

crta I

Regional Centre of Excellence  
for Robotic Technology

Primjena autonomnih sustava u  
skladišnoj logistici

Bojan Šekoranja, PhD



Autonomni sustavi  
Laboratorij L1





cрта |





- Our team includes 14 full members:
  - 2 professors
  - 3 postdocs
  - 9 PhD students and researchers
  - (25 BSc and MSc students)
- Teaching (BSc...PhD): 300 students per year
- Five active and more than 25 finished projects (with a total of ~20 m€ budget)
- Project idea started more than 10 years ago
- CRTA was opened in 2021
- Ground floor at FSB Zagreb, 740 m<sup>2</sup>, two advanced classrooms, three laboratories





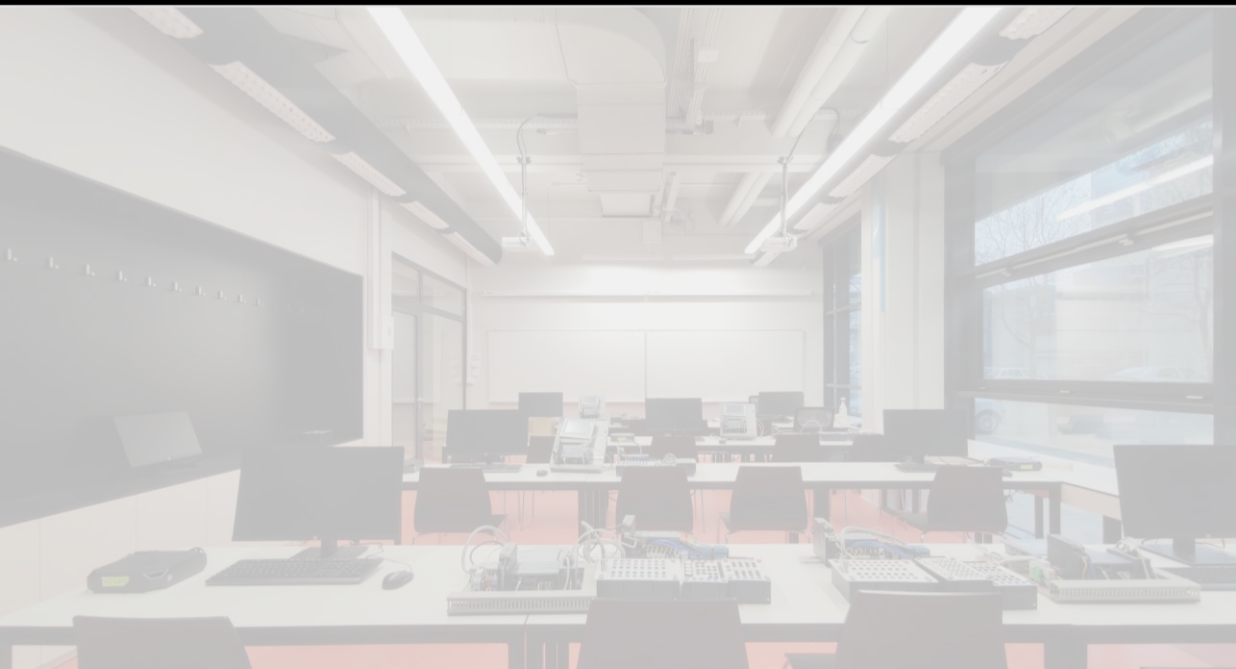
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Our mission is to research, develop, and apply intelligent and autonomous robotic systems for diverse fields of applications from industry to healthcare.

Laboratory for artificial intelligence – **AI Lab**



Laboratory for medical robotics – **LABMOR**



Computer and automation classrooms – **PLC Lab**



Laboratory for autonomous systems - **LAFOS**



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We strive for excellence in teaching and research but also in architectural design and visual identity.



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Računalna  
inteligencija  
Laboratory 12







Autonomni sustavi  
Laboratorij L1



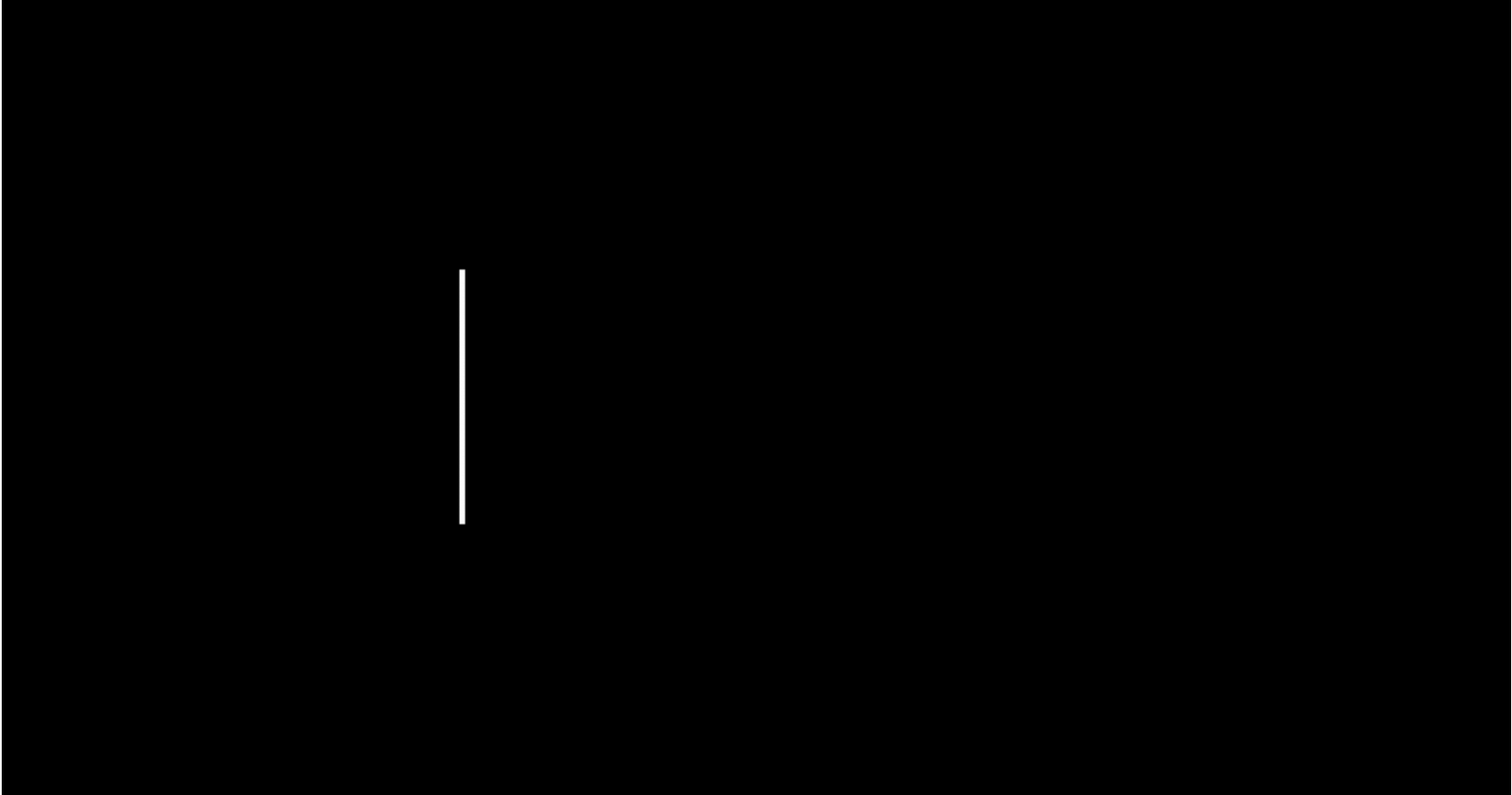
The CARTA visual identity was developed in close collaboration between humans, robots, and artificial intelligence...

**BRUKETA &  
ŽINIĆ &  
GREY**





# Short CRTA promo video





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The global warehouse robotics was valued at \$4,400 million in 2020 and is projected to reach \$15,792 million by 2030, growing at a CAGR of 13.2% from 2021 to 2030.

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# Investments 2022 (Q3 & Q4)



„Fox Robotics closes \$20M funding round”

robotic fork trucks that autonomously unload tractor trailers in the warehouse



„Indoor Robotics raises \$15M for Tando indoor drone”

drone uses multiple sensors and proprietary algorithms to map and navigate any indoor space



„1MRobotics leaves stealth with \$25M for micro-fulfillment centers”

fully autonomous micro-fulfillment centers



„GreyOrange is ready to grow with \$110M funding round”

wide range of autonomous material handling solutions



„Peer Robotics successfully raises \$2.3 million in seed funding”

autonomous mobile robot



„VisionNav Robotics closes \$80M for AGVs”

VisionNav offers a line of autonomous forklifts with a variety of features, including high rack storage and narrow aisle access



# Warehouse automation

## Goods-to-person technologies

- Automated storage and retrieval systems
- Conveyor systems

## Transport vehicles

- Automatic Guided Vehicles (AGVs)
- Autonomous Mobile Robots (AMRs)

## Pick systems

- Pick-to-light / Put-to-Light
- Voice picking and voice tasking

## Collaborative mobile robots

## Sortation systems

## Drones



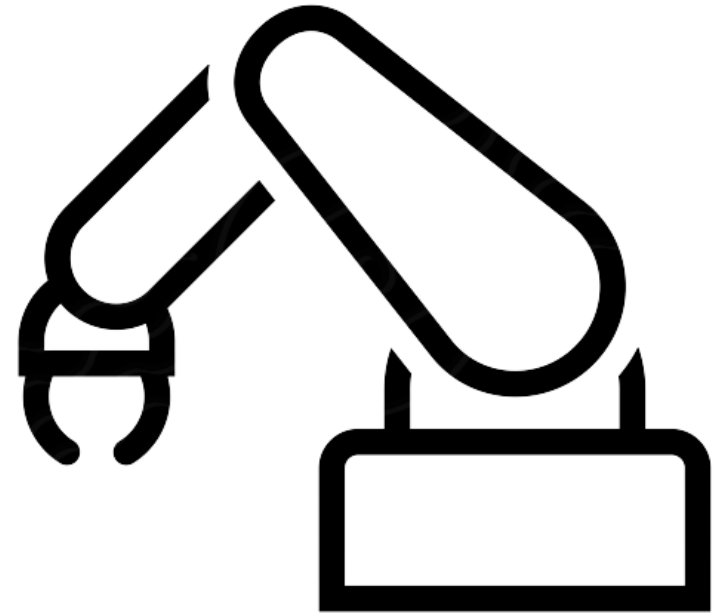
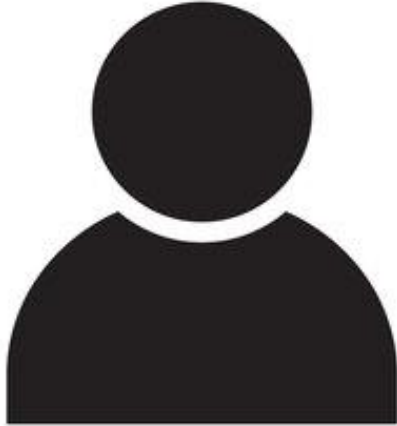
# Goods-to-person technologies

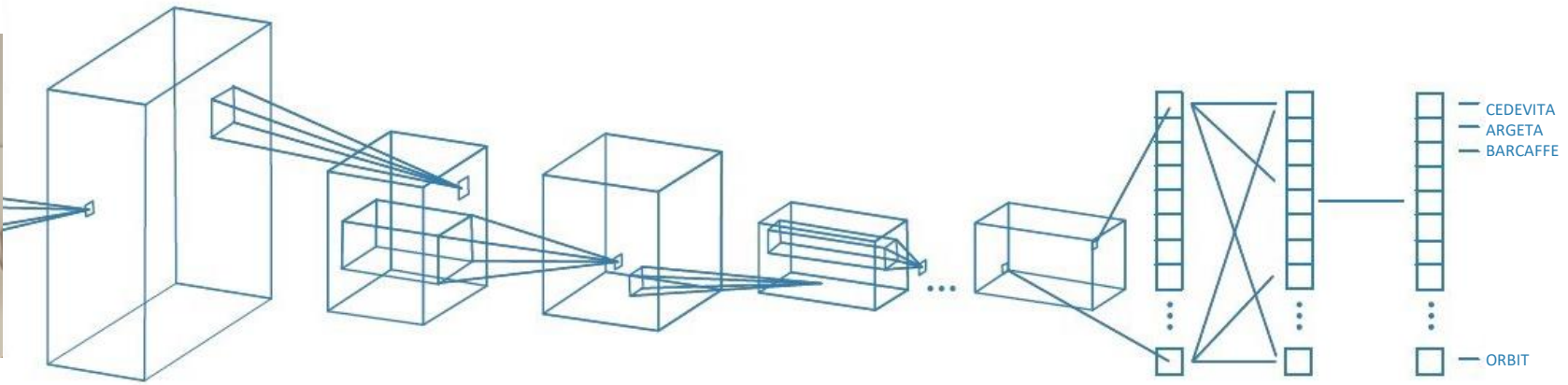
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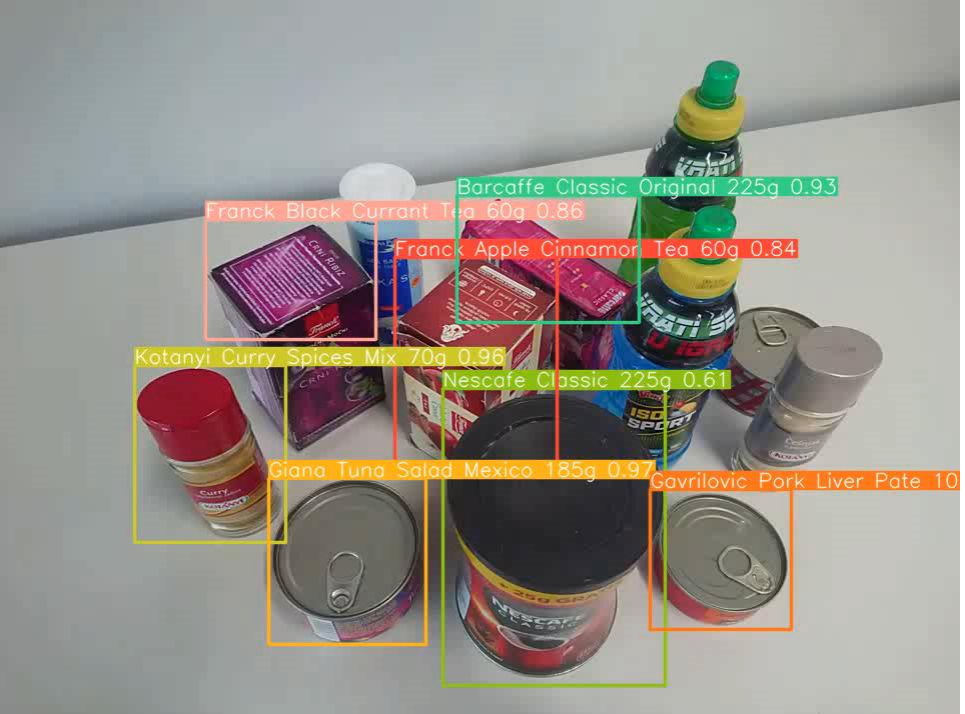
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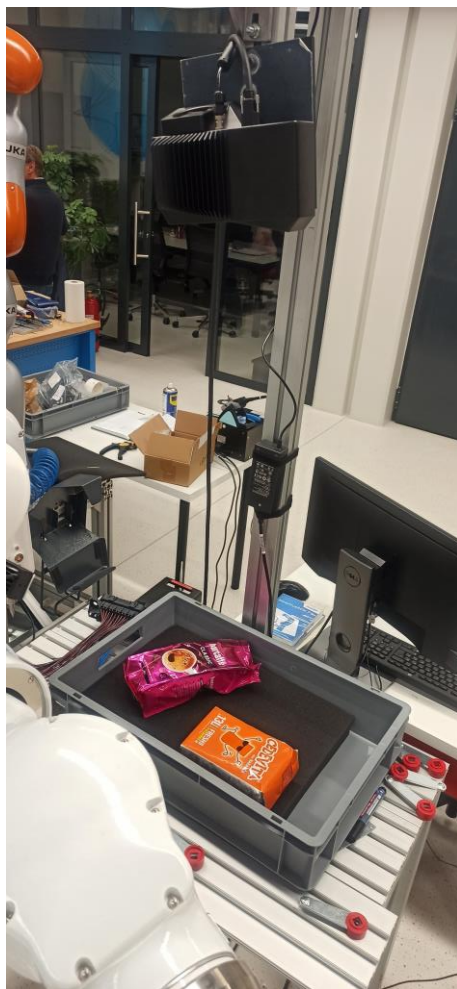
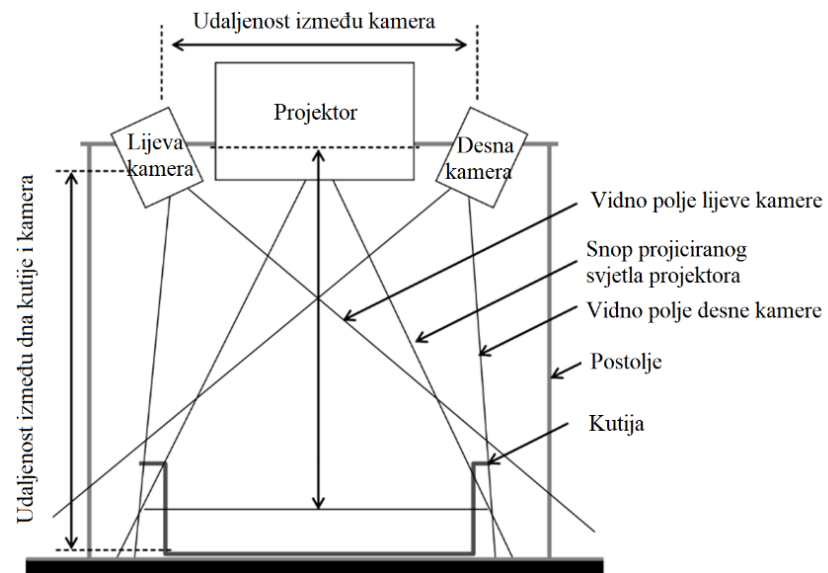
# Pick systems

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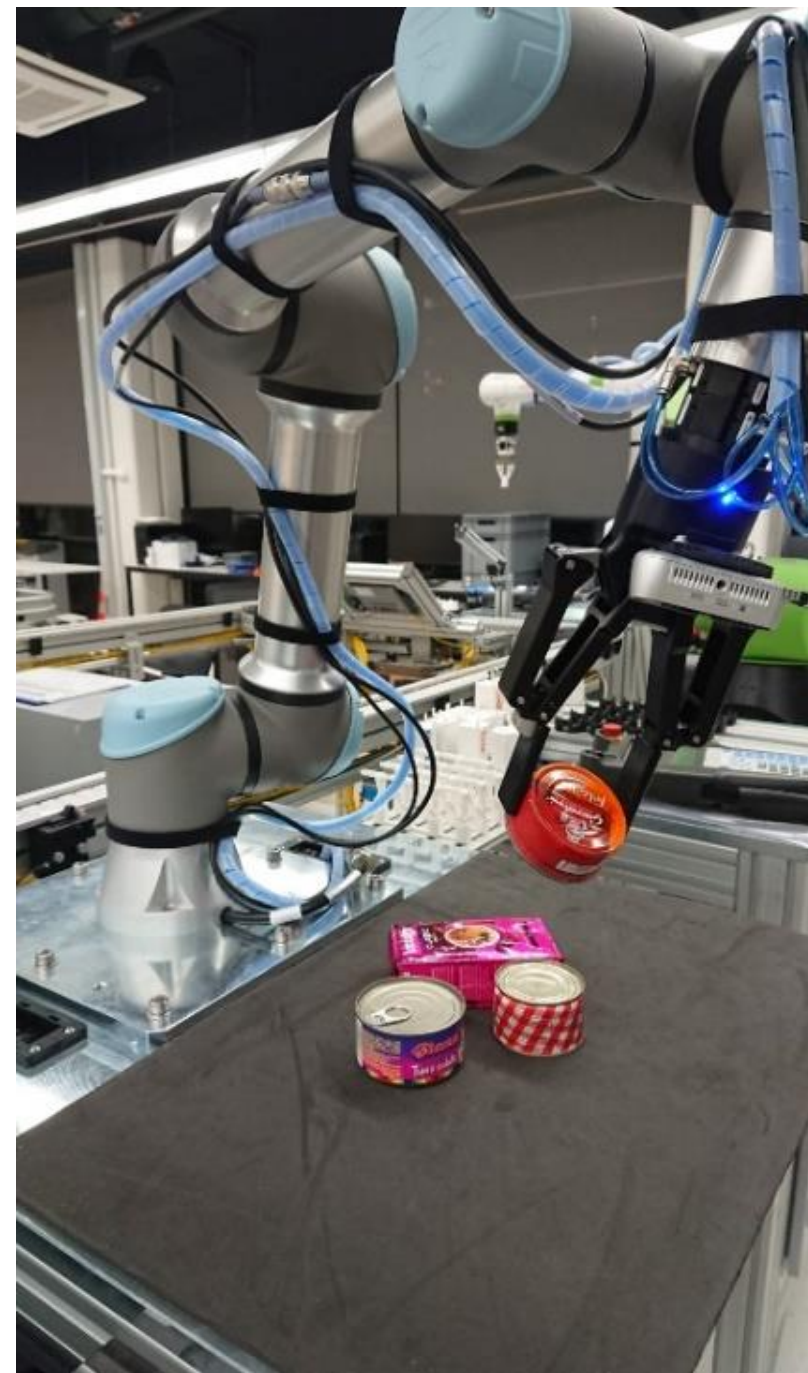
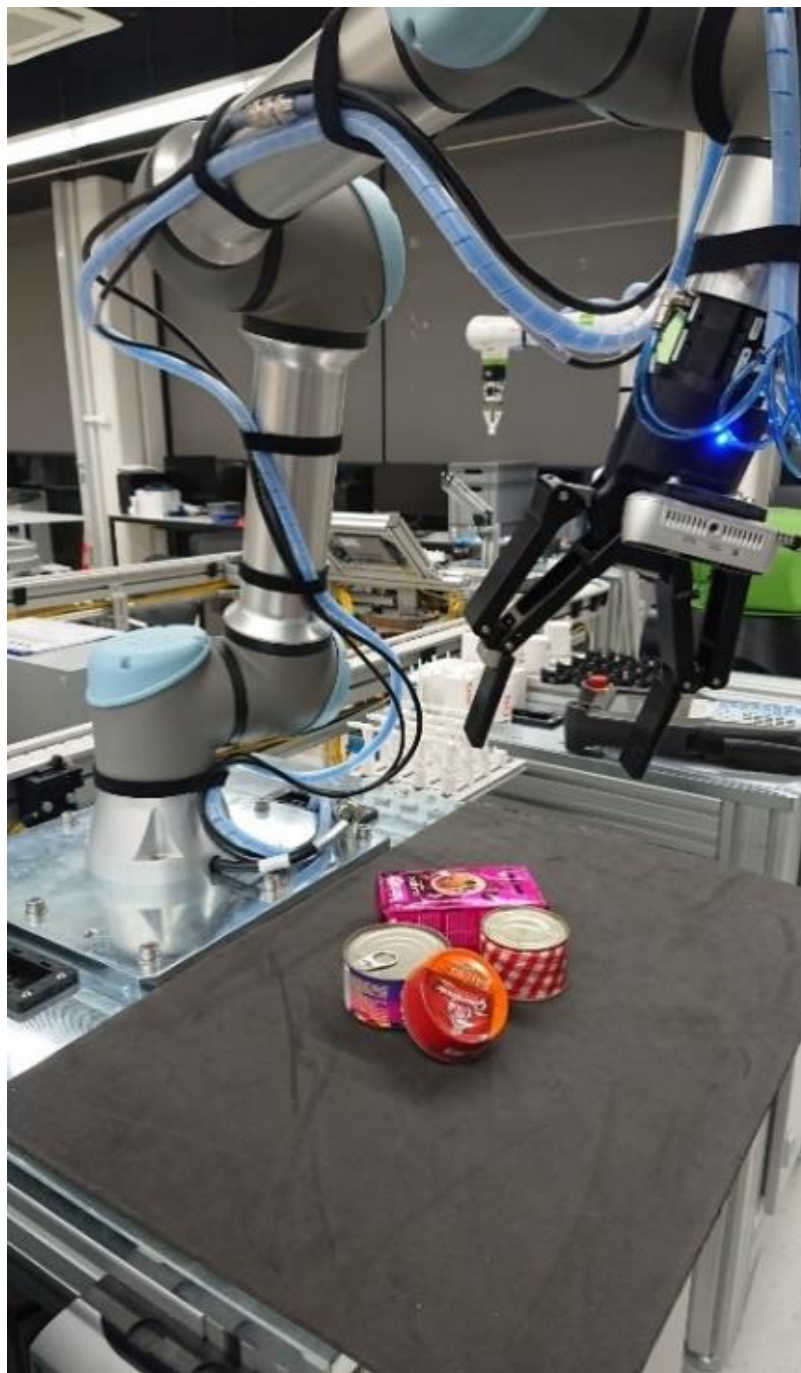




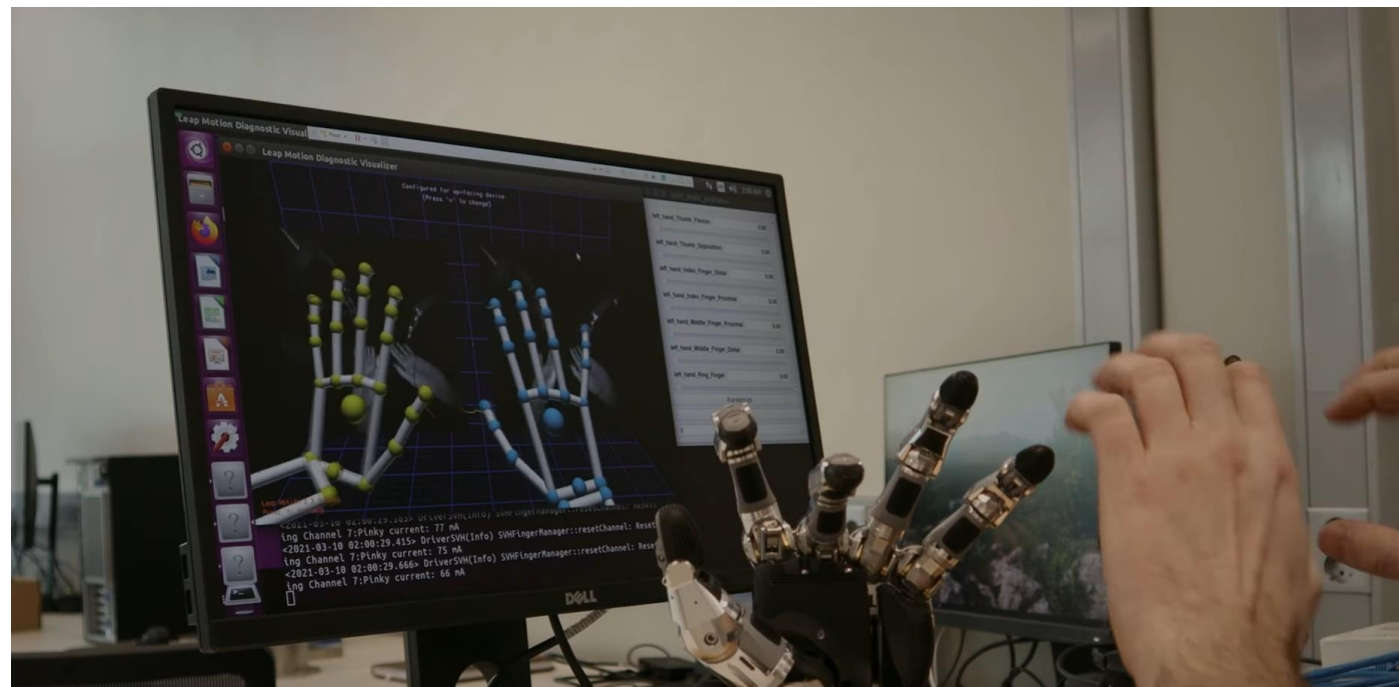
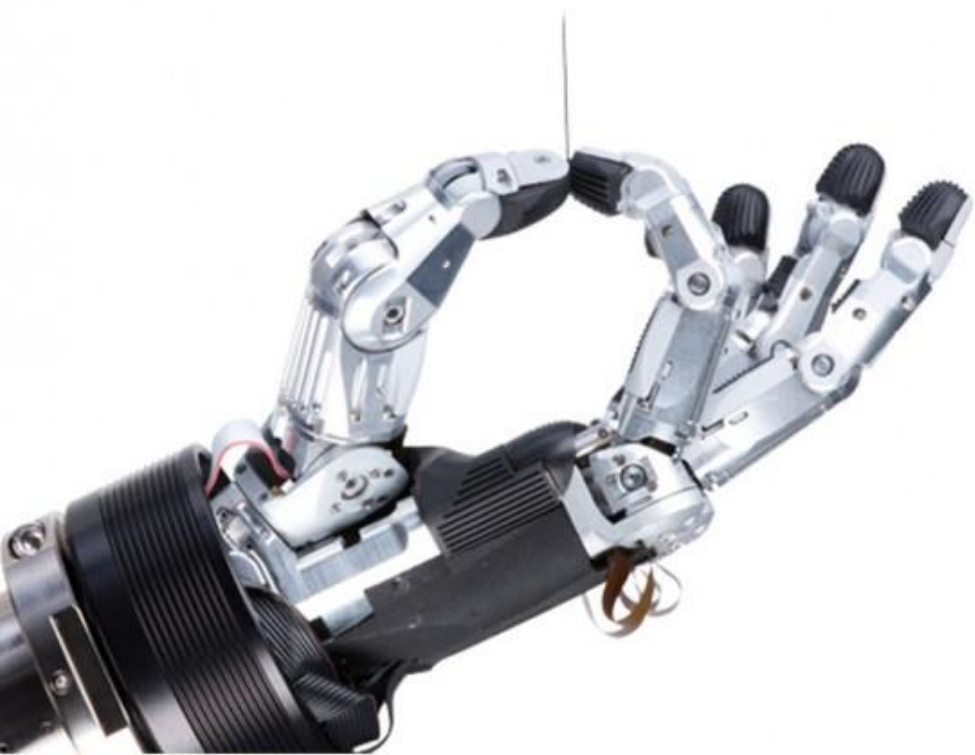






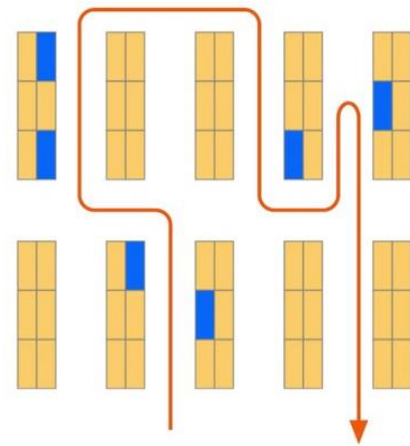
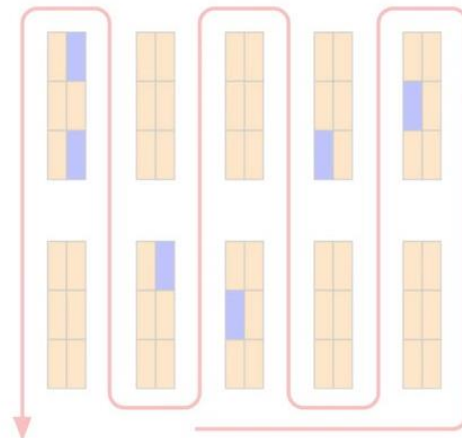
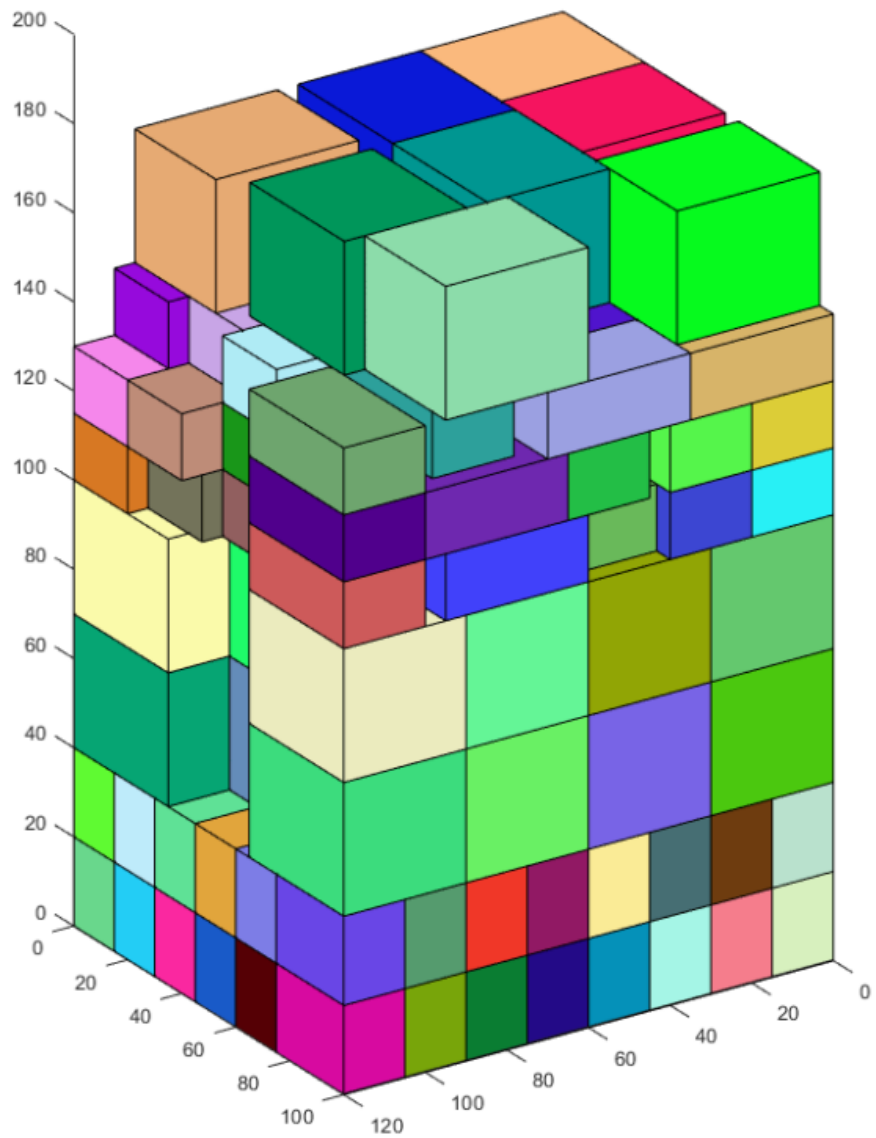


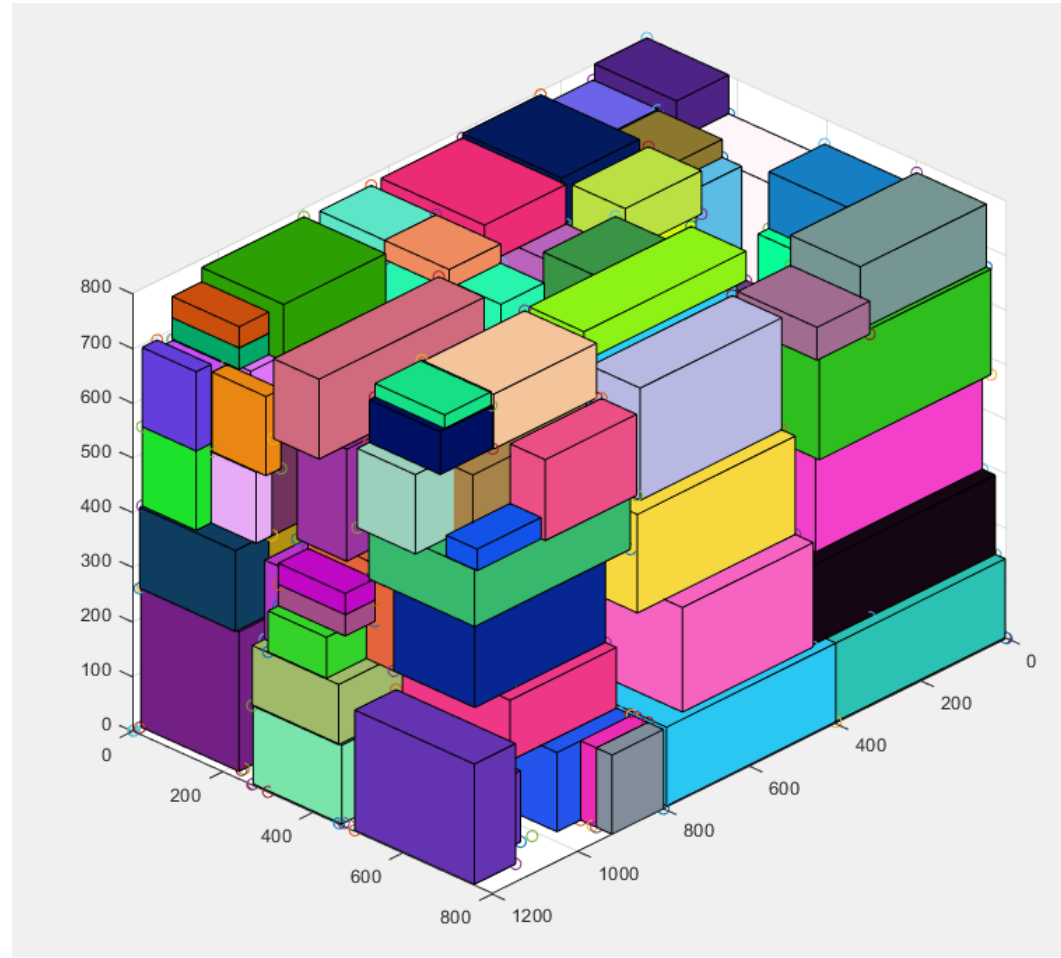
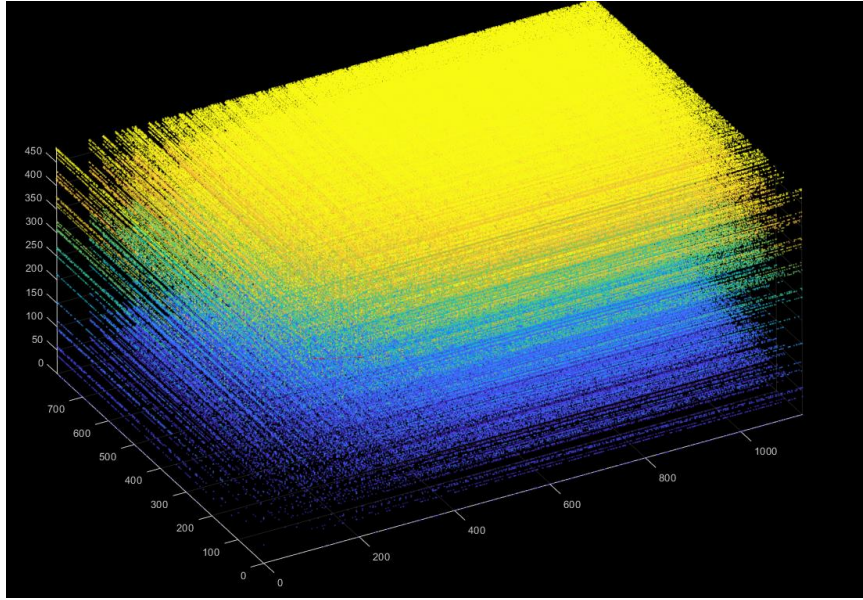








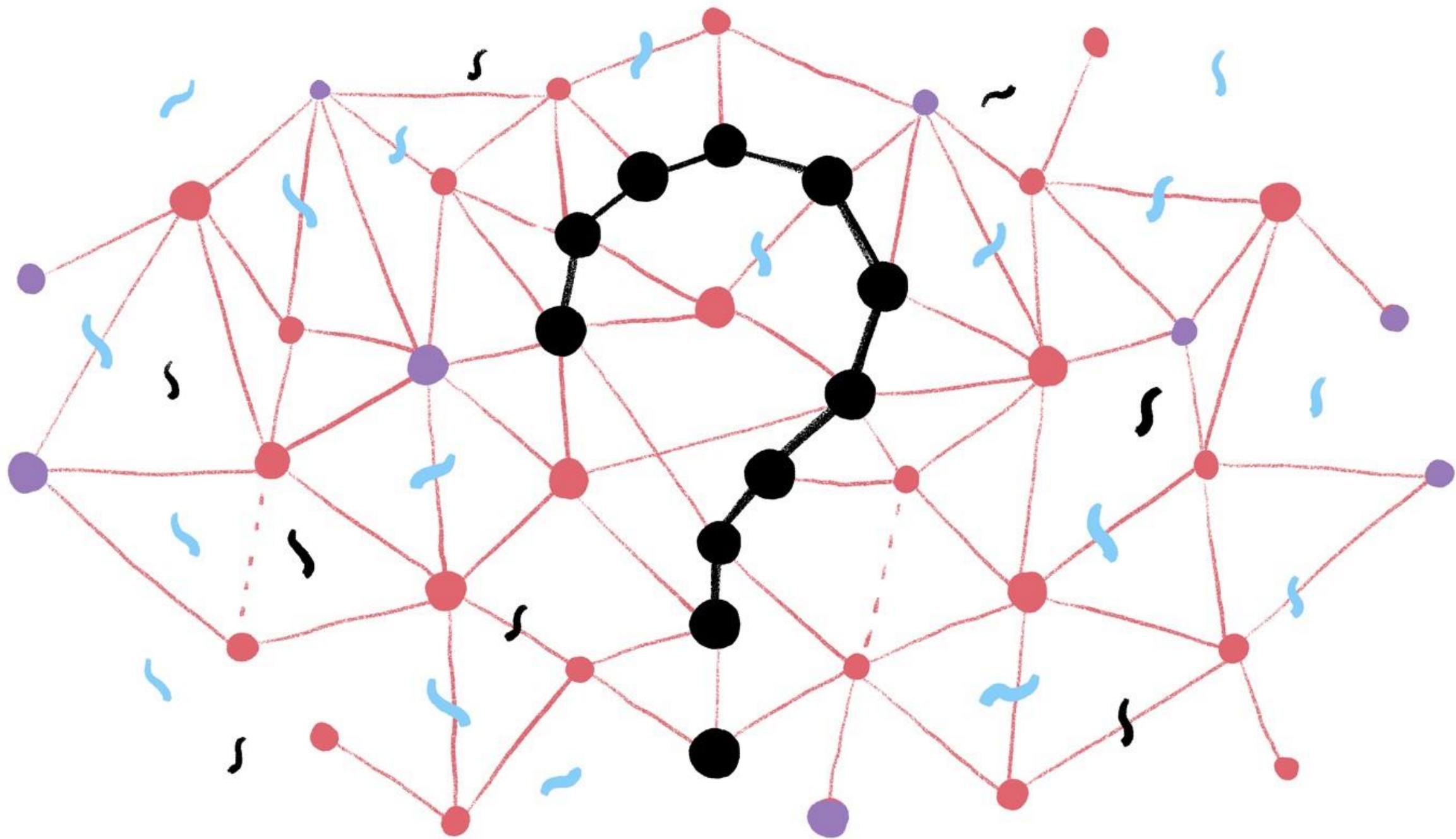




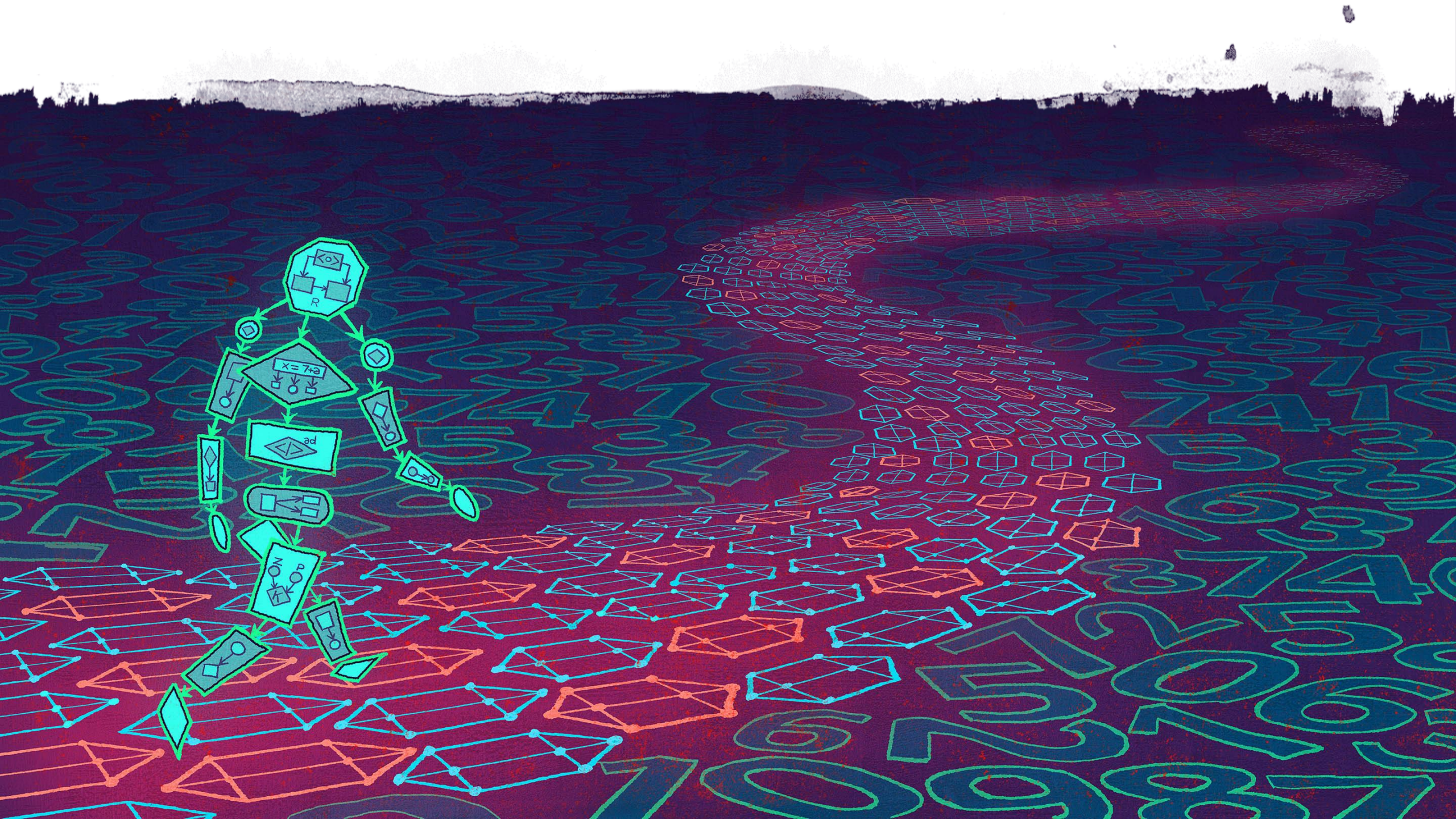
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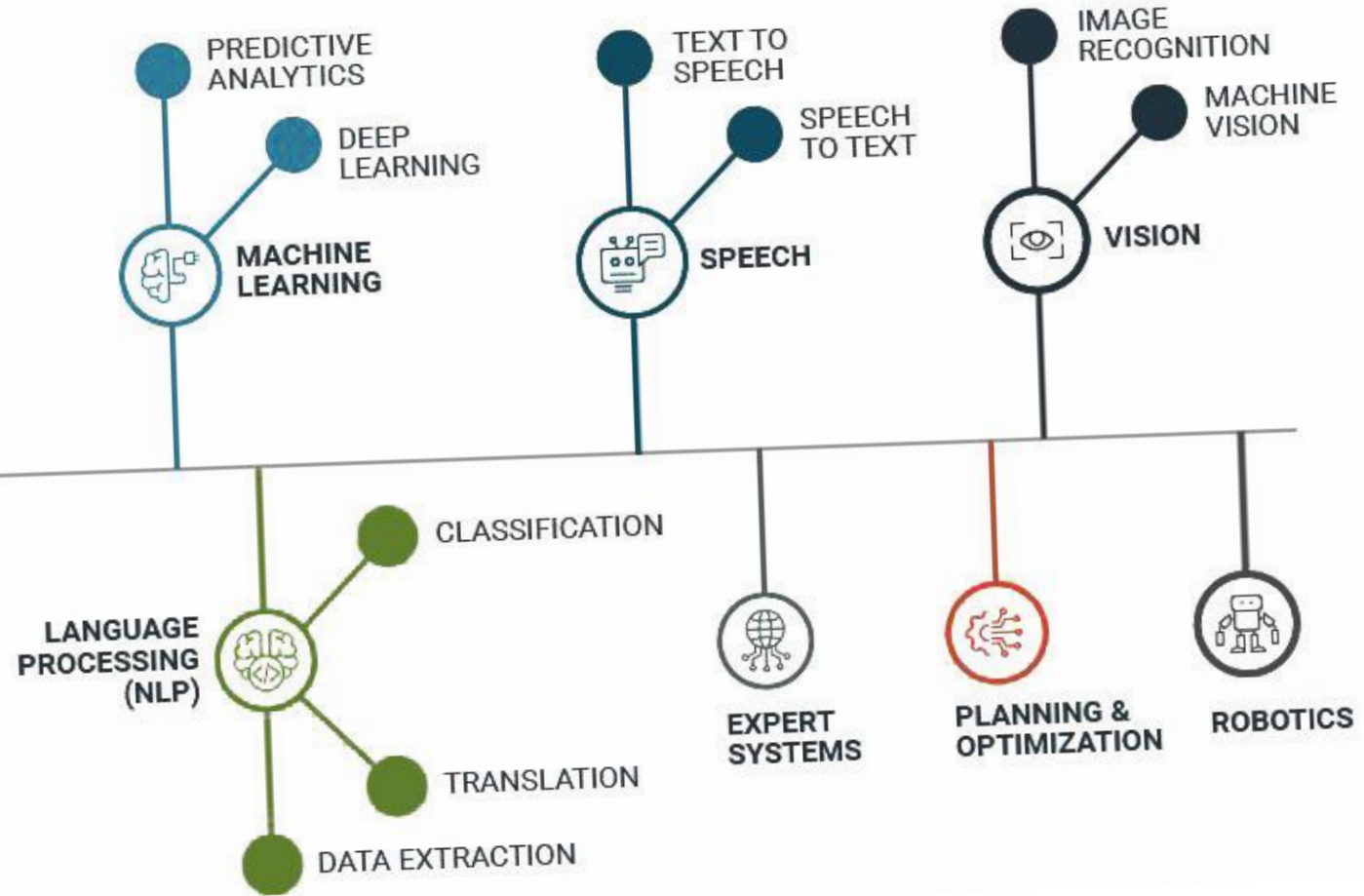


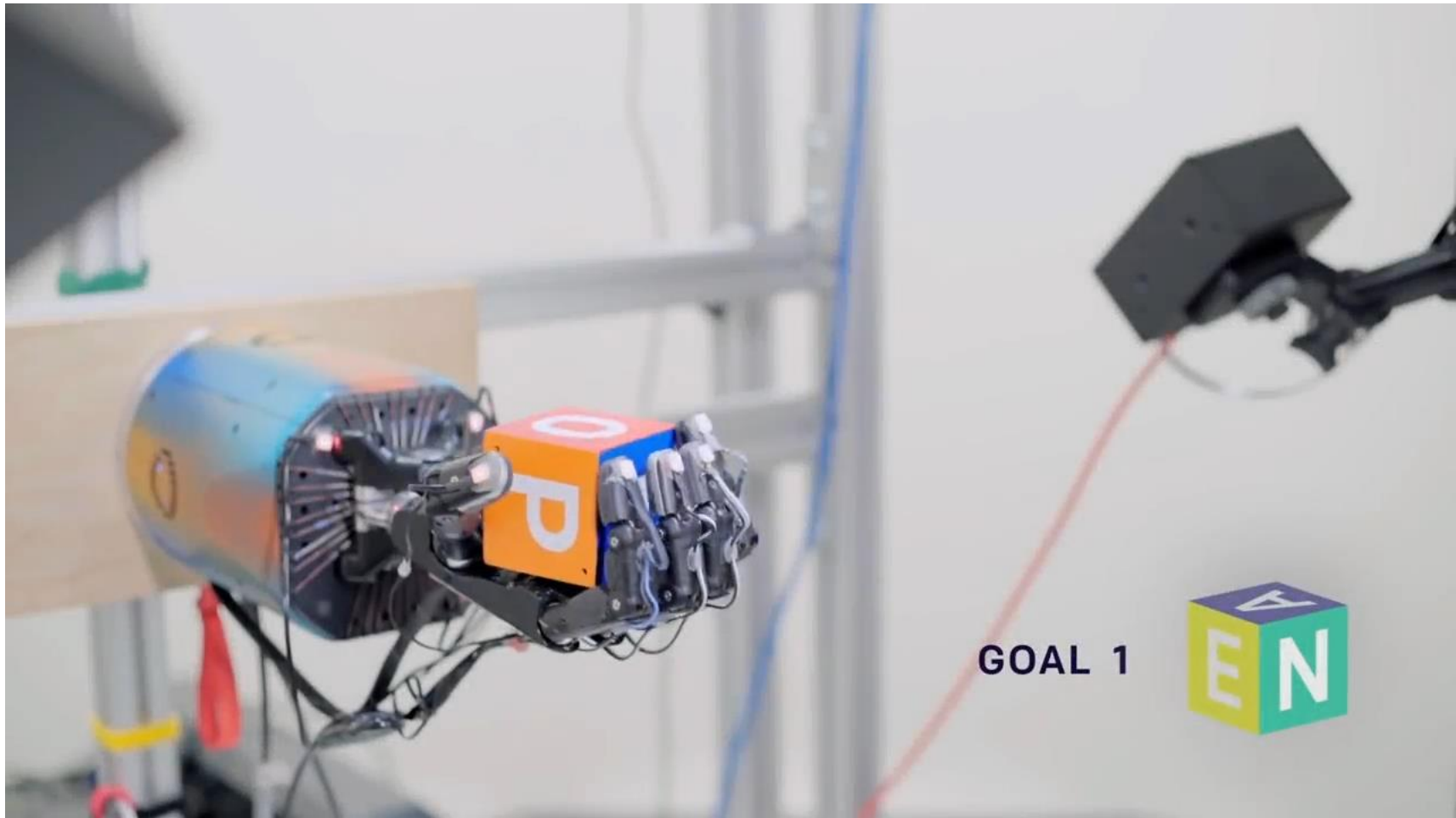






# ARTIFICIAL INTELLIGENCE







[cрта.fsb.hr](http://cрта.fsb.hr)

[bojan.sekoranja@fsb.hr](mailto:bojan.sekoranja@fsb.hr)