

Internet of Things



Manufacturing

Automation and Industrial Robots



Simulation and Modelling



**Master in Cyber Physical Systems**  
Bridging the Gap Between the Digital and Physical Worlds  
Faculty of Automation and Computer Science | UTCN

A large, stylized red graphic in the background that resembles a circuit board or a network of pipes. It features a central circular node with a factory icon and a Wi-Fi symbol, with various lines and nodes extending outwards to connect to other icons and text labels. The text "Industry 4.0" is faintly visible in the background of the central node.

Artificial Intelligence



Cloud Computing



Blockchain





# Core Curriculum



## CPS & IoT Security

Understanding vulnerabilities in connected devices, encryption, and secure communication protocols.



## System Architecture

Design principles for distributed IoT systems, from edge computing to cloud integration.



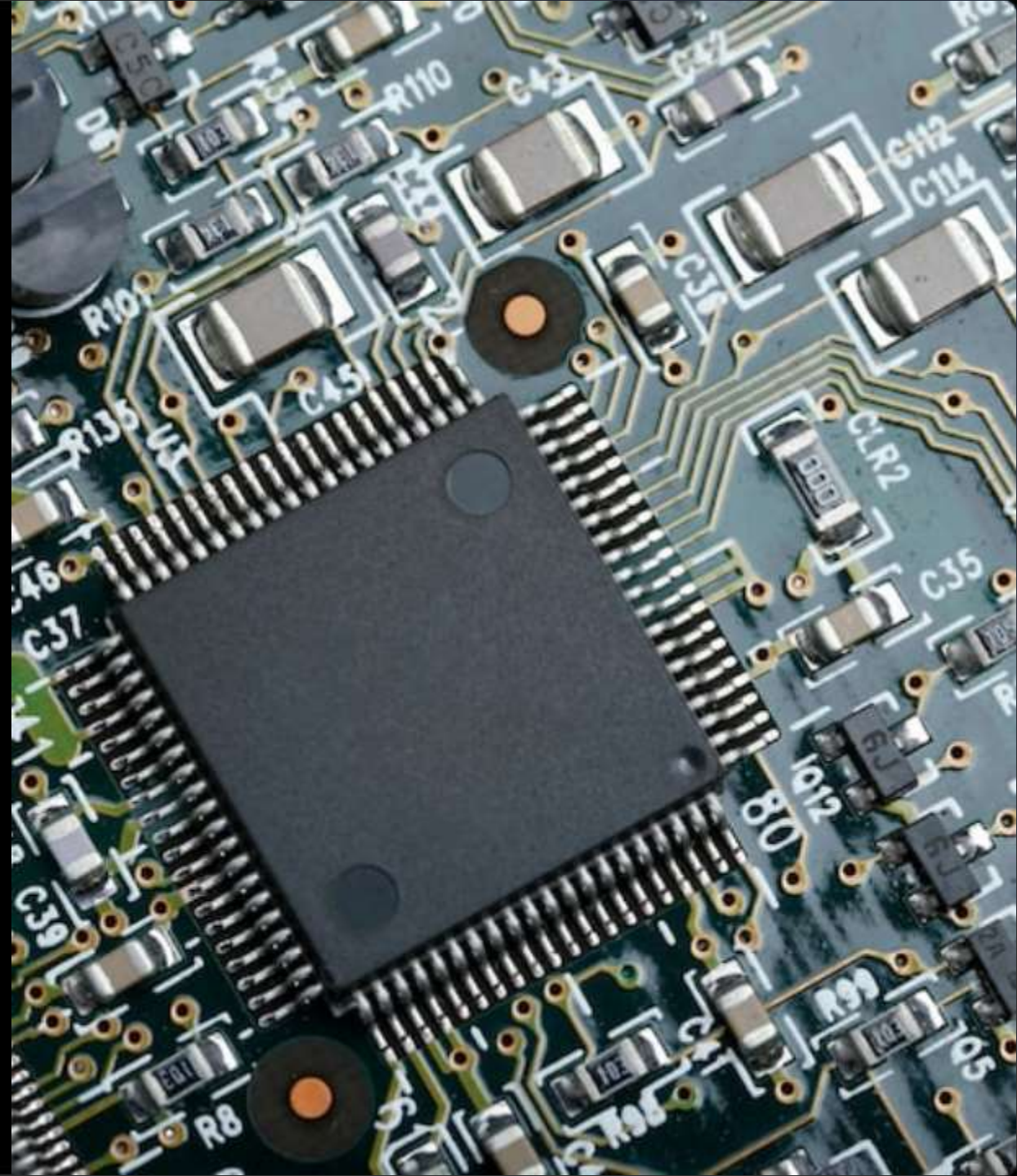
## Embedded Systems

Advanced programming of microcontrollers and real-time operating systems (RTOS).

# Advanced Technologies

This master's program dives deep into the technologies that power the modern world.

- **Machine Learning for Perception:** Teaching systems to "see" and "decide" based on sensor data.
- **Program Analysis:** Static and dynamic analysis to ensure software reliability and safety.
- **Wireless Sensor Networks:** Protocols and energy-efficient communication.



# Research & Innovation



## Pushing Boundaries

Technical University of Cluj-Napoca is a hub for high-level research in automation and computers.

## Opportunities:

- Participation in EU-funded research projects (Horizon Europe).
- Access to specialized labs: Process Control, Vision, Cybersecurity.
- Collaboration with industry partners for dissertation projects.

# Skills Acquired

## Integrative Vision

Ability to identify, formulate, and solve engineering problems that integrate physical processes with computation and communication.

## Cybersecurity Expertise

Competence to identify threats and implement security measures for critical infrastructure and IoT devices.

## Modeling & Simulation

Proficiency in using mathematical models to test and evaluate diverse physical processes before deployment.

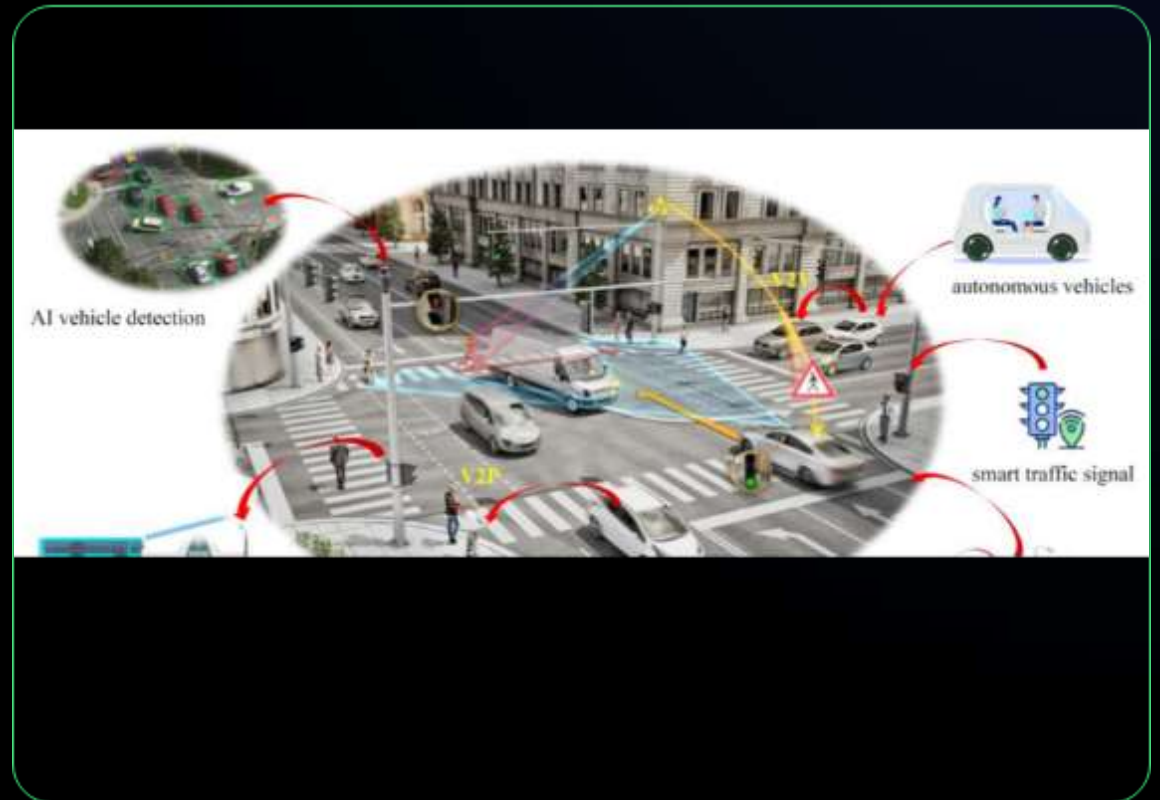
## Teamwork & Leadership

Experience working in transdisciplinary teams, a crucial skill for modern complex engineering projects.

# Career Paths

Graduates are prepared for high-demand roles in R&D and specialized engineering.

-  **CPS Architect:** Designing smart factories and cities.
-  **IoT Security Specialist:** Securing connected devices.
-  **Embedded Systems Engineer:** Automotive & Aerospace.
-  **Researcher:** Academic or industrial research labs.



# Why Technical University of Cluj-Napoca?



## English Taught

Fully taught in English, attracting international students and professors.



## Cluj Ecosystem

Located in the heart of Romania's tech industry, with strong ties to companies like Porsche, Bosch, and NTT Data.



## Hands-on

A pragmatic approach that balances theoretical rigor with practical application.

# Why Technical University of Cluj-Napoca?



Co-funded by the European Union



## Study at top universities across Europe

### Study at top universities across Europe



# Admission & Prerequisites

## Who should apply?

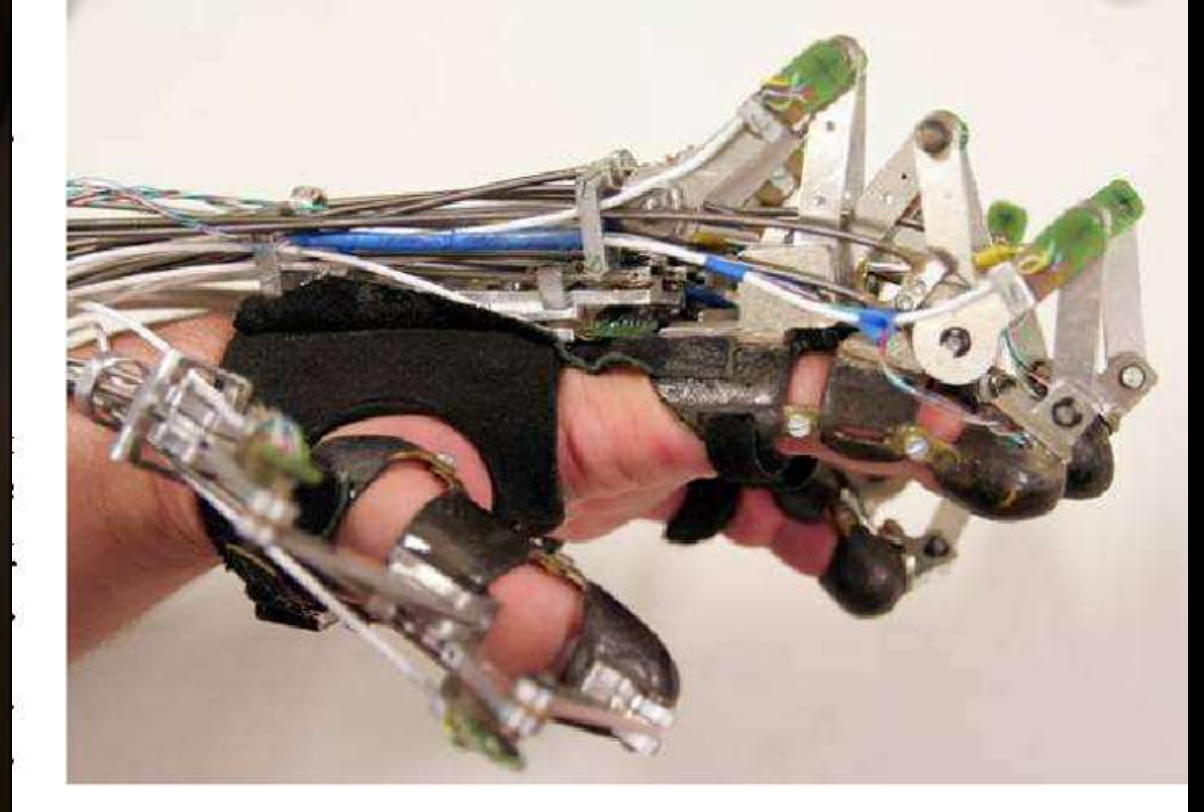
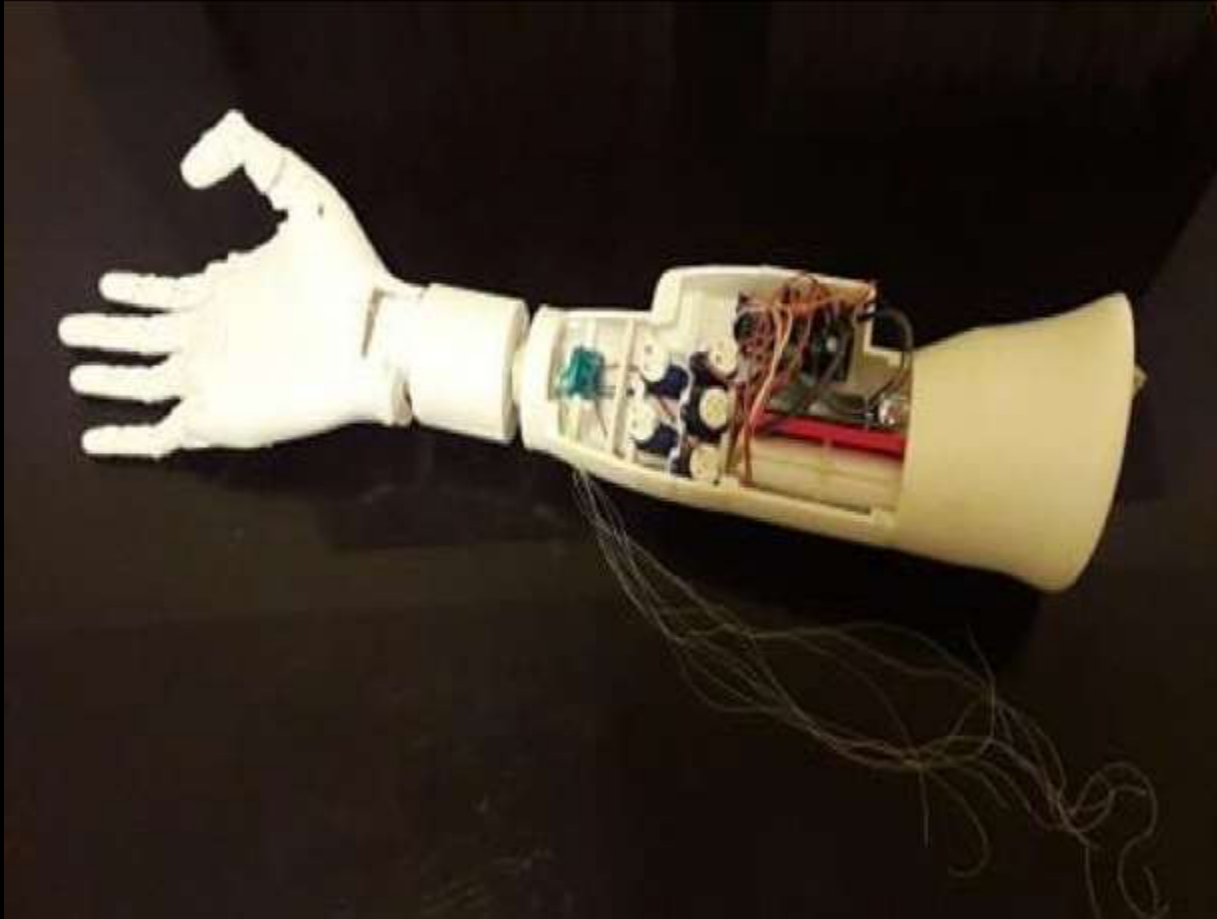
Graduates with a Bachelor's degree in:

- Computer Science / Engineering
- System Engineering / Automation
- Electronics & Telecommunications
- Information Technology

## Selection Criteria

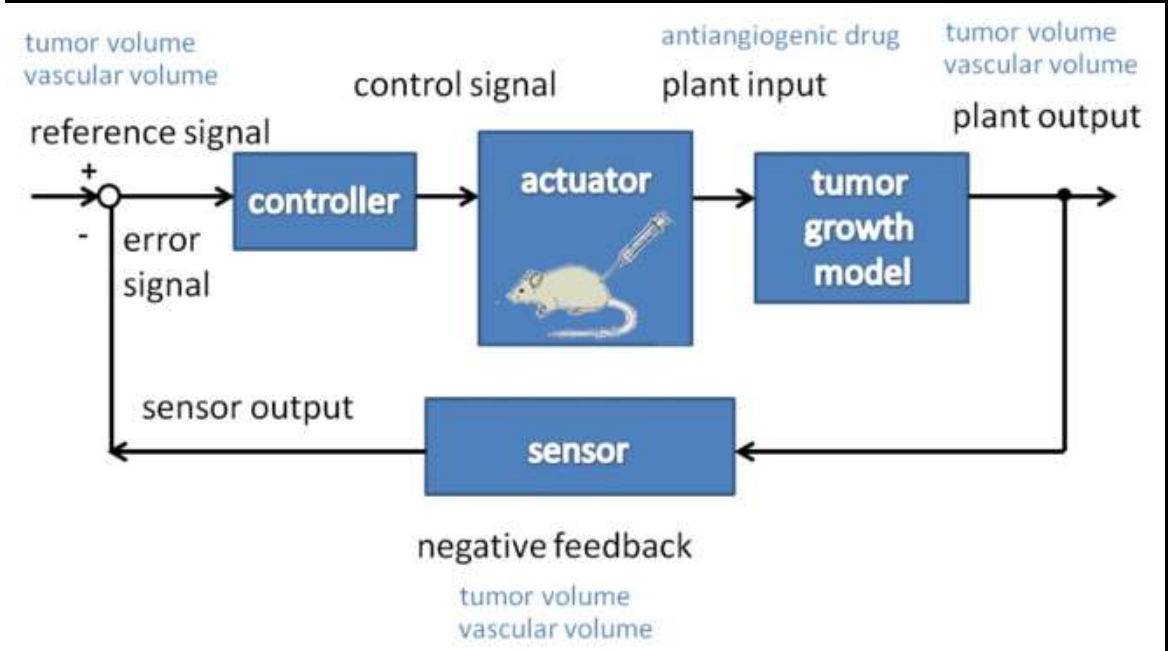
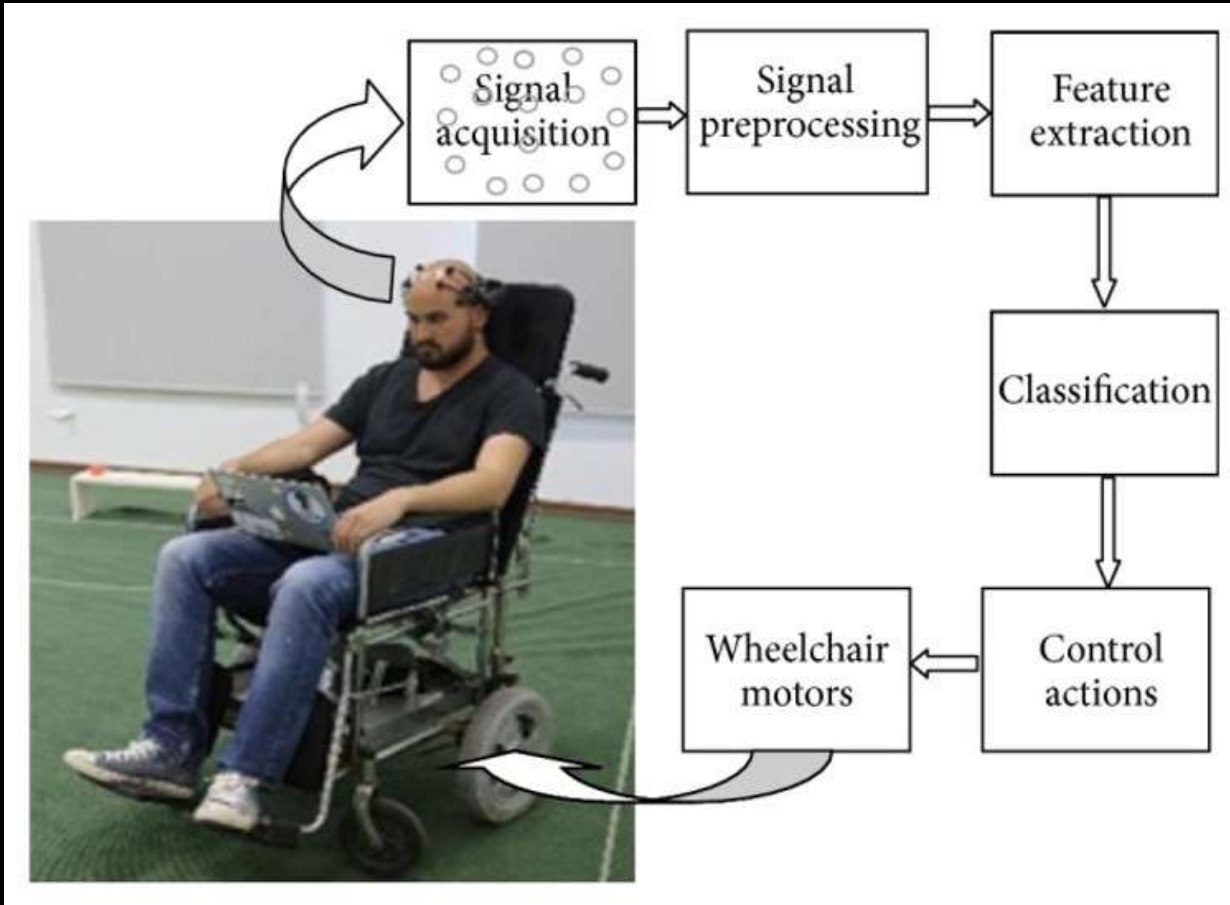
Admission is typically based on the grades from the Bachelor's degree and an interview (or exam) assessing technical knowledge and English proficiency.

# Projects - **Master's Thesis**



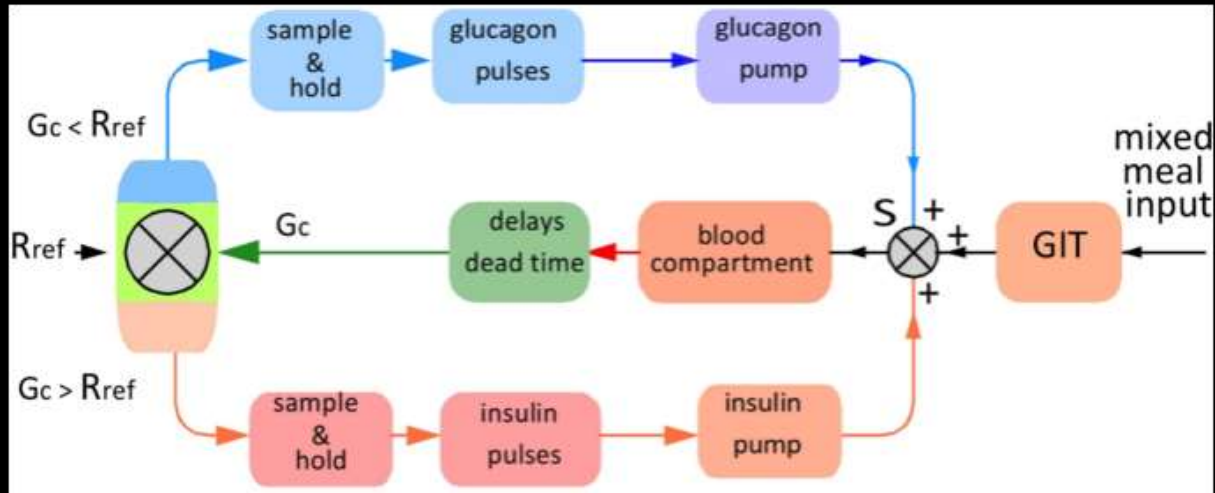
**Medical applications of control systems**

# Projects - Bachelor's Degree



**Medical applications of control systems**

# Projects - Bachelor's Degree

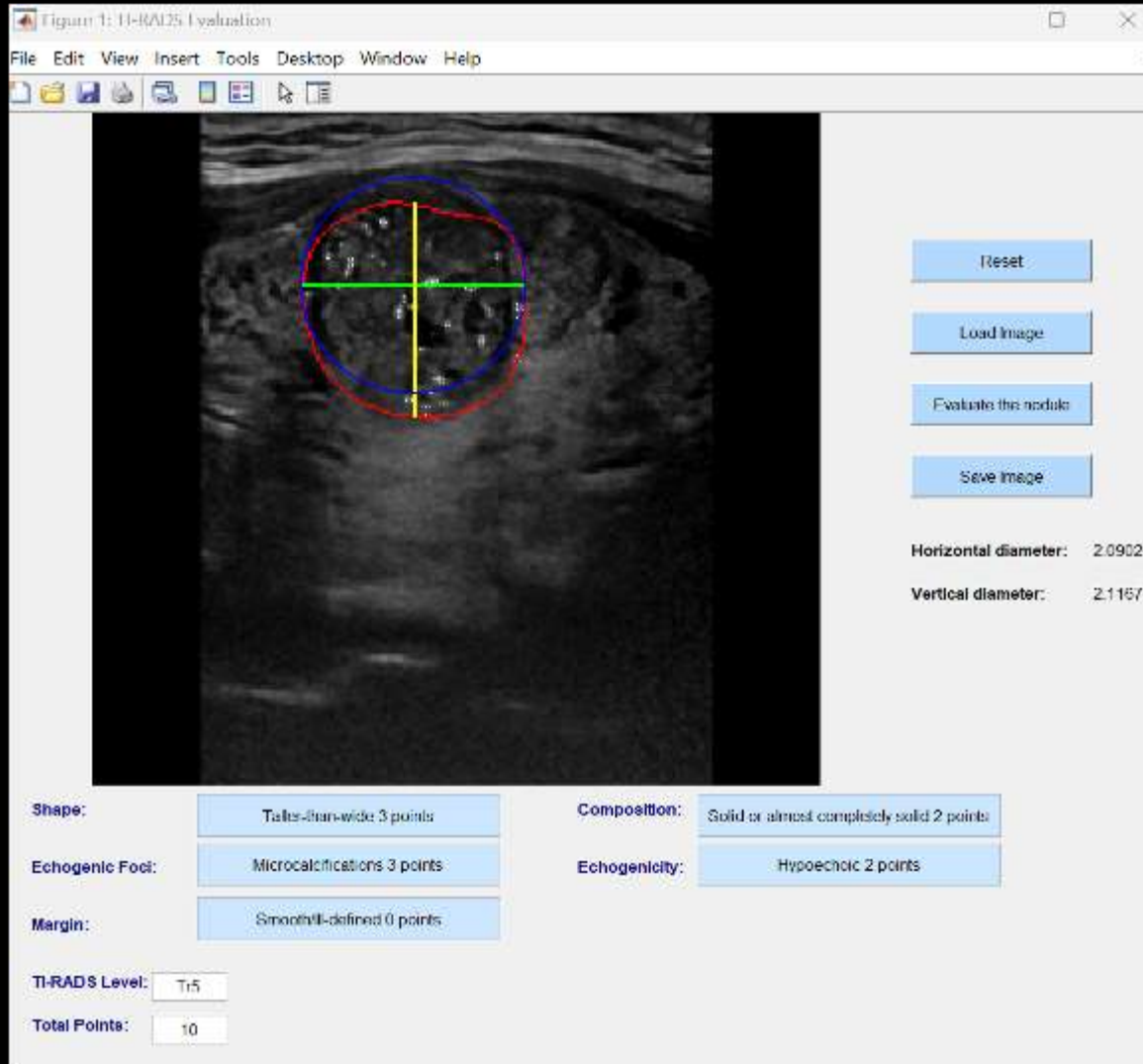


**Medical applications  
of control systems**

# Projects - Bachelor's Degree

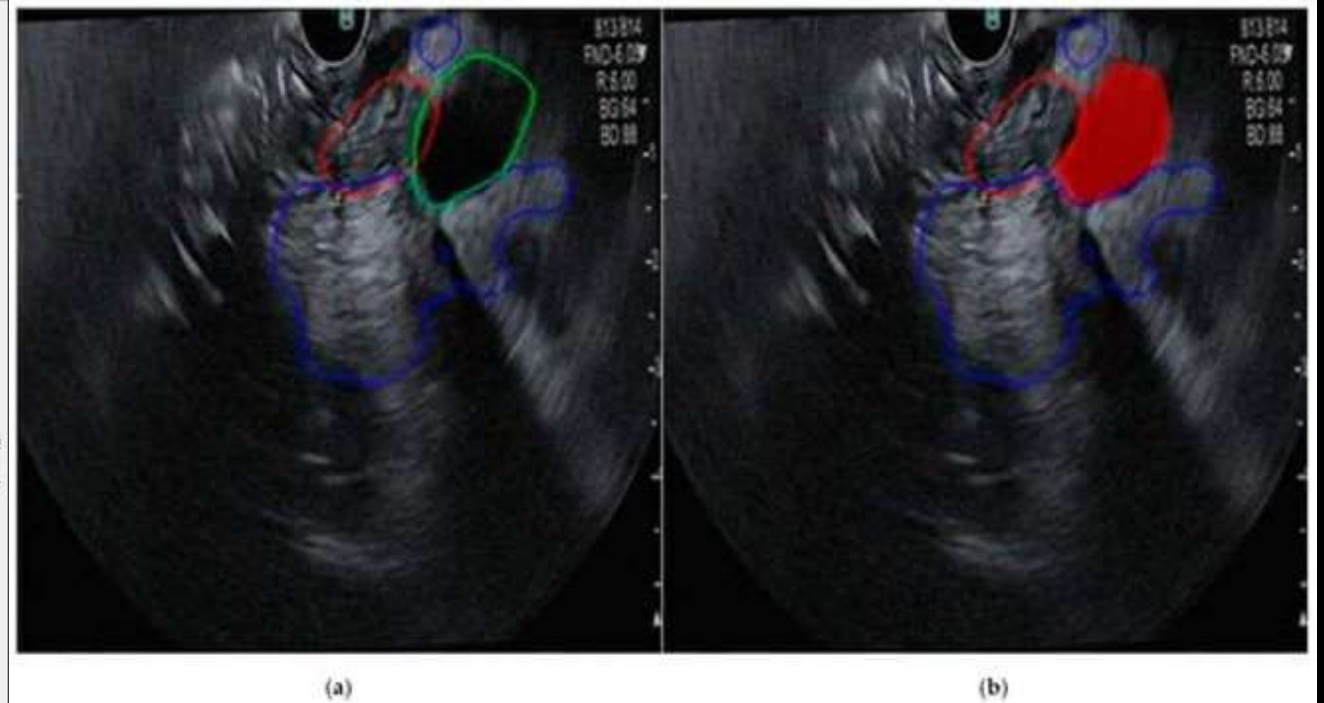
Figure 1: TI-RADS Evaluation

File Edit View Insert Tools Desktop Window Help



Horizontal diameter: 2.0902  
Vertical diameter: 2.1157

Shape: Taller-than-wide 3 points  
Composition: Solid or almost completely solid 2 points  
Echogenic Foci: Microcalcifications 3 points  
Echogenicity: Hypochoic 2 points  
Margin: Smoothly-defined 0 points  
TI-RADS Level: T15  
Total Points: 10



Medical applications  
of control systems


# Projects - Bachelor's Degree




**Mobile robotics applications**

# Questions?

Join the future of engineering.

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 <https://ac.utcluj.ro>