

Ozobot-project

fast sketches for AI Seminar

Problems for drone in 3D



- Multiview object detection using stereo geometry
- Online 3D scene reconstruction
- Obstacle Detection
- Collision Avoidance

Our Ozobotic projection



- Shapes detection using simple geometry
- Online 2D image recognition
- Shape counting
- Make online shape predictions

Possible tasks (roadmap)

1. Path following
2. Object counting (*in the fastest way, **with predictions)
3. Object recognition (*in the fastest way, **with predictions)
4. Image fast recognition (*colorful, **comix, ***photography)



Available techniques

- Simple calibration for path following
- Algorithms composing sensor information for shape finding
- Text recognition for comics
- Machine learning for recognitions and guesses
- ...
- Possible extension for collaboration

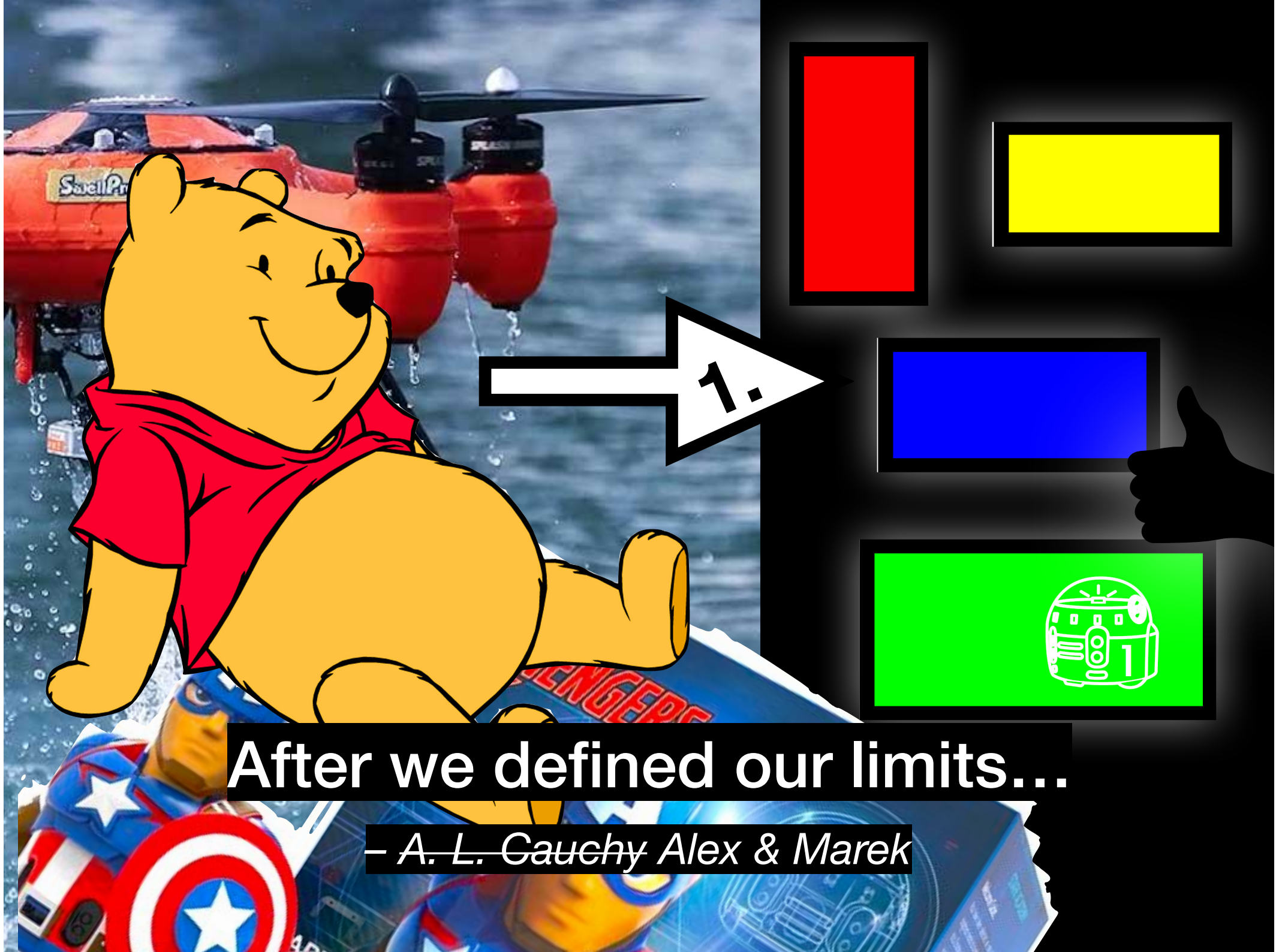
We want to read Winnie the Pooh!

- reading comic can be done easier than recognising photos
- more used techniques in easier way: text reading, character recognition, typical compositions, typical poses, white dialogs
- WtP has enough characters of distinct colours (another possible fallbacks — Čtyřlístek, Tom & Jerry)
- easy to develop heuristics for fast reading (short paths); e.g. dialog points to character, character colour differs from background, scenes are organised in smaller windows...



Plan Update

Tue 17. April

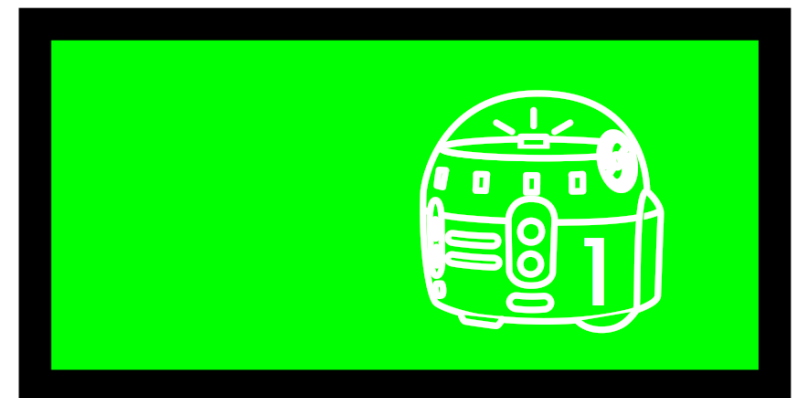
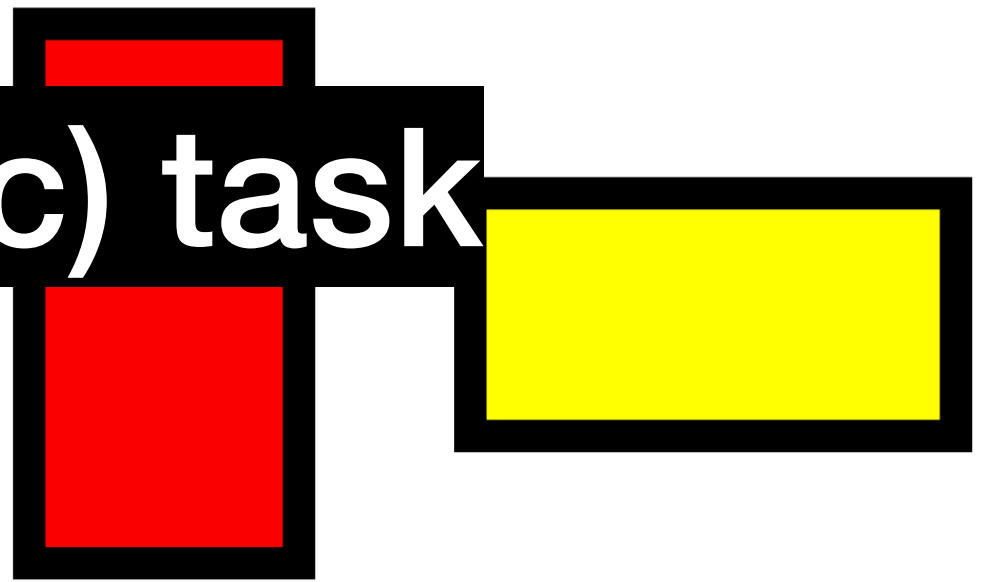


After we defined our limits...

- A. L. Cauchy Alex & Marek

1. (basic) task

- **playground** composed from paper border, horizontal (2:1) and vertical (1:2) rectangles with clear black border
- **ozobot** can move only in parallel ways to cartesian coordinates
- **subtasks** dividing problem into walking the paper 'randomly' and detect some of non-white object (1.) & following the border of rectangle, decide the colour and horizon/verticality of a rectangle (2.)



Progress report

- we developed a way how to realize the 1. task
- doing calibration measurements tests together last week
- we are frustrated from doing out work in Ozoblockly...
- ...so we found at the weekend alternative FlashForth for Ozobot and we will try to test if it fits for our purposes
- <https://github.com/AshleyF/ozobot>
— by AshleyF, Engineer at Microsoft Research
- DEMO coming soon :)