



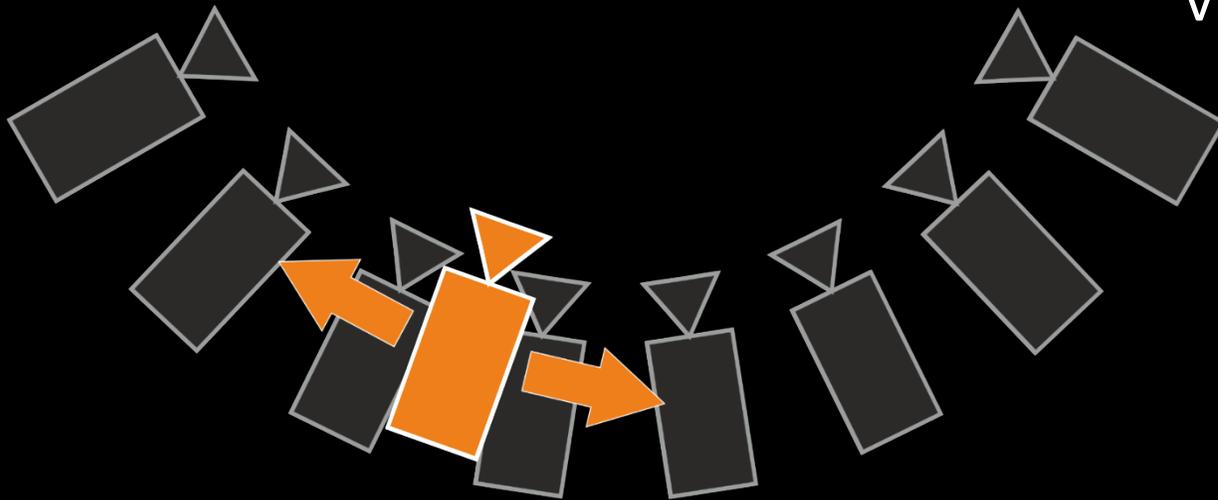
# Practical Low-Cost Free-viewpoint Television Systems

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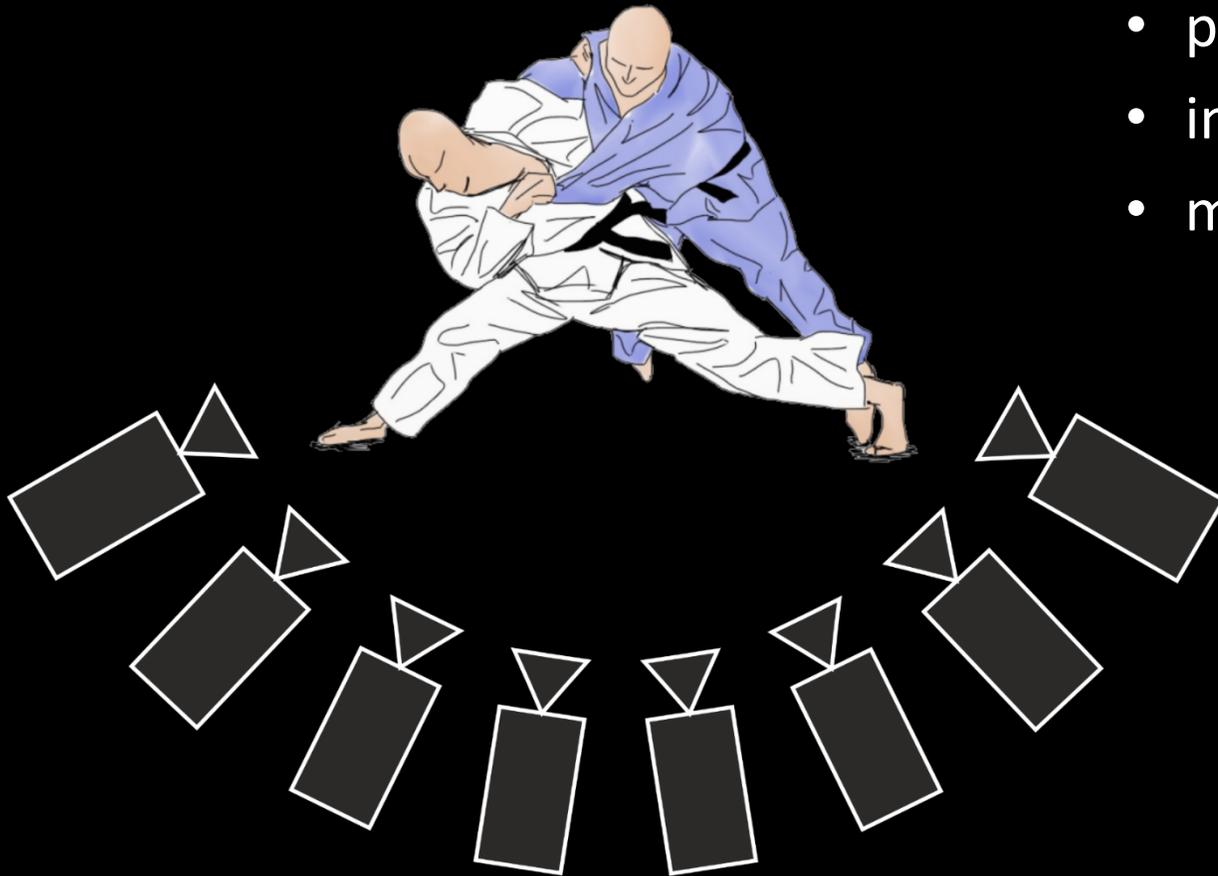
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## THE SCENE



- scene captured by a set of cameras
- a viewer:
  - virtually navigates around the scene
  - may watch the scene from **ANY** viewpoint
- each (virtual) view is synthesized using videos captured by real cameras

- sport broadcasts (boxing, judo, wrestling, sumo)
- performances (theater, circus)
- interactive courses (medical, cosmetics, dance)
- manuals and school teaching materials



# Limited number (e.g. 9 or 10) of cameras





# 9 views from real cameras, synchronized in time



## Video:

- limited number of cameras (in example: 10),
- distributed around the scene.

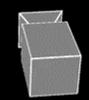
## Depth:

- no depth sensors,
- algorithmically estimated from the video.

## Model of 3D scene:

- cloud of points.

# Synthesized views – free navigation around the scene





Wireless mobile camera units designed, developed and produced by the authors at Poznań University of Technology:

- high resolution digital camera (Canon XH G1),
- power supply (battery),
- wireless synchronization receiver,
- remote control receiver,
- HDD recorder (with Seagate Momentus 500GB disks).











- **Devices:**
  - recorder
  - synchronization
  - battery
  - control



● Wireless camera modules are autonomous and can be located freely

# Acquisition of an outdoor sequence



# Set of 10 camera modules used for acquisition



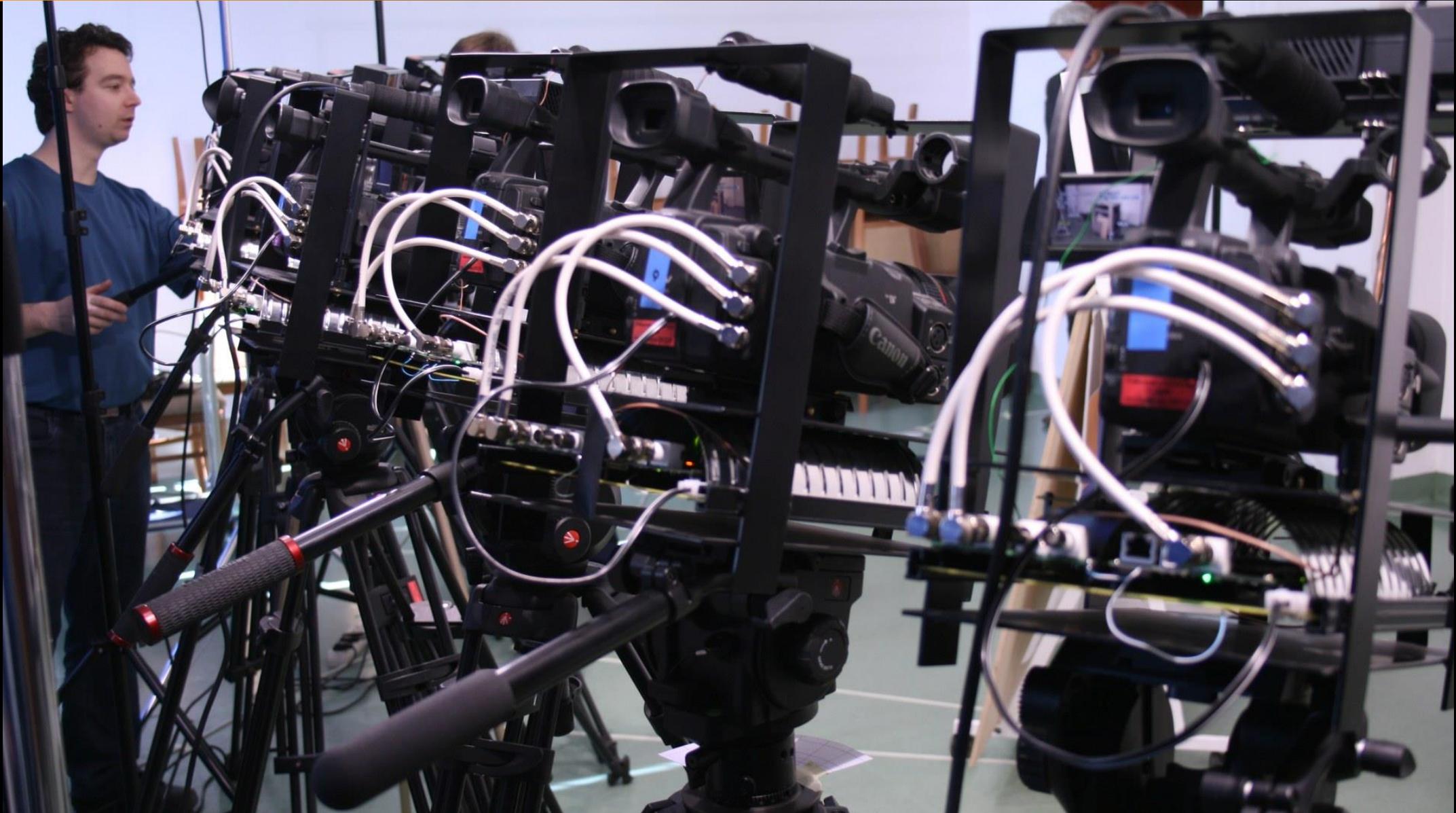
# 9 views from real cameras, synchronized in time



# Synthesized views – free navigation around the scene



# Set of 10 camera modules used for acquisition

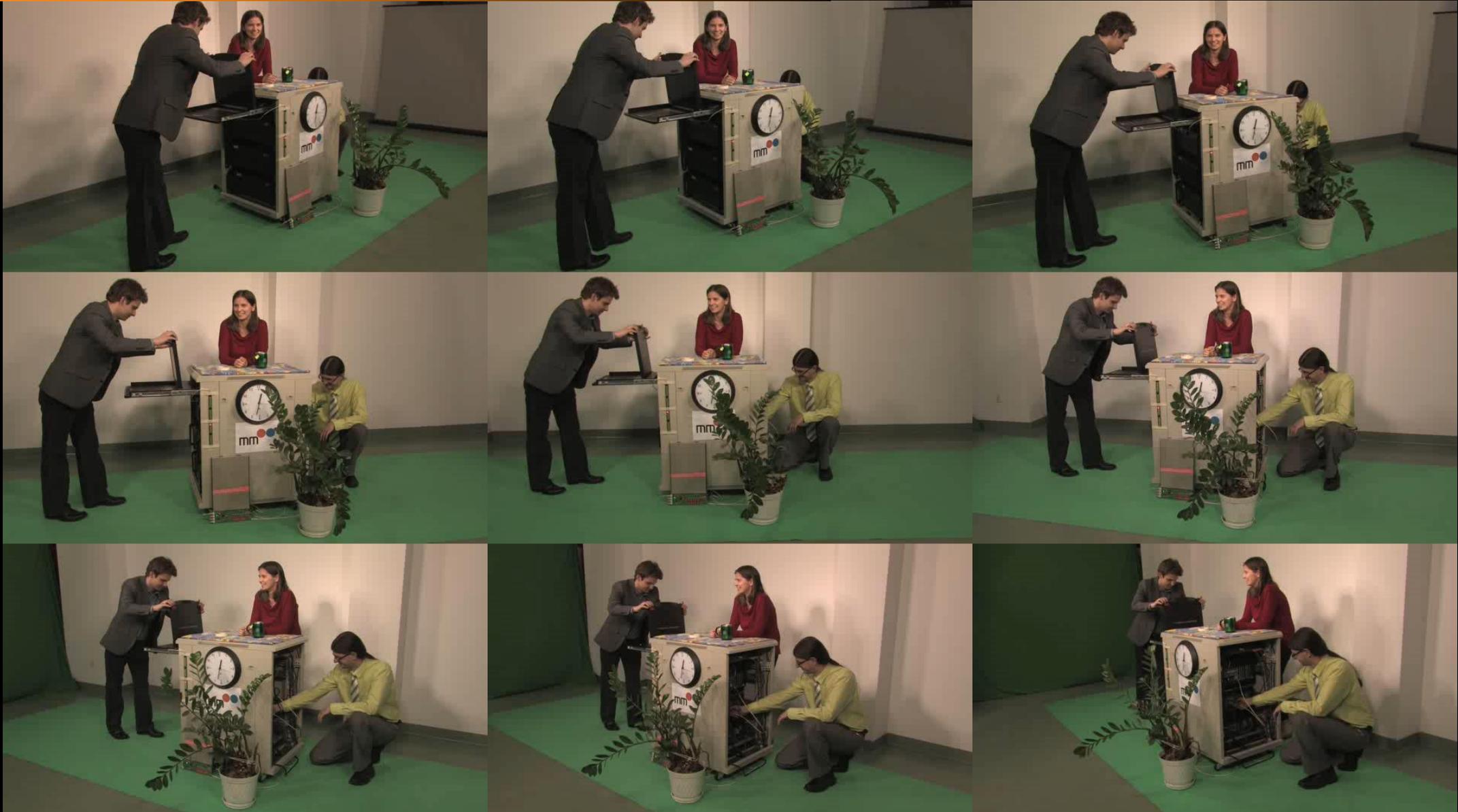


# Set of 10 camera modules used for acquisition





# 9 views from real cameras, synchronized in time



# Synthesized views – free navigation around the scene

