

Are you fascinated by space and exploration?

Do you wonder what is possible when academic and industry work together?

Would you like to join a team that makes real explorations happen?

If the answer is yes, yes and yes, we would love to hear from you!

Unmanned Underwater Vehicle - Software Specialist

ARIS is a student initiative based at ETH Zürich (Dübendorf) and inspires students across Switzerland with opportunities to put **into practice what you have been studying** in theory by gaining **hands-on space and underwater robotics engineering experience** and contribute to space engineering challenges through academic and industry collaborations.

From the technical side, this year ARIS goes into the 5th round of challenges. Following project PICCARD, ARIS will participate at the Spaceport America Cup 2022 in New Mexico with its own hybrid rocket engine. In addition, ARIS also works on several other projects such as its own Unmanned Underwater Vehicle, in order to explore the ocean worlds of Enceladus and Europa in search of life. ARIS also conducts events to support these activities, and has ongoing engagement with sponsors, the public and professors.

From the business side we have grown a lot over the last year. We have been expanding our ARIS business team, in the areas of marketing, finance and HR. Furthermore, and we have also started a collaboration with University St Gallen and their prestigious business unit.

To achieve the ambitious projects and continue our exciting growth, we require a motivated member of **Software Subteam**.

Tasks include:

- Designing the system software architecture
- Acquiring and treating multiple sensors data (GPS, IMU, pressure, magnetic compass...)
- Determining position (dead reckoning) and navigation path
- Controlling the actuation of the UUV
- Reconstructing and mapping the ocean floor through sonar and echosounder data
- Designing a GUI to visualize GPS position, water parameters, bathymetry...
- Establishing standards for future teams

Expectations

As a member of the Software Subteam, even though not mandatory, following skills are highly appreciated:

- Familiar with sensors data treatment and motor control
- Familiar with hardware such as Pixhawk flight controllers and Raspberry Pi
- Familiar with a range of interfaces including UART, USB, TCP/IP, CAN, SPI and I2C
- Experience in GUI design
- Experience with C/C++, Python, ROS, ArduSub

From each of our team members we expect:

- We expect you to spend 1-2 days a week (~10h) on the project and be able to join team meetings and workshops on zoom or at Switzerland Innovation Park in Dübendorf, ZH
- Be eager to learn and proactive
- Fail, get up and learn from it
- Take responsibilities over your projects and tasks



What do you get?

By participating in this unique challenge, you will:

- Possibly take part in expeditions to frozen lakes in the Swiss Alps and to the North Pole
- Help to better understand climate change by helping glaciologist map the oceans floor
- Help to take a step towards the discovery of life in icy moons oceans

But also:

- Get in contact with many sponsors from academia and industry
- Take initiative outside of the classroom and gain hands-on experience
- Establish and grow your network in industry and academia
- Be part of a friendly community, grow as a unit and build life-long friendships
- Kickstart your career!

Project start: September 2022

Duration: 1-2 semesters

Working hours: 1-2 days/week

Please be informed that your work will be entirely voluntary. As we are a student project, we do not offer any paid employment.

Any questions? Get in touch.

We look forward to hearing from you! Please submit a complete application, including CV. If you have any questions, please reach us on hr@aris-space.ch.