Pedestrian tracking

VUT FIT POVa

Lukáš Petrovič, Filip Šťastný, Martin Vondráček

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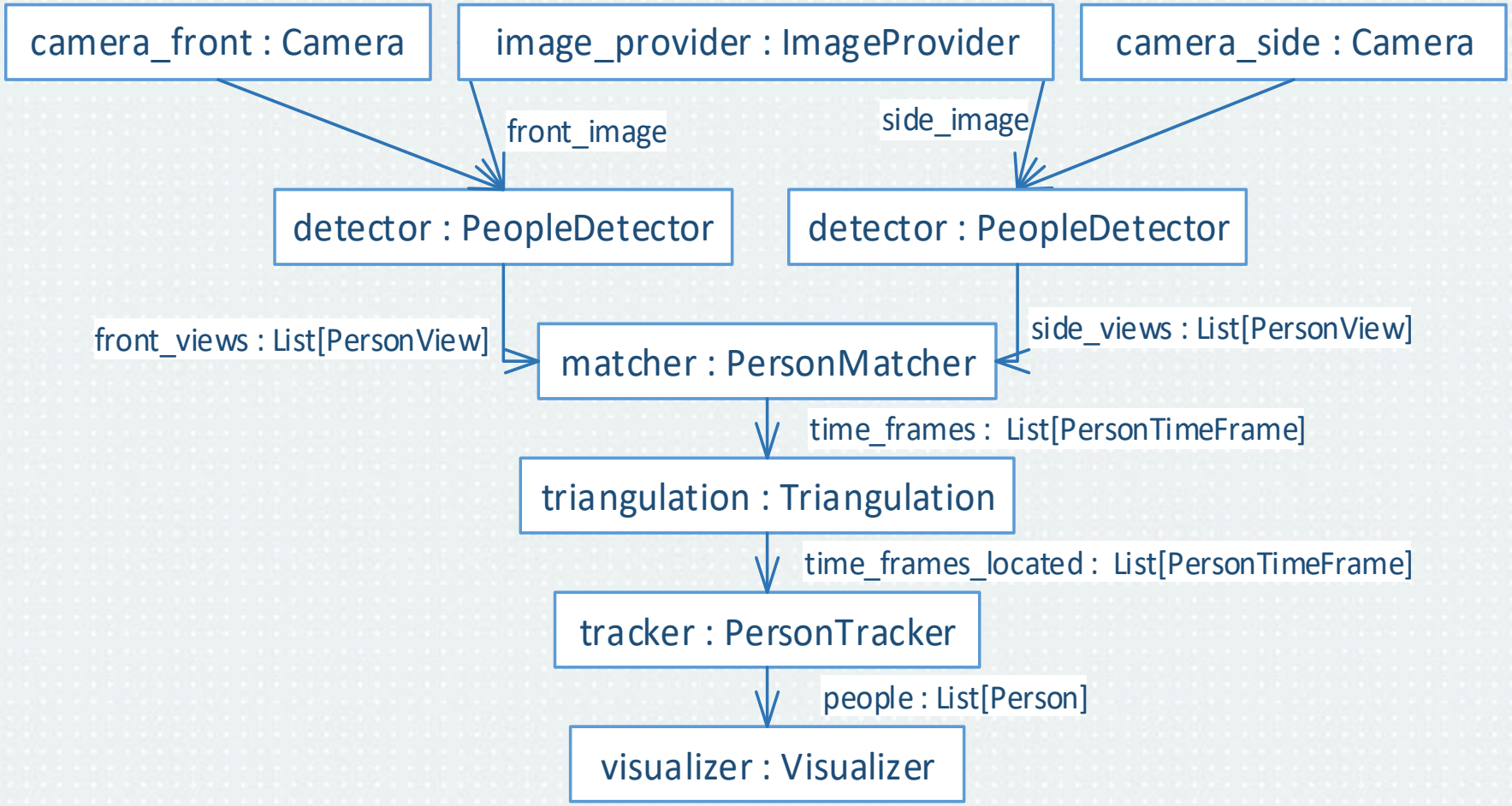
Processing pipeline



Human detection in 2D

- OpenPose deep neural network
- Pretrained model with COCO dataset
- Left hip, right hip, neck → bounding box

Person view matching

- Same person captured by multiple cameras at the same time

- Image histograms

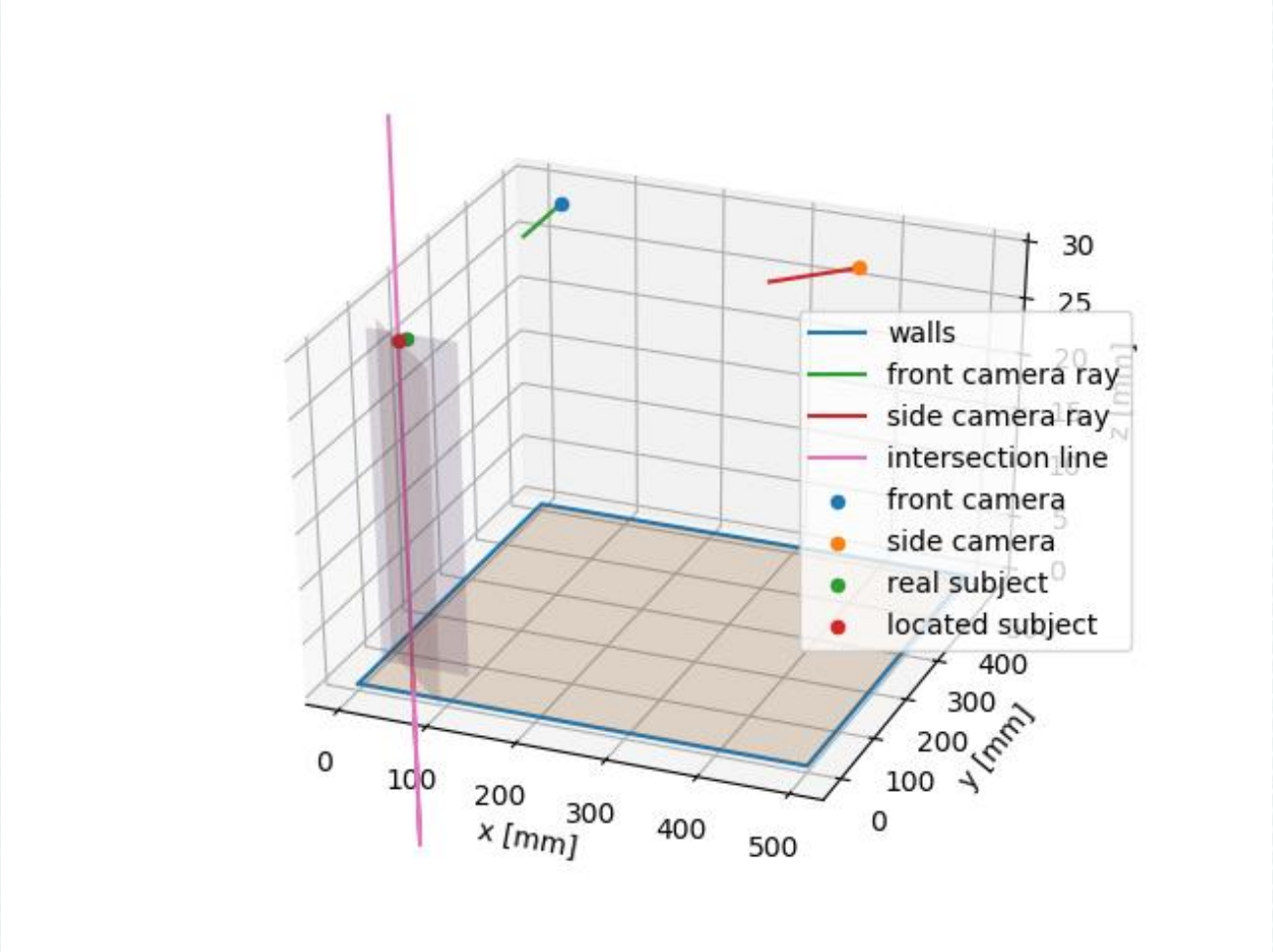
Triangulation

- Distance calculation based on height of average person's torso

- Distance planes in 3D

- Intersection of two planes → person‘s position

Triangulation



Person tracking

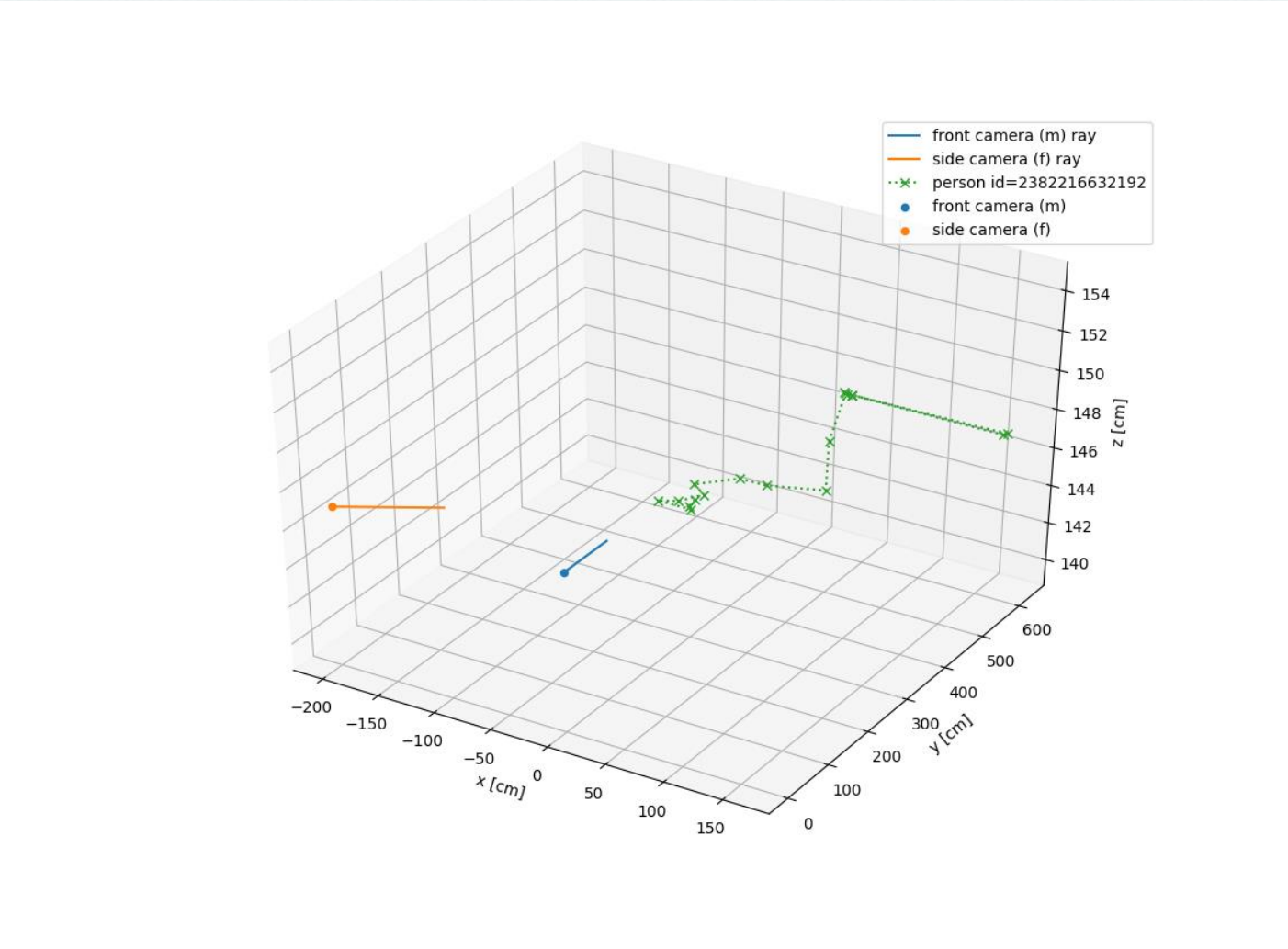
- Based on image histograms

Visualisation

- Shows position and orientation of cameras and path of all tracked people

- User interaction in a separate thread

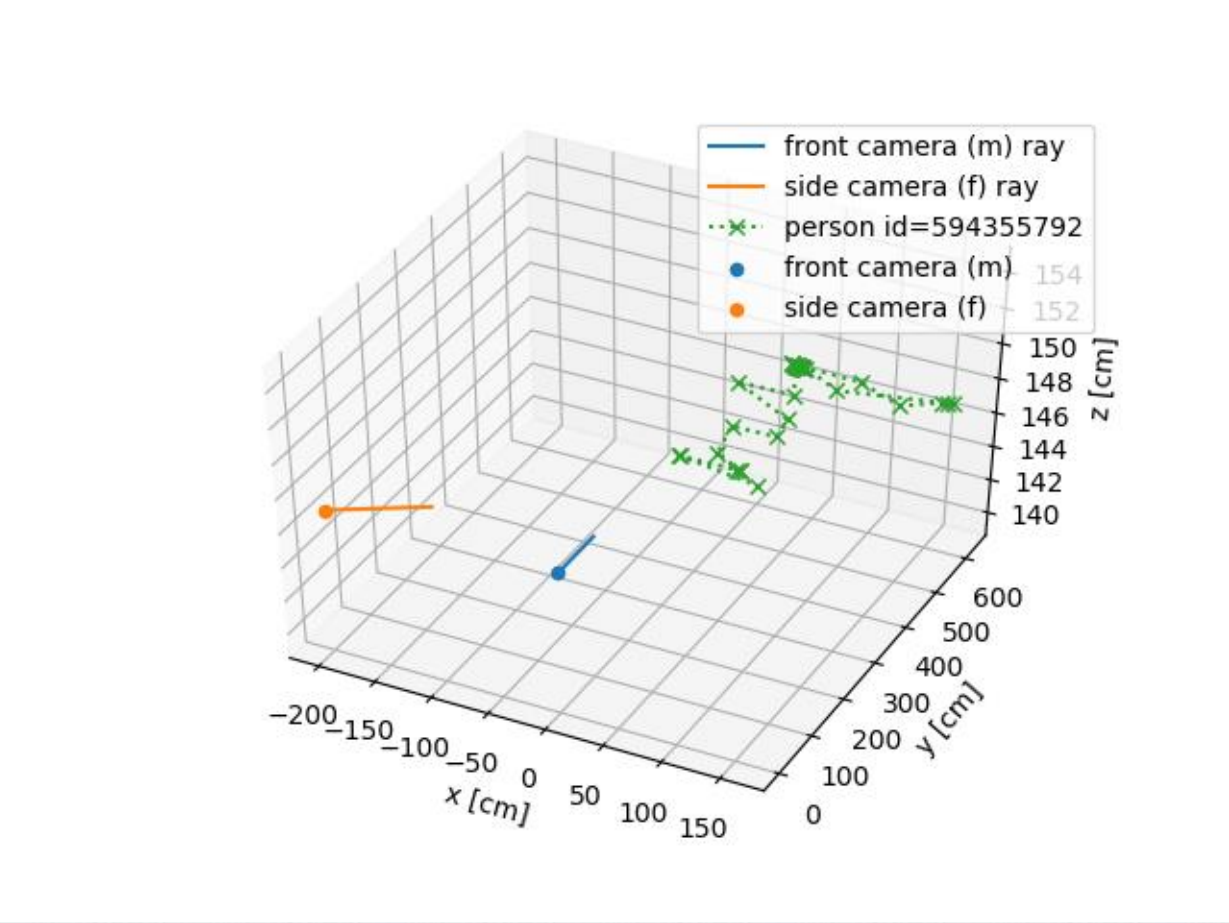
Visualisation

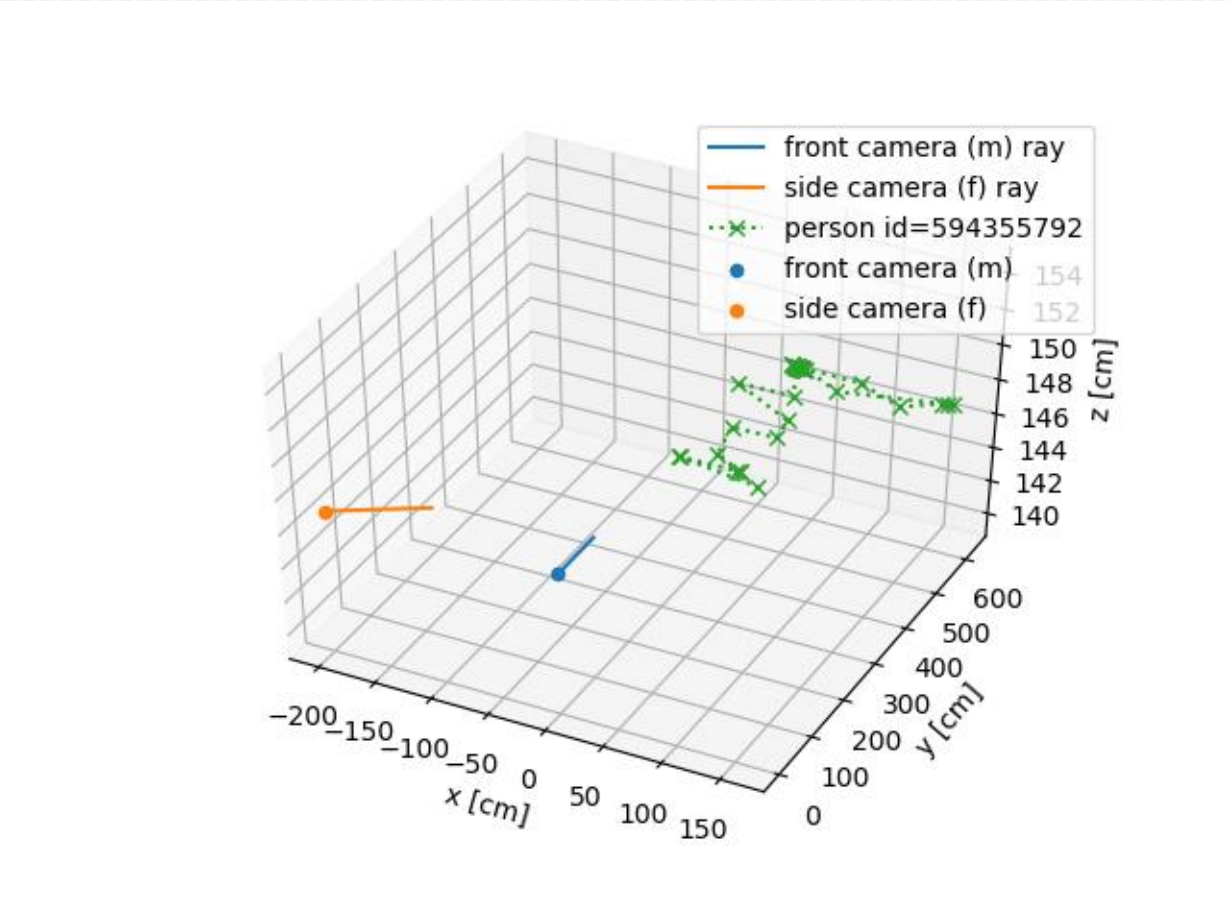


Test data

- Own images, COCO dataset for OpenPose

Evaluation


front camera (m) ray
side camera (f) ray
person id=594355792
front camera (m)
side camera (f)
x [cm]
y [cm]
z [cm]



Thank you for your attention.