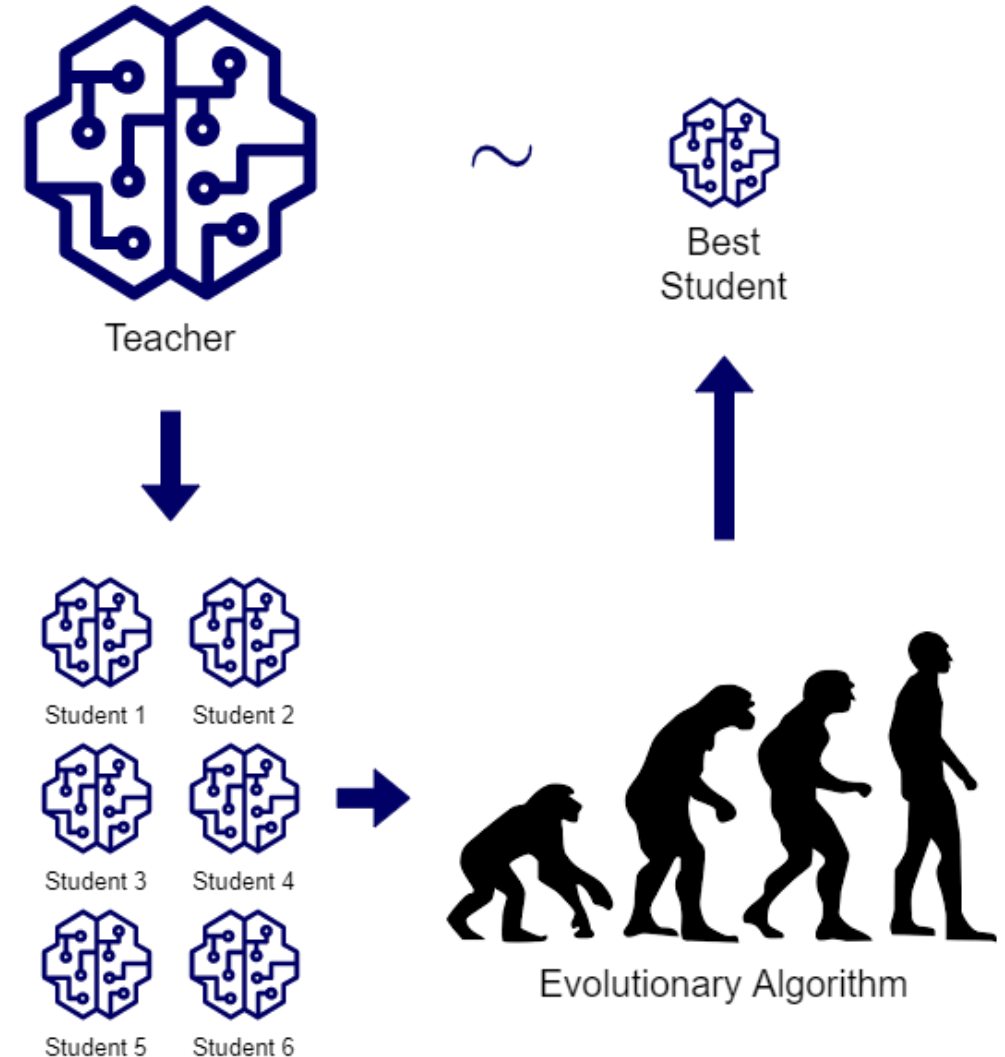
Reduce NN complexity (pt. 1)

- Is it possible to build smaller NN?
- Can we automate NN building?
- What are the best depth and size for a NN over a certain task?



Reduce NN complexity (pt. 2)

- Is it possible to build smaller NN?
- Can we shrink well performing NN?
- What is the best learner NN over a certain task?



**Thanks for your
attention**