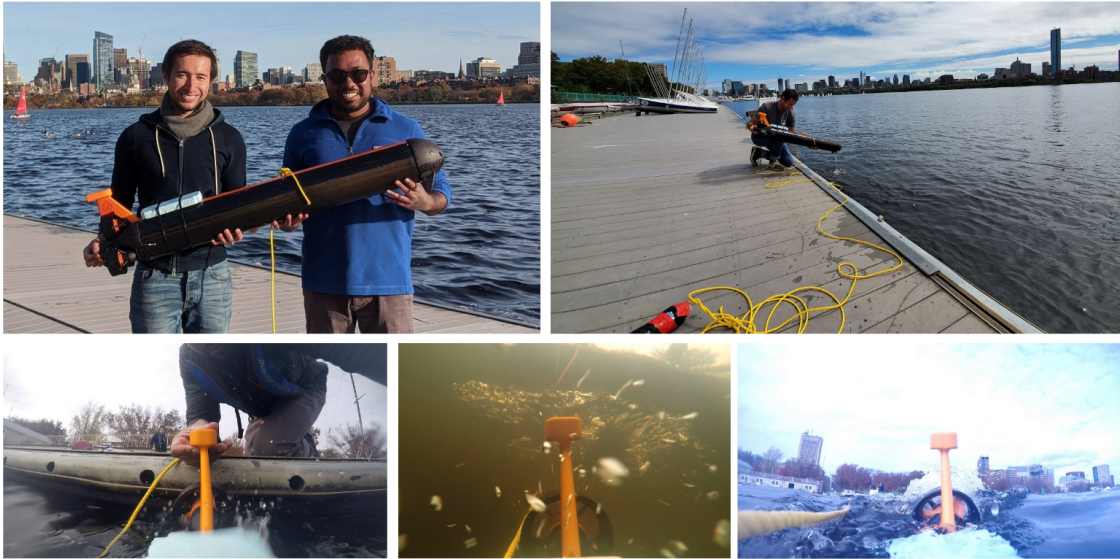# Silvertail - A new class of multi-purpose & low-cost AUVs

The underwater sensing capability can be significantly advanced by using multiple UUVs that work together in a collaborative autonomy paradigm, each serving as a node in a large sensory array. With this goal in mind, the Silvertail AUV was developed as a multi-purpose, reliable and yet extremely low-cost platform. This novel AUV class is powerful in software, and also very easy to manufacture.

AUV mode

Silvertail is a unique AUV design that does not require control surfaces. This design is based on three thrusters located at the stern of the vehicle (tri-thruster configuration), which provide forward propulsion as well as heading, pitch and depth control. The vehicle is extendable with additional payload modules. Due to the simplicity of the design, it is extremely easy to manufacture in a short period of time (within 2-3 days) using simple tools and basic skills, without requiring specialized expertise or facilities.

Glider mode

A standalone low-cost buoyancy engine is being developed to convert the vehicle to a hybrid glider. The buoyancy engine is integrated as a payload module, which can control buoyancy and vehicle pitch angle with commands provided by the main vehicle computer.

Size:	1.0 m length (extendable), 0.12 m diameter
Sensors:	GPS, IMU, external pressure/depth and temperature sensor, wifi, GSM, and tetrahedral hydrophone array with acoustic data acquisition system
Developers:	Nicholas Rypkema and Supun Randeni
Software:	Frontseat System: méta-silvertail

	Autonomy System: MOOS-IvP
	Navigation System: HydroMAN
Projects:	This is currently a non-funded hobby project

Videos

First in-water test: https://youtu.be/Q9XdPxz9AFQ
Second in-water test: https://youtu.be/7l5uMhcTgv4