

## Research interests

- Robot motion planning
- Motion planning under uncertainty
- Robotic swarms
- Statistical robotics
- Hyper-redundant robotics
- Indoor positioning
- SLAM & swarm-SLAM
- Mobile robots control
- Flexible robotics
- Medical applications

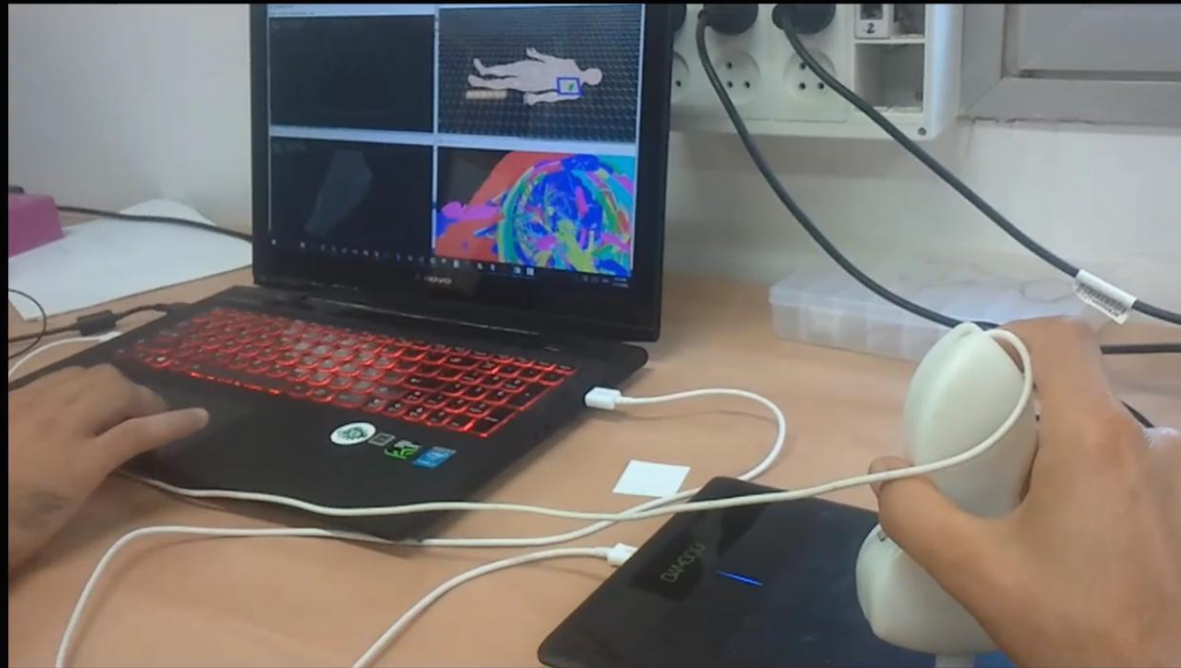
Nir Shvalb, Oded Medina And Shlomi Hachon





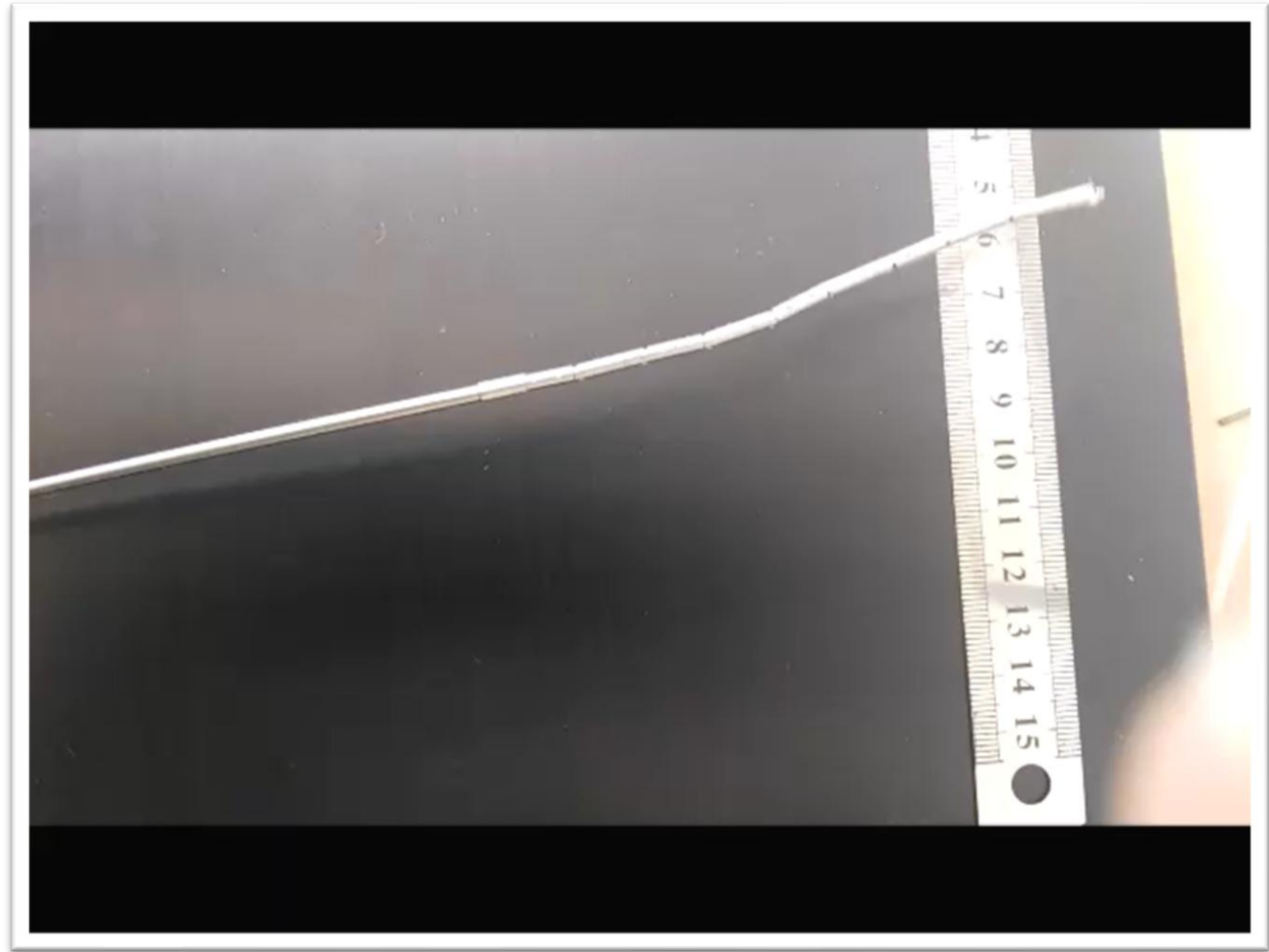
  
**Memmic**  
Robotic Surgery Made Natural

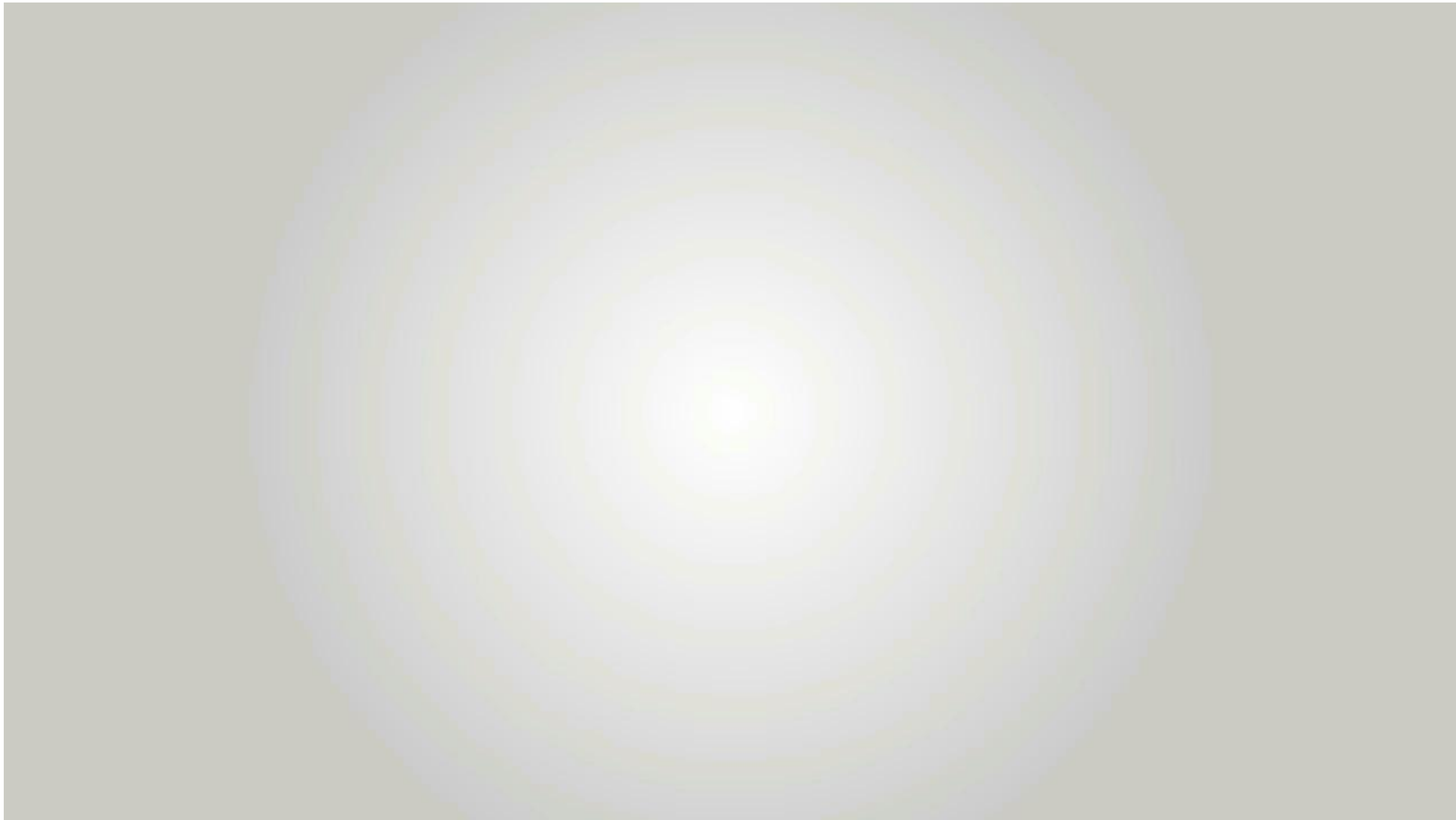






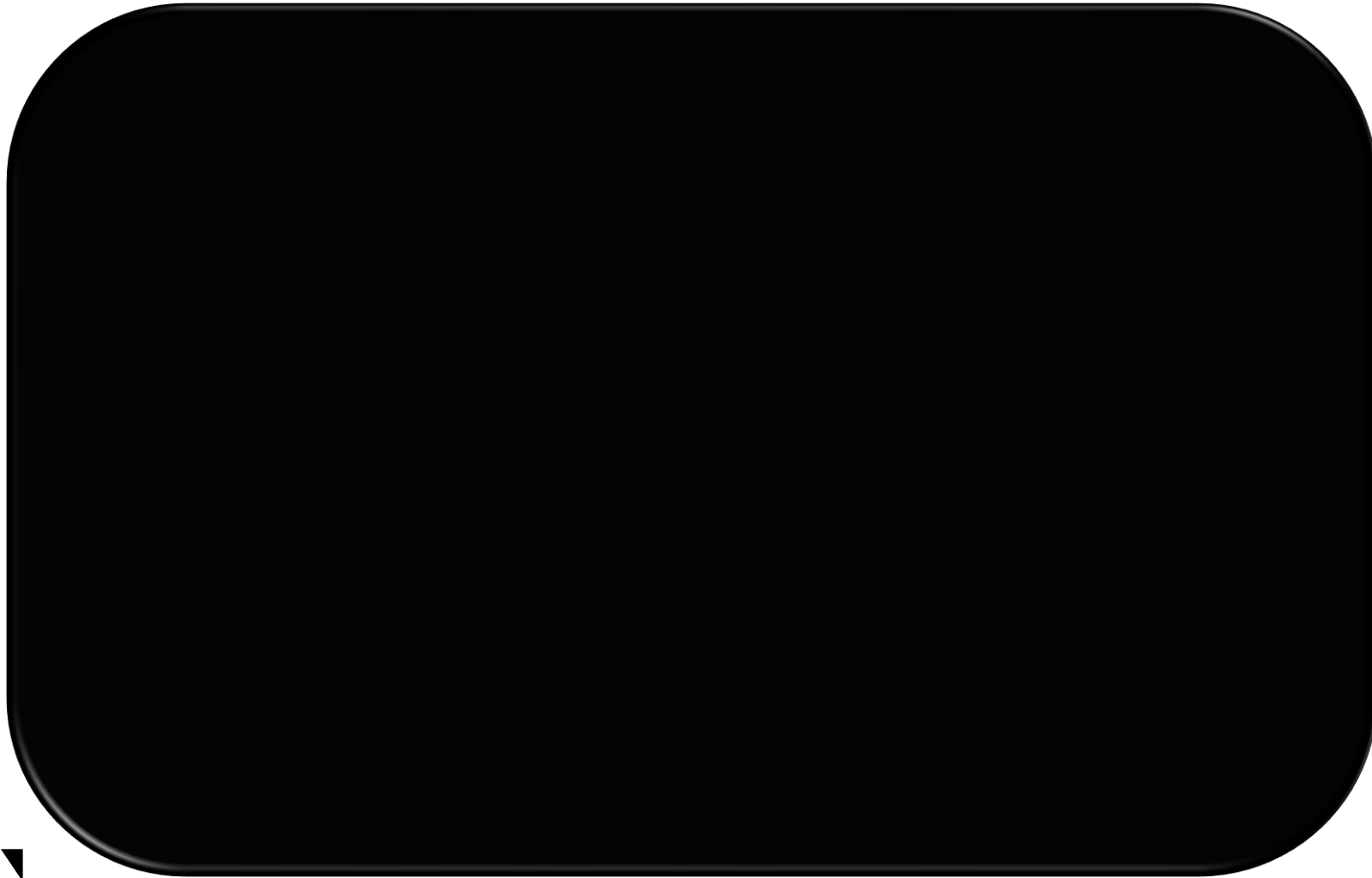
A novel robotic system  
For brain surgery



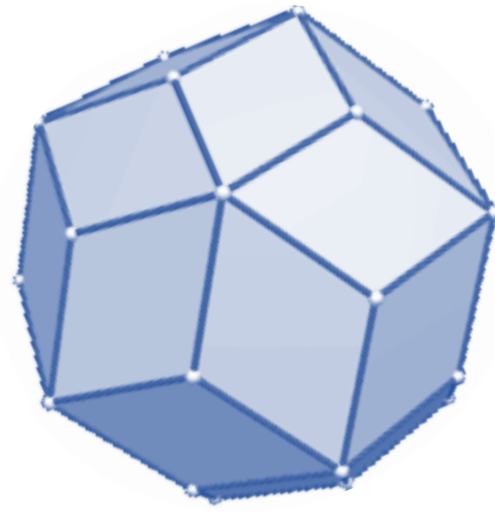




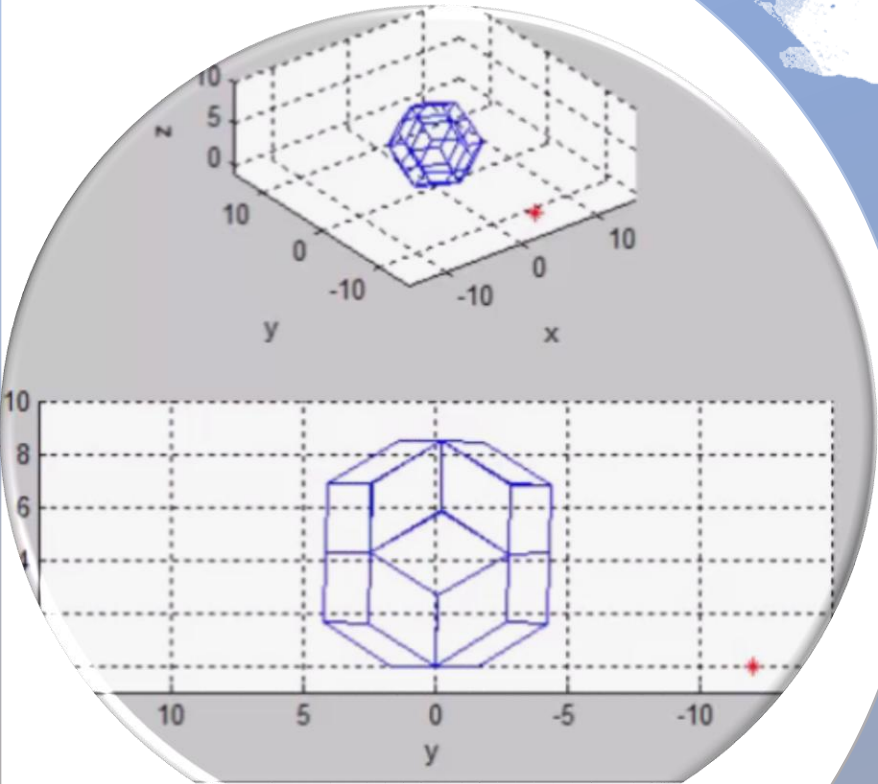
# Surficial 80-DOF robot







# Rhombic rolling Robot

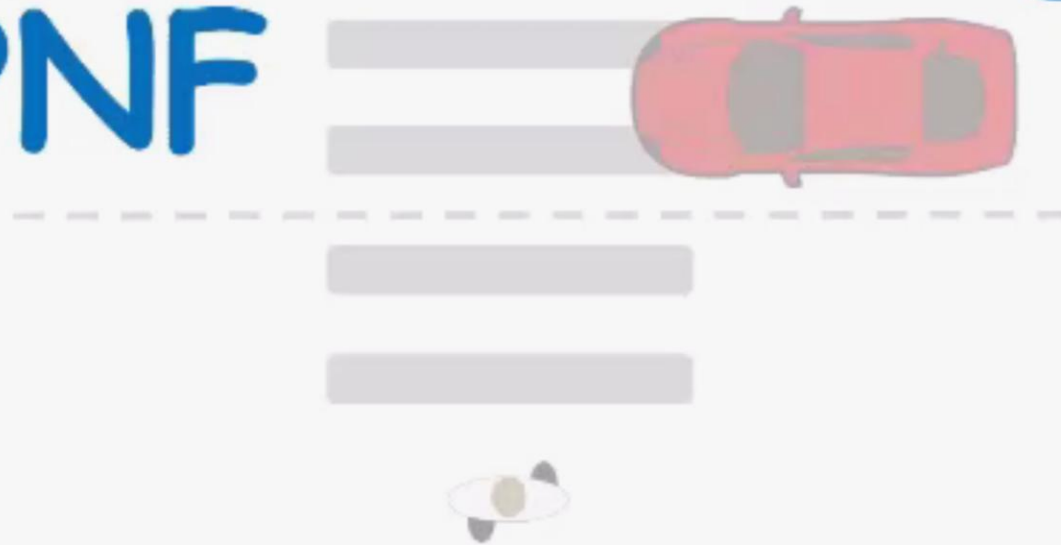




# Autonomous Climbing Robot



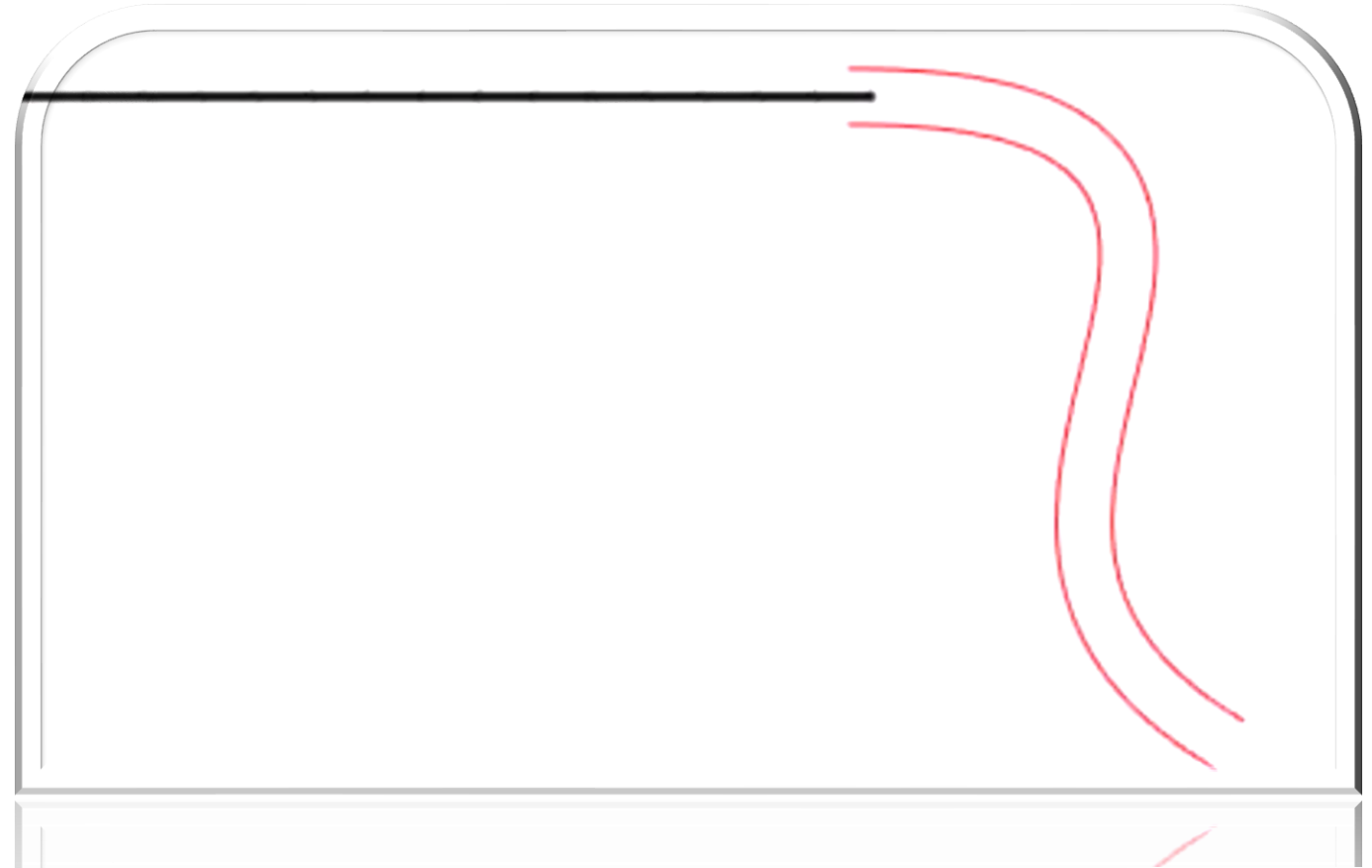
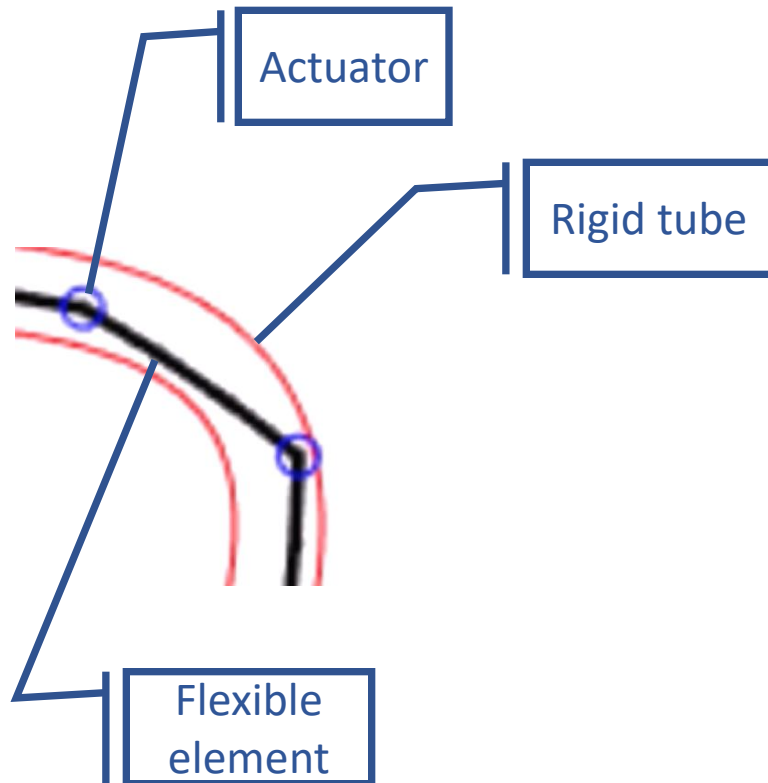
# Dynamic Model for Pedestrian Crossing using PNF



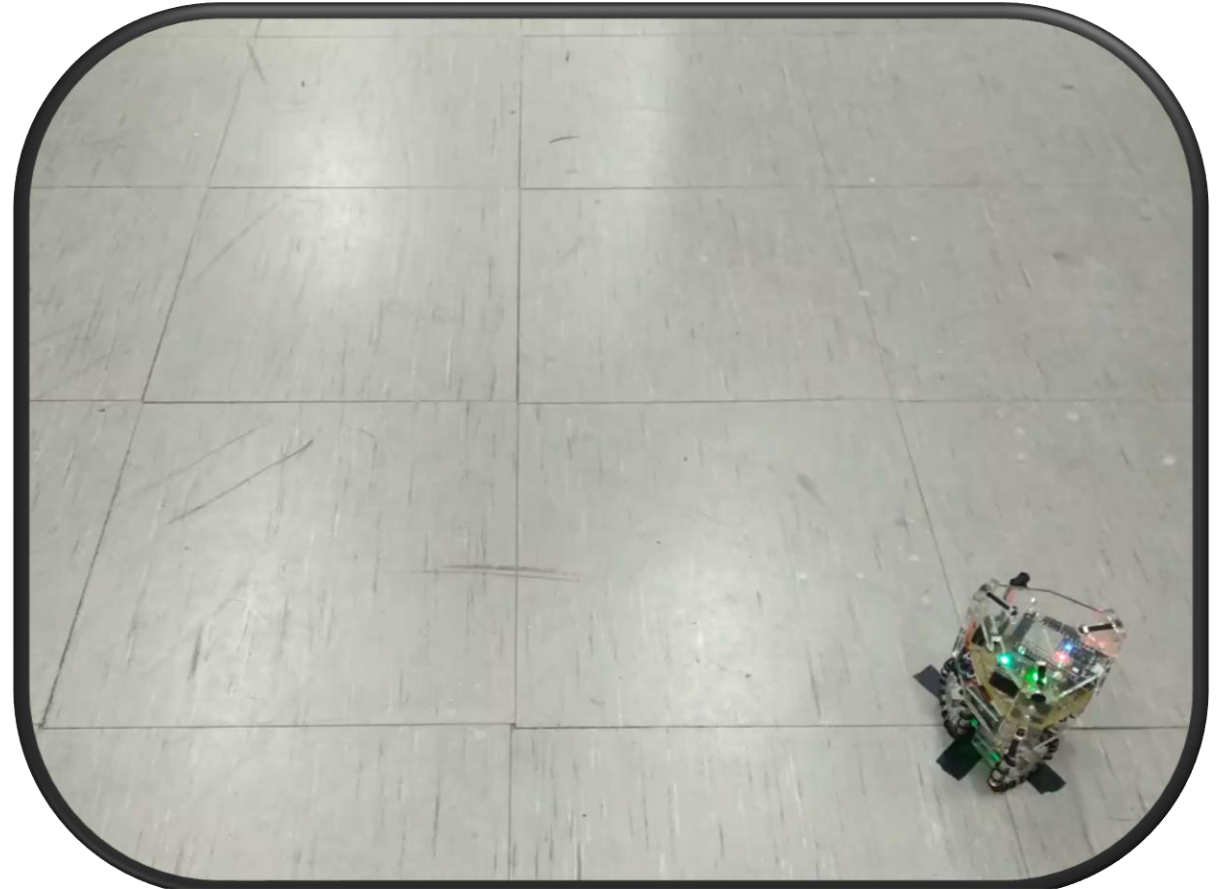
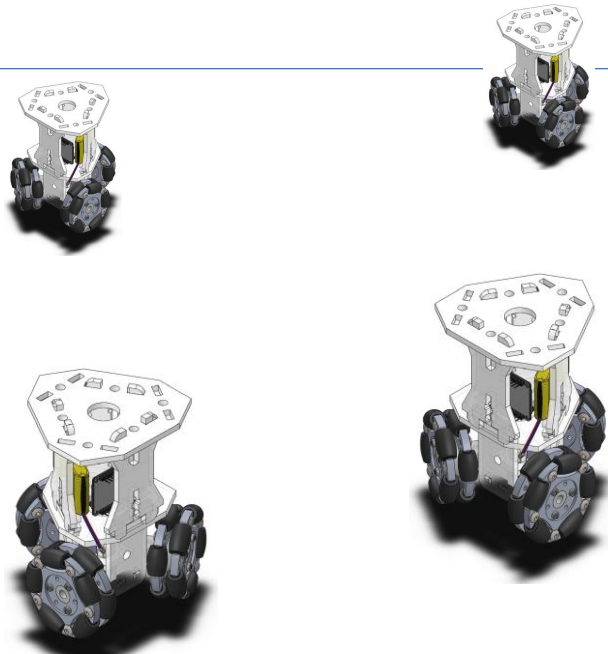
# Quadruped self learning



# Actuators distribution optimization



# An omni robot (one of the swarms' member)



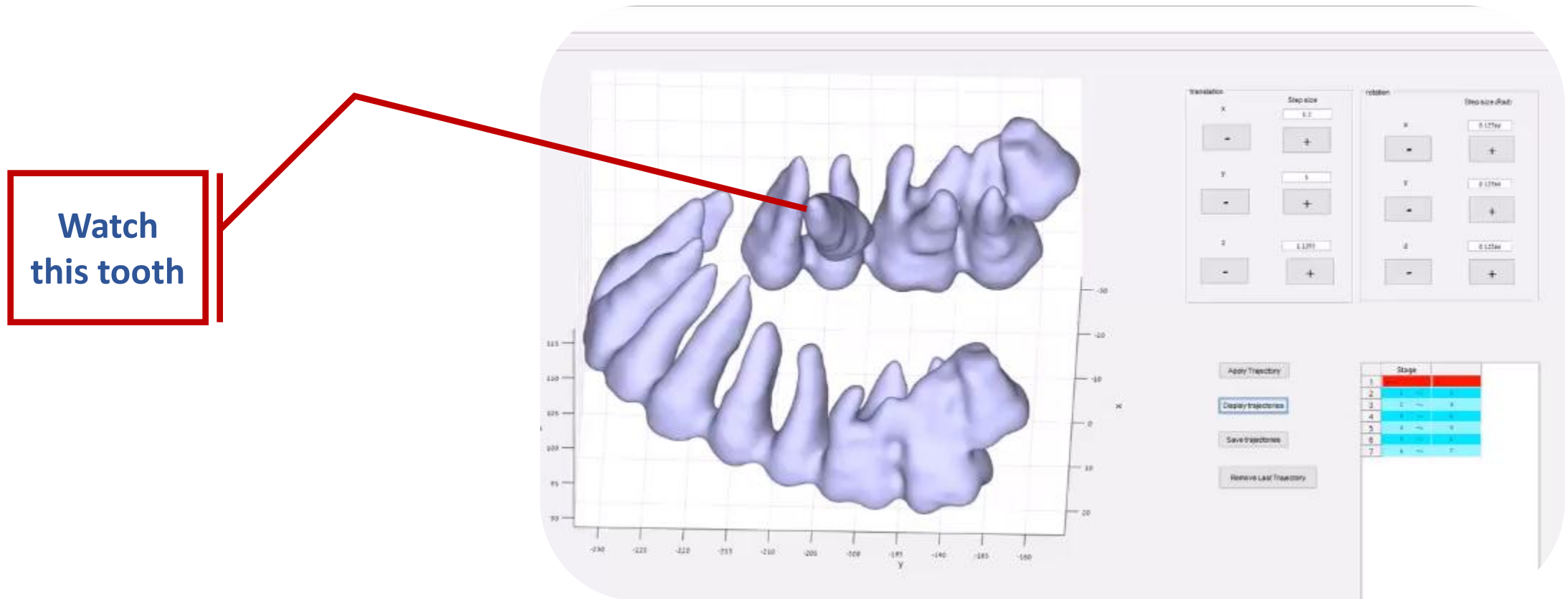
# Flexible Sub-reflector



# Blind can see...

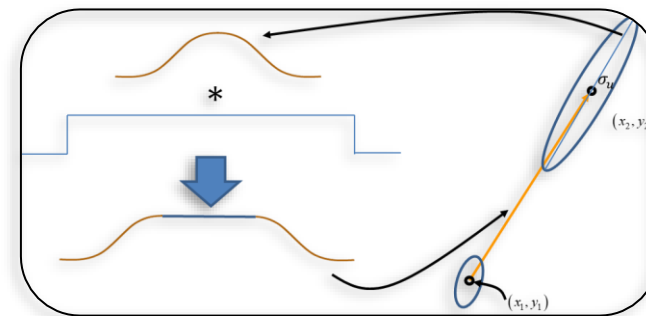
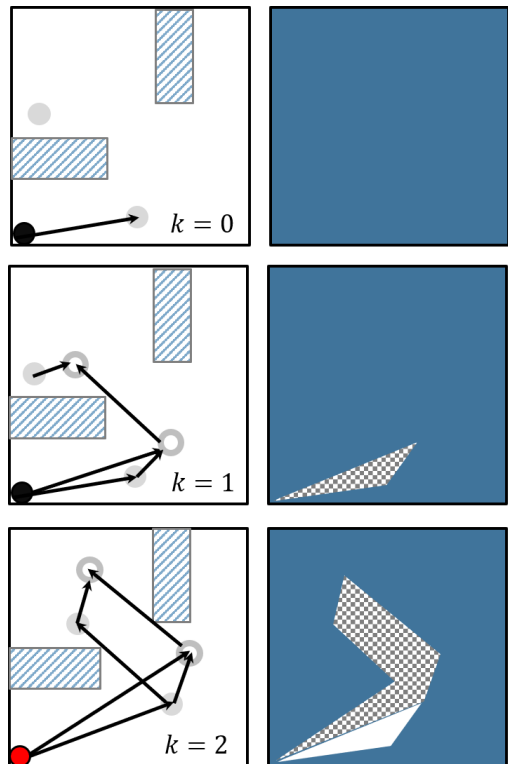


# Simulating Impacted Canine Translation



# Robotic swarm application





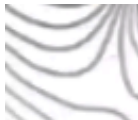
# Swarm SLAM

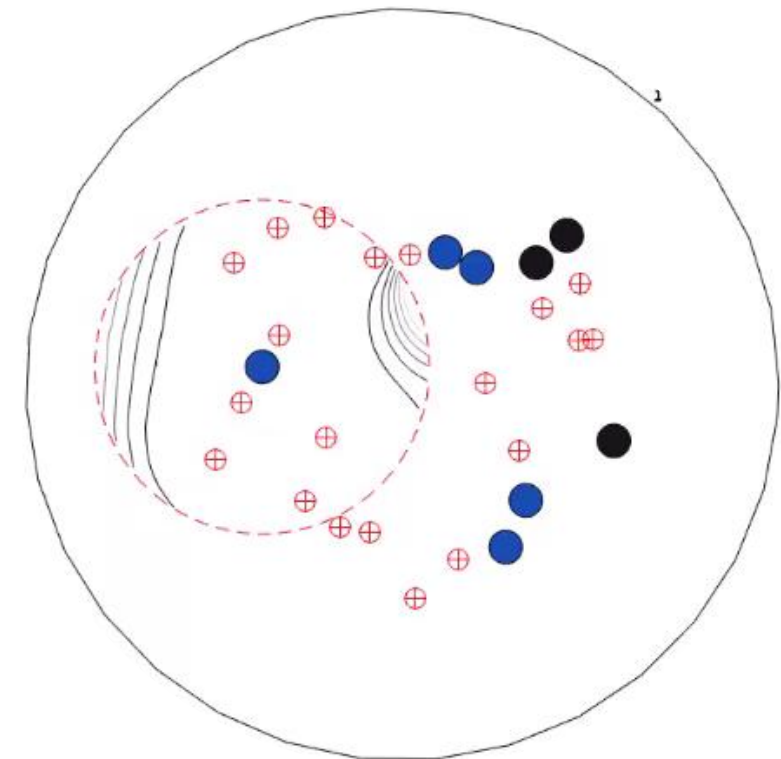
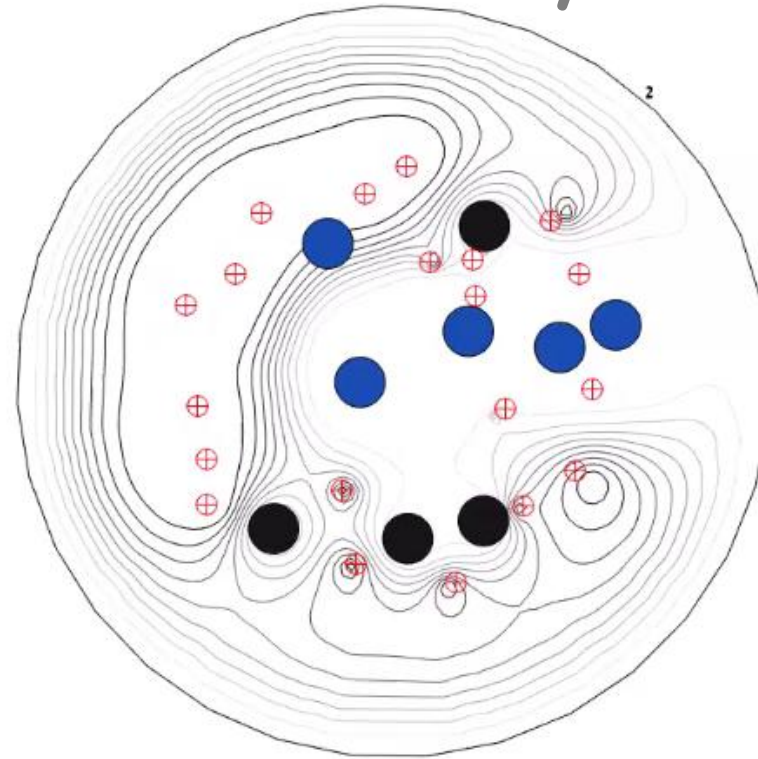


# Swarm-PNF (S-PNF)

Multi Agent Multi Target  
Interception Under Uncertainty

Works with limited  
information

Targets-   
Agents-   
Obstacles-   
Region of  
interest-   
Function  
values- 

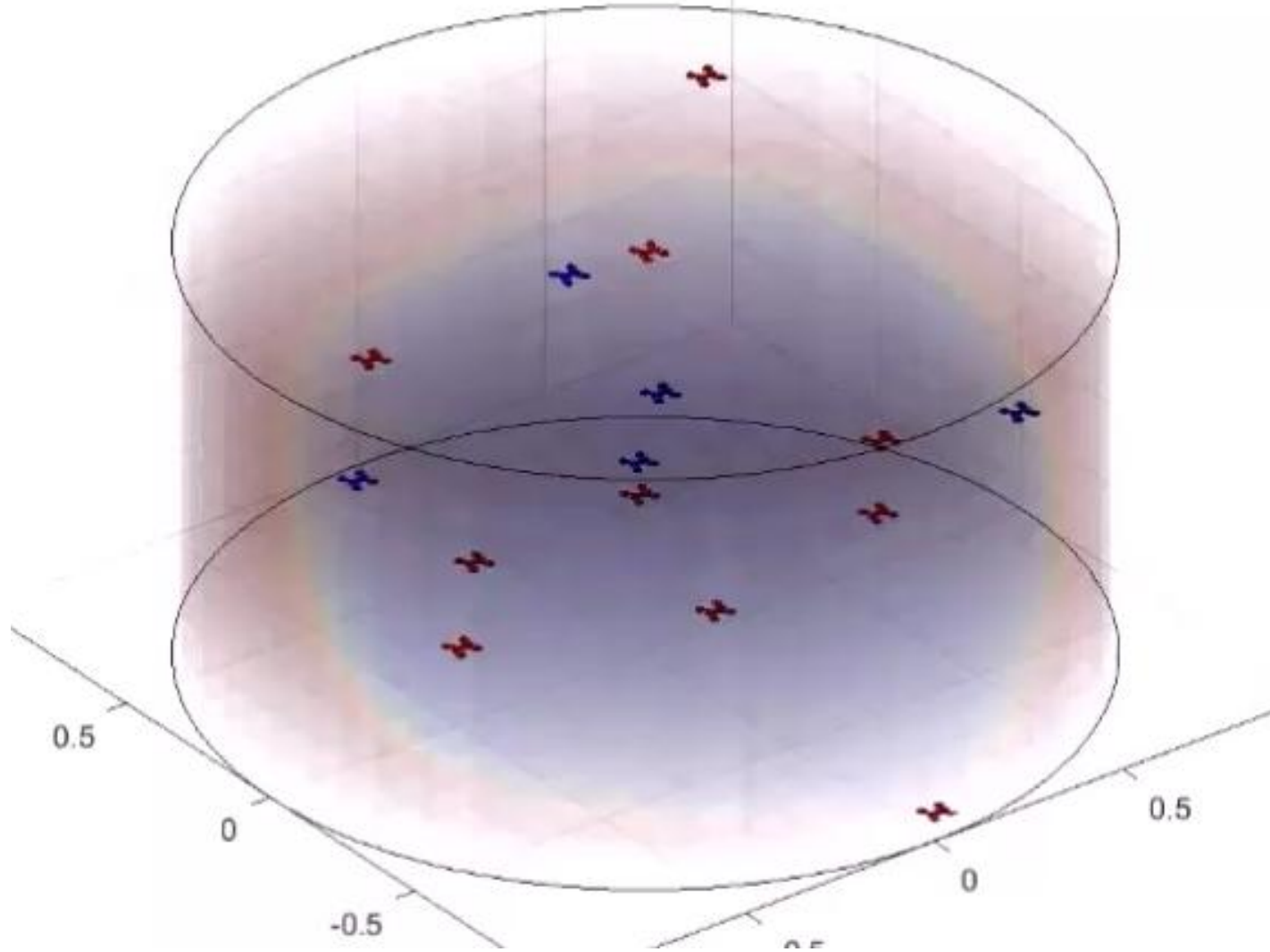


# S-PNF is strongly correlated to human behavior

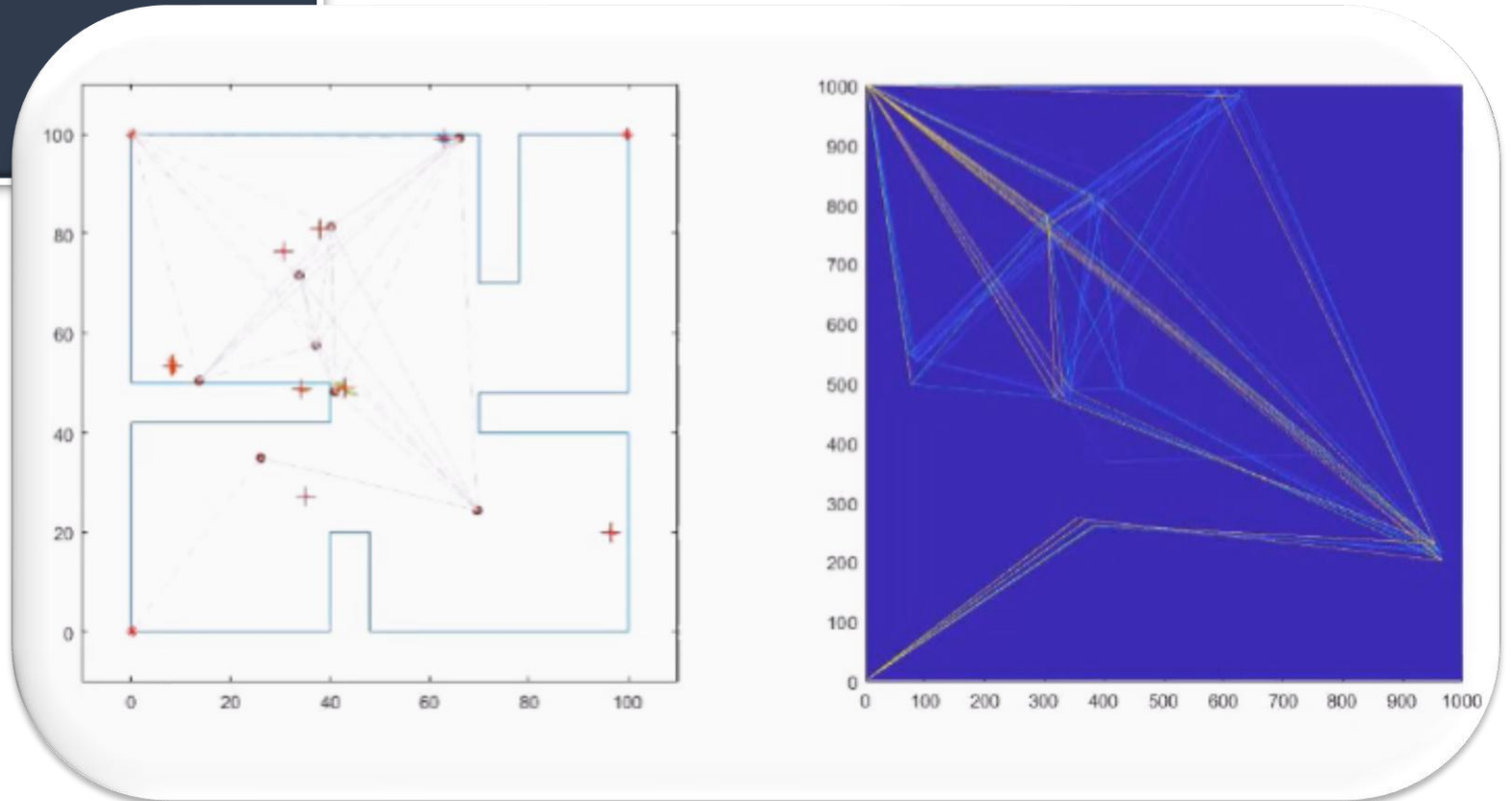
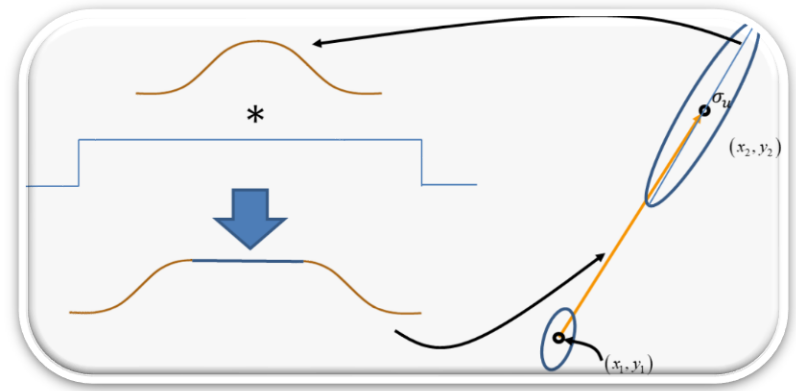
- Agent 
- Target 
- PNF's values 
- Planned path 
- Real path 



# Swarm-PNF (S-PNF) - 3D



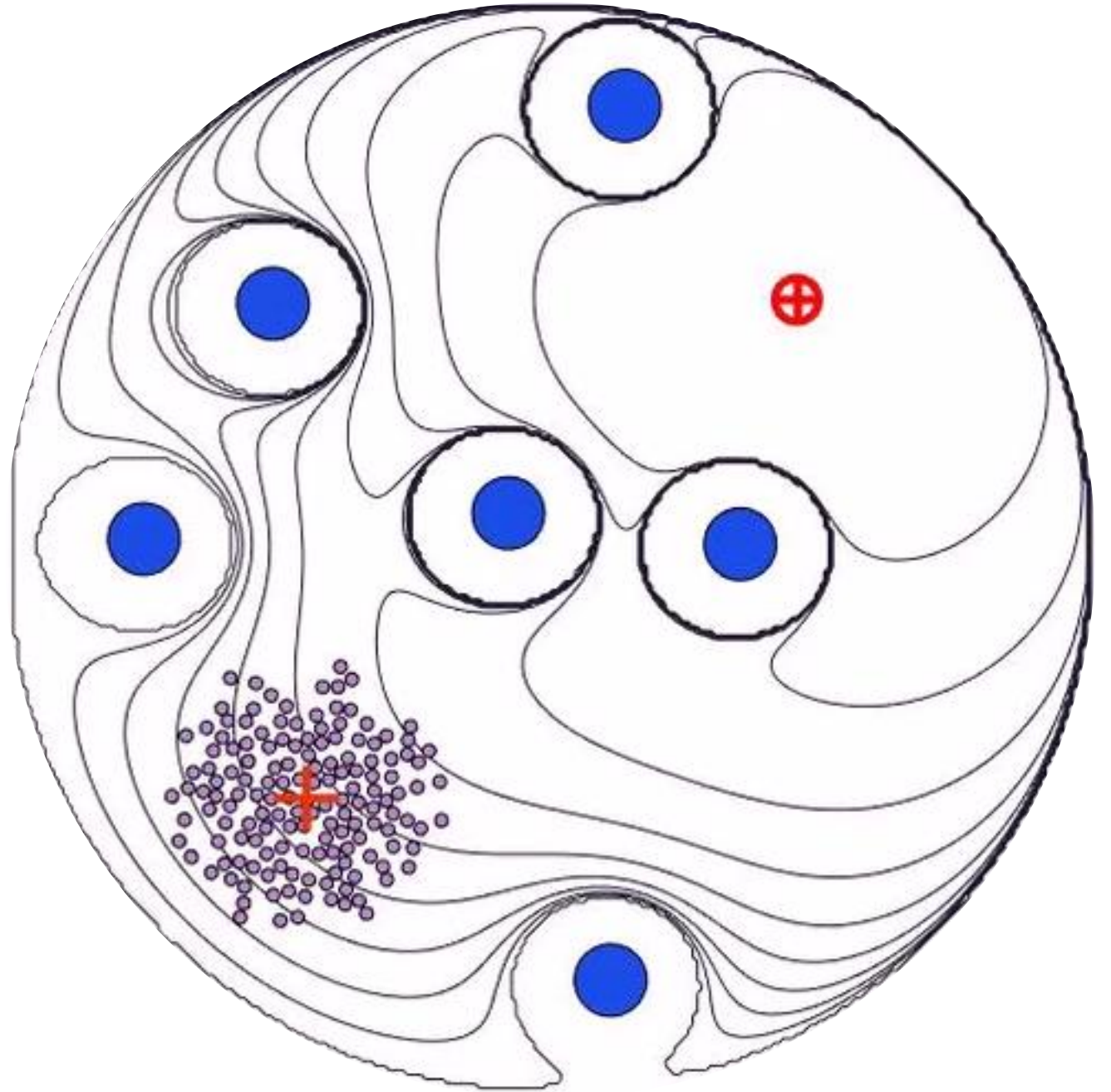
# Swarm S.L.A.M.





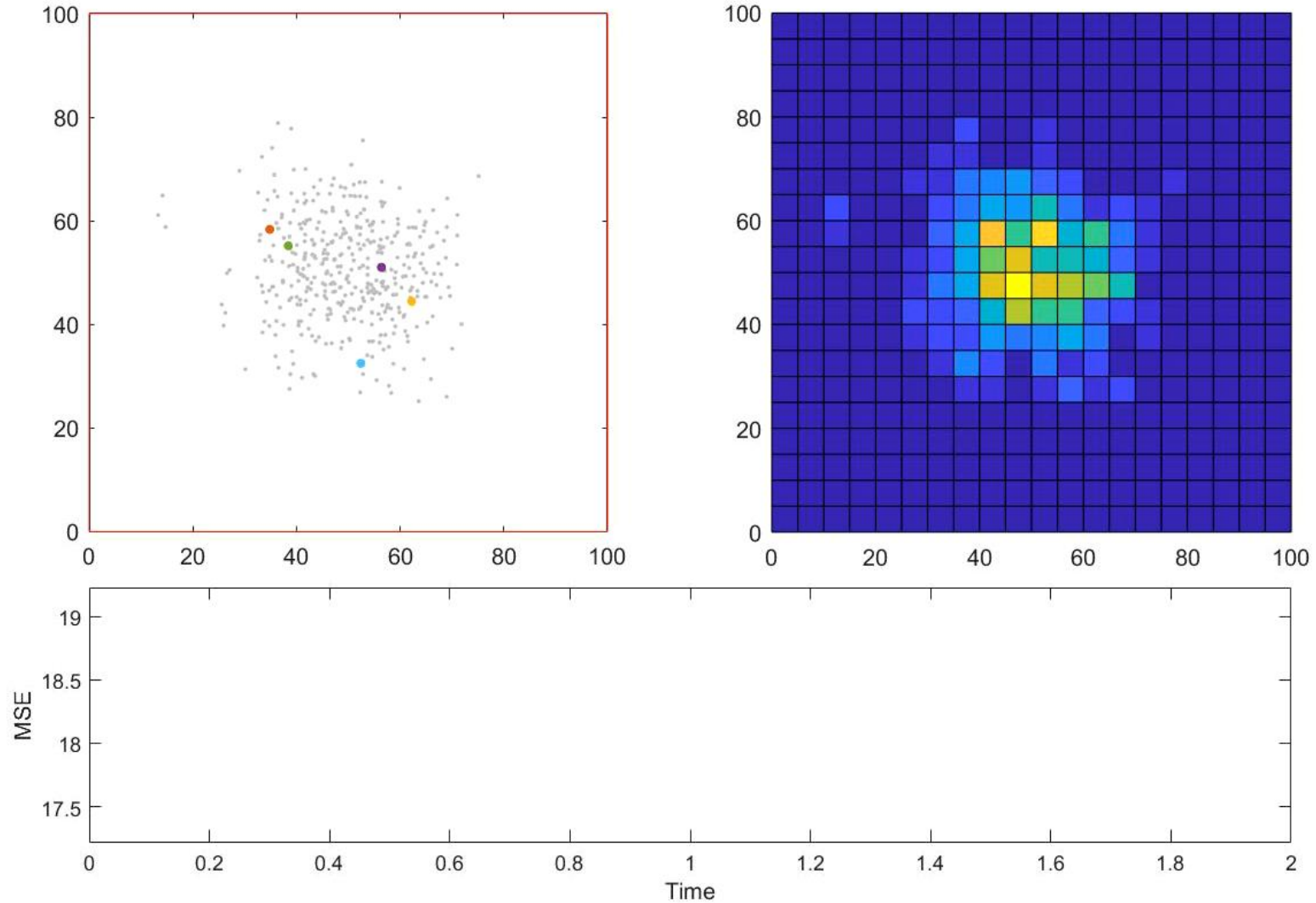
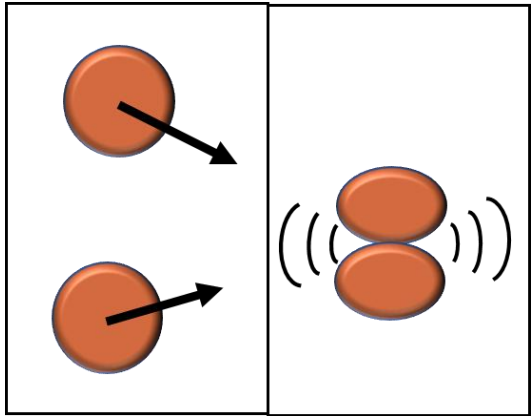
# Statistical robotics

## Robots shepherd



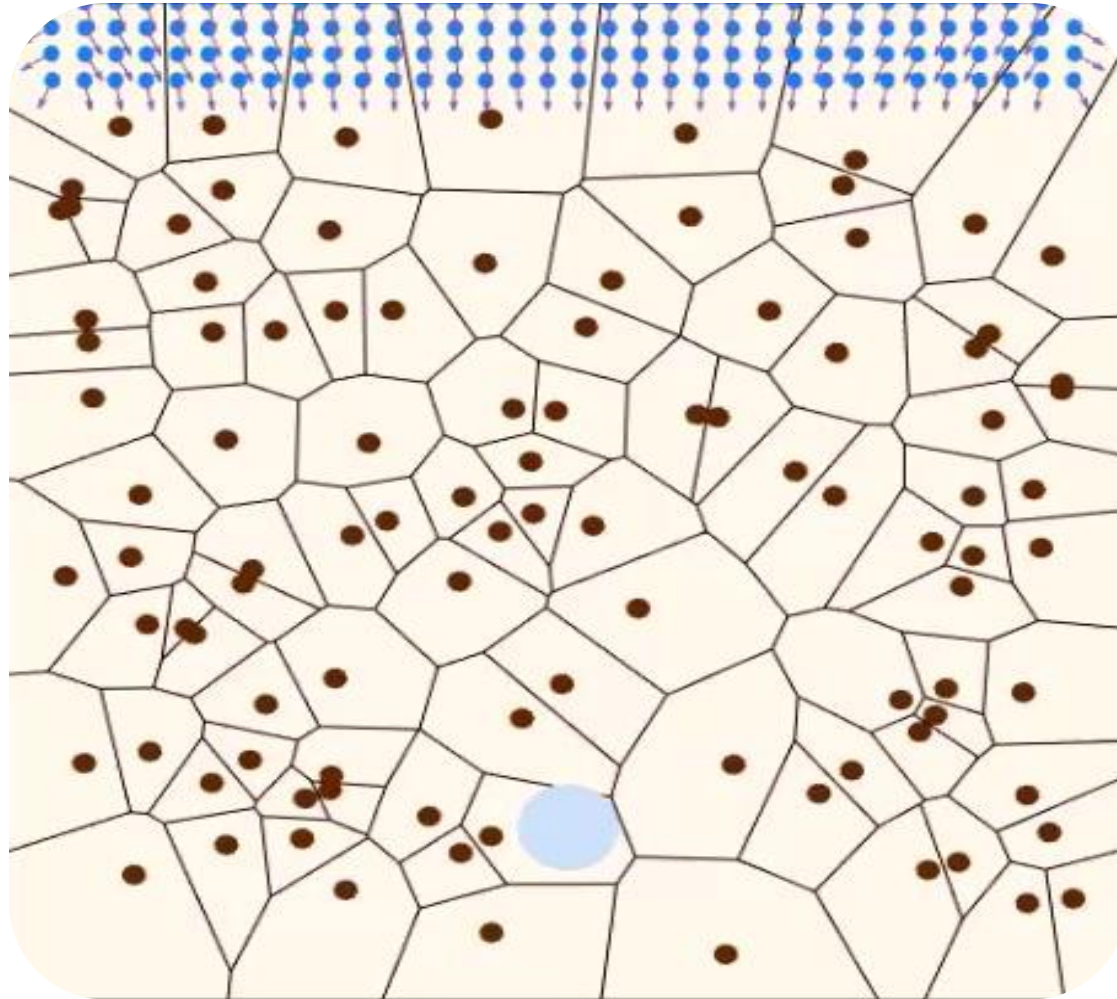
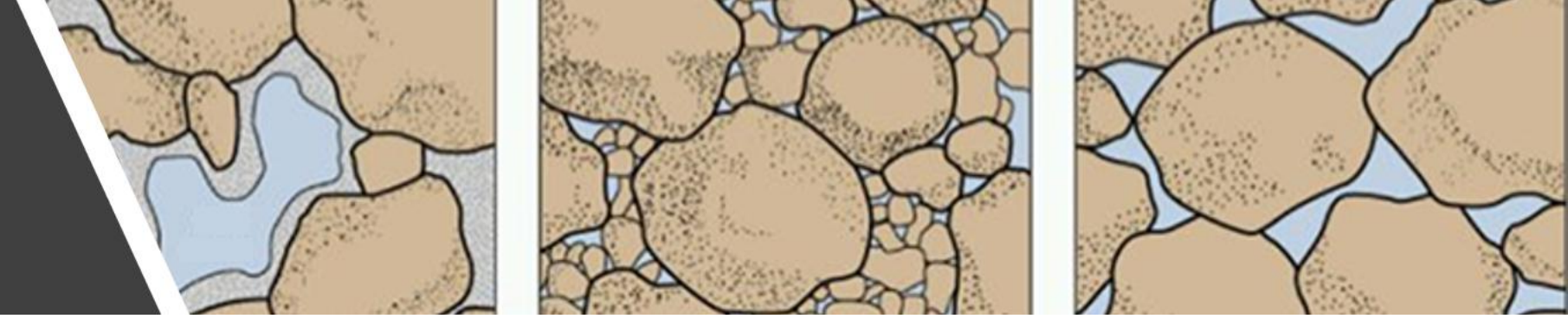
# Statistical robotics

## Temperature localization





# Robots Percolation



# Improved position estimation

