

# MASTER THESIS PROJECT

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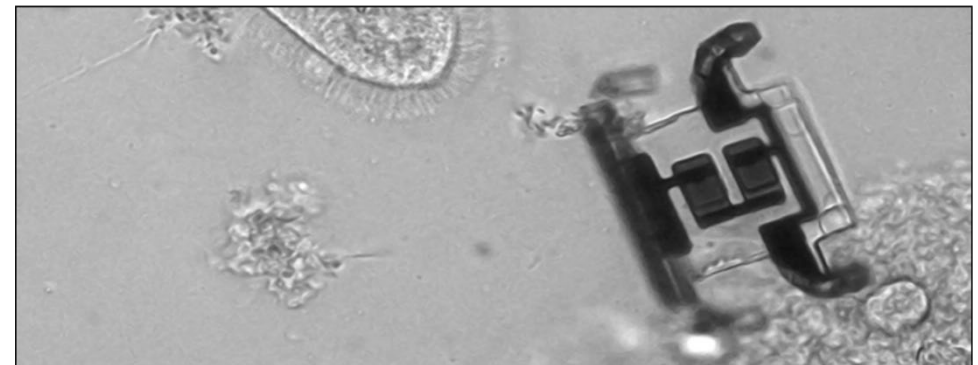
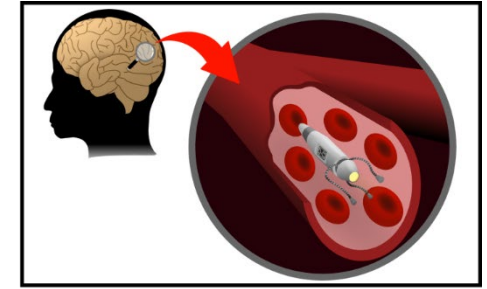
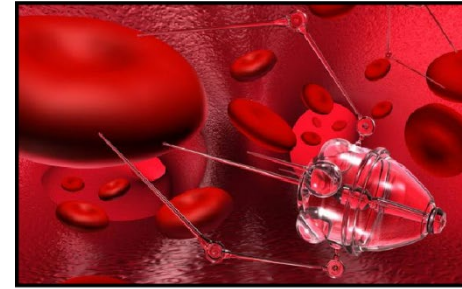
**Project title:** Wireless tracking of small-scale robots

**Background:** Turning science fiction into reality, contactless actuation of micro-robots has paved way for clinical applications like targeted drug delivery. However, ensuring these delicate tasks requires a precise control over robot motion. Therefore, the potential of untethered robots to become a real breakthrough in medicine strongly depends on the development of suitable in vivo localization methods. In this project, we aim to evaluate the applicability of radio localization technologies, such as radar, in small-scale robotics toward in vivo applications.

## **Tasks:**

- Experimental investigation of the electromagnetic reflectivity of various small-scale robots.
- Evaluation of the need for on-board tracking tag.
- Development of experimental platform for robot localization using relevant instrumentation.
- Development of signal processing and tracking algorithms.
- Study and characterization of the performance of the tracking system.

Suited for: *BME, EE*



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