

## Thesis Topic: Embedded Design and Prototyping of a Smart Underwater Ear

This is a hands-on project to build a fully functional underwater sensor from the ground up. You'll transform simple, low-cost pressure sensors and a microcontroller into a sophisticated scientific instrument capable of listening to the underwater world.

Depending on your academic level, you can assemble a prototype from a schematic (Bachelor), design and validate a new sensor configuration (Master), or implement real-time event detection on the device (Group).

**Skills to learn:** Real-world product engineering, low-power systems design, advanced 3D printing for prototyping, and optional on-device signal processing (DSP).

**Why is it important?** Your work will help create affordable, open-source technology to monitor our oceans. The device you build can contribute to a global network of sensors, providing vital data for conservation and democratizing marine science.

**Prerequisites:** Hands-on experience with hardware and microcontrollers (e.g., Arduino, ESP32), a passion for building things, and curiosity.

**Supervisor:** Dubrovinskaya Elizaveta