Report from Aerostream Summer School 2022

Date: 1.8.2022 – 4.8.2022

Number of participants: 60 (27 online, 33 on site)

Web & Program: https://fly4future.com/aerostream-summer-school.2022

This event is co-financed in the scope of AeroSTREAM project that has received funding from the European Union's Horizon Europe Framework Programme under grant agreement No 101071270.

AeroSTREAM Summer School held in early August 2022 brought together a great team of students and academic researchers to share their knowledge and experience.

The main focus of the AeroSTREAM Summer School 2022 was on systems of cooperating aerial vehicles and swarms, and deployment of MRS in real-world conditions, especially unknown environments.

Eight lecturers from top European universities provided AeroSTREAM students and researchers with the knowledge, ideas, and experience of the best experts in the field of Multi-Robot Systems in a comprehensive and effective way. Both the theoretical and practical overview required to bring MRS research from scientific achievements to practical deployment and verification was presented.

Based on the individual interests, researchers were divided into a few groups, to encourage networking possibilities and to gain deeper knowledge in the selected domain of MRS. During the group seminars, tasks relevant to an individual scope of students were discussed and tackled.

Following the lectures, under the supervision of the experienced researchers, the students got an opportunity to implement learned methodology into a fully functional robotic system.

On each day of the Summer School, an evening social program was organized to give the participants the chance to both relax after a tough day of lectures and exercises, and to network among other participants and lecturers. A variety of events took place, including a tour of historic Prague, welcome and farewell parties, and a banquet with a social program.

Program

1.8.2022 – Monday

08:00-08:45 – Registration

09:00-09:30 – Martin Saska – welcome and organizational details

09:30-10:30 – Aníbal Ollero Baturone part I

10:30-11:00 – Coffee break

11:00-12:15 – Aníbal Ollero Baturone part II

12:15-13:00 – Lunch

13:00-13:30 – Free Time/Networking

13:30-14:45 – Martin Saska – Research of groups of aerial robots at CTU in Prague

14:45-16:00 – Tomáš Báča – Introduction into MRS system in ROS

16:00-16:30 – Coffee break

16:30-17:30 – Free Time/Networking

17:30-18:45 – Practical in groups

19:00-21:00 – Social program: Welcome drink

2.8.2022 – Tuesday

08:45-09:00 – Registration (for later coming)

09:00-10:15 – Vito Trianni part I – Collective Decisions in Robot Swarms

10:15-10:45 – Coffee break

10:45-12:00 – Vito Trianni part II – Collective Decisions in Robot Swarms

12:00-12:45 – Lunch

12:45-14:30 – Free Time/Networking

14:30-16:00 – Guido de Croon – Autonomous swarms of tiny drones

16:00-16:30 – Coffee break

16:30-18:00 – Tomáš Svoboda – Robots go deep – multi-robot missions in unknown undergrounds

18:30-20:30 – Guided tour in Prague's Old Town

3.8.2022 – Wednesday

08:45-09:00 – Registration (for later coming)

09:00-10:30 – Rachid Alami part I

10:30-11:00 – Coffee break

11:00-12:15 – Rachid Alami part II

12:15-13:30 – Free Time/Networking

13:30-14:15 – Lunch

14:15-14:45 – Free Time/Networking

14:45-15:45 – Lino Marques part I – Basic terms and MRS approaches

15:45-16:15 – Coffee break

16:15-17:15 – Lino Marques part II – Multi-robot olfactory search

17:15-18:45 – Konstantinos Alexis – CERBERUS in the DARPA Subterranean Challenge: A Quest for Resilient Autonomy

19:30-22:00 – Banquet

4.8.2022 – Thursday

08:45-09:00 – Registration (for later coming)

09:00-10:30 – Short presentations of students, part I

10:30-11:00 – Coffee break

11:00-12:30 – Alyssa Pierson – Designing Cooperative Multi-Agent Teams and Socially-Aware Autonomy

12:30-13:15 – Lunch

13:15-15:00 – Short presentations of students, part II

15:00-16:00 – Lab tour

16:00-16:30 – Coffee break

16:30-17:30 – Free Time/Networking

17:30-20:00 – Short presentations of students, part III

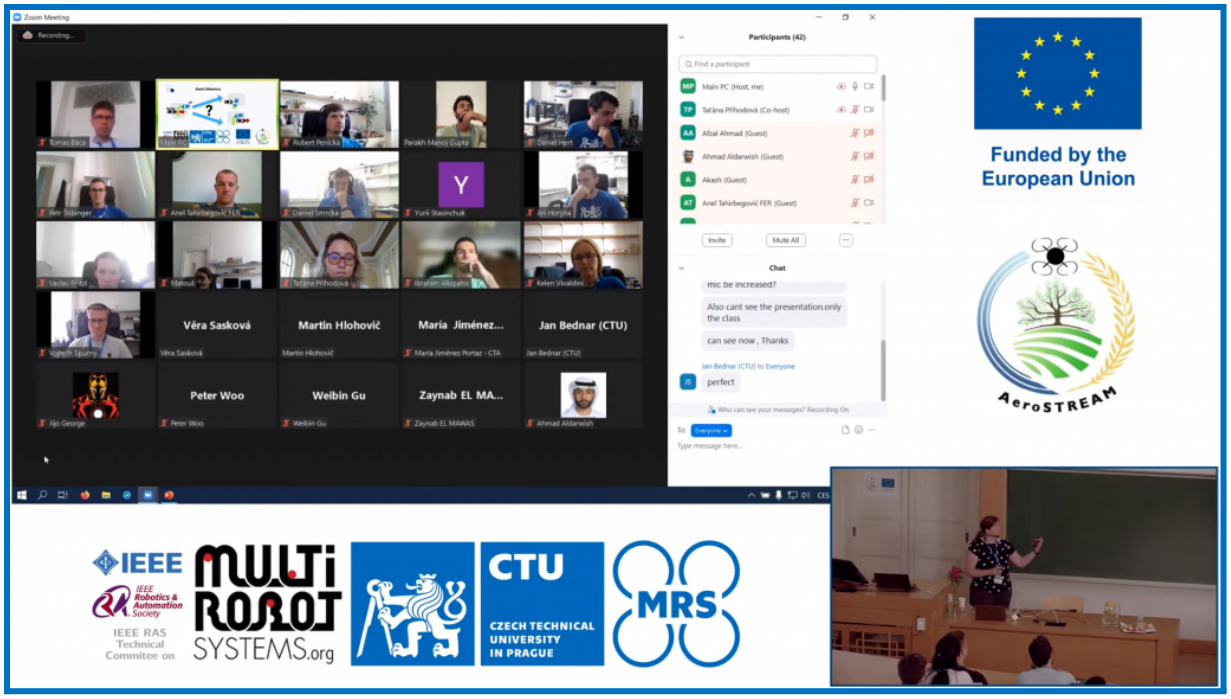

Figure - online session / lecturers

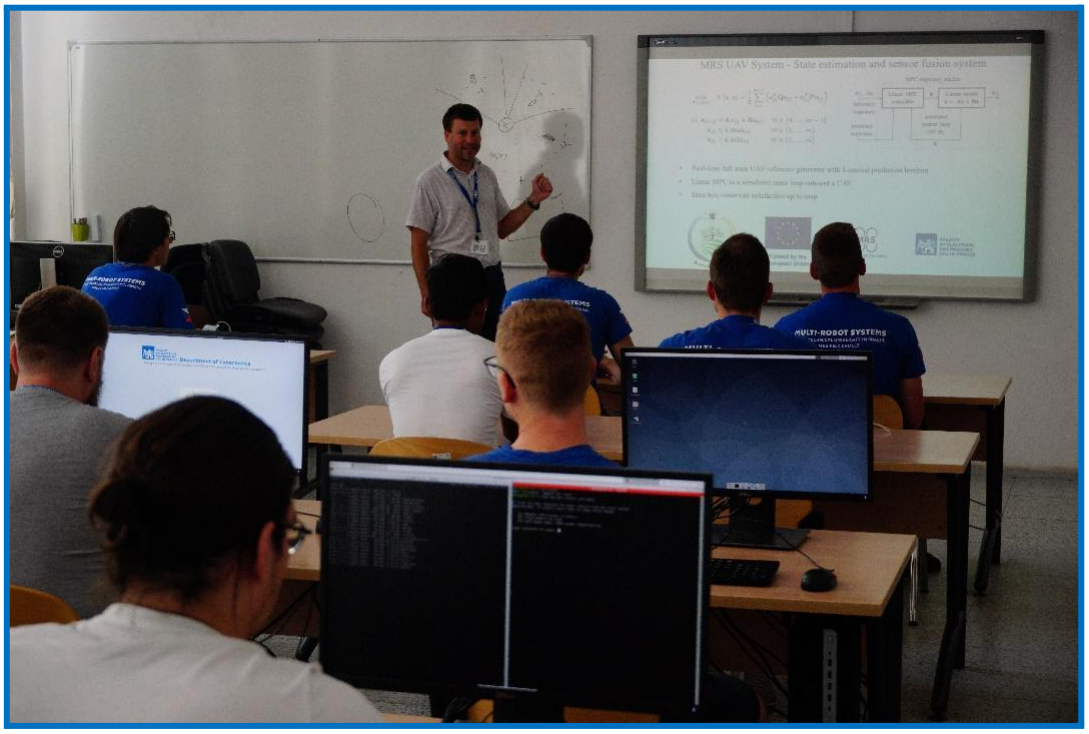

Figure - group seminars / computer practicals

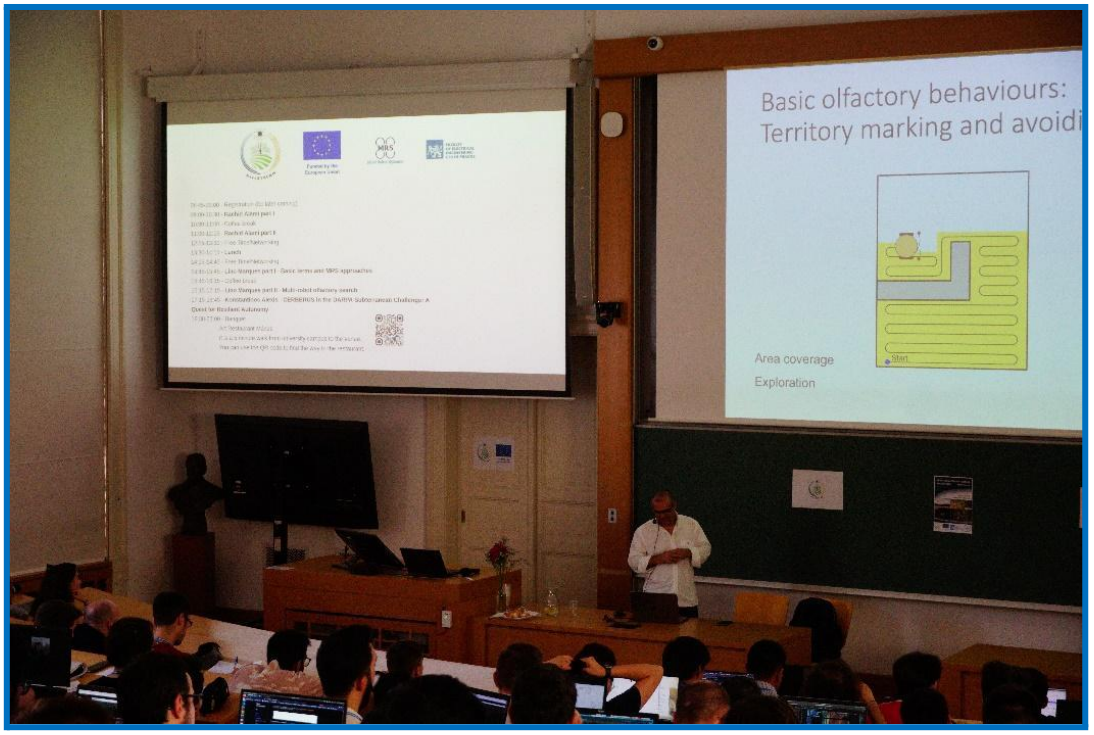

Figure - Lectures

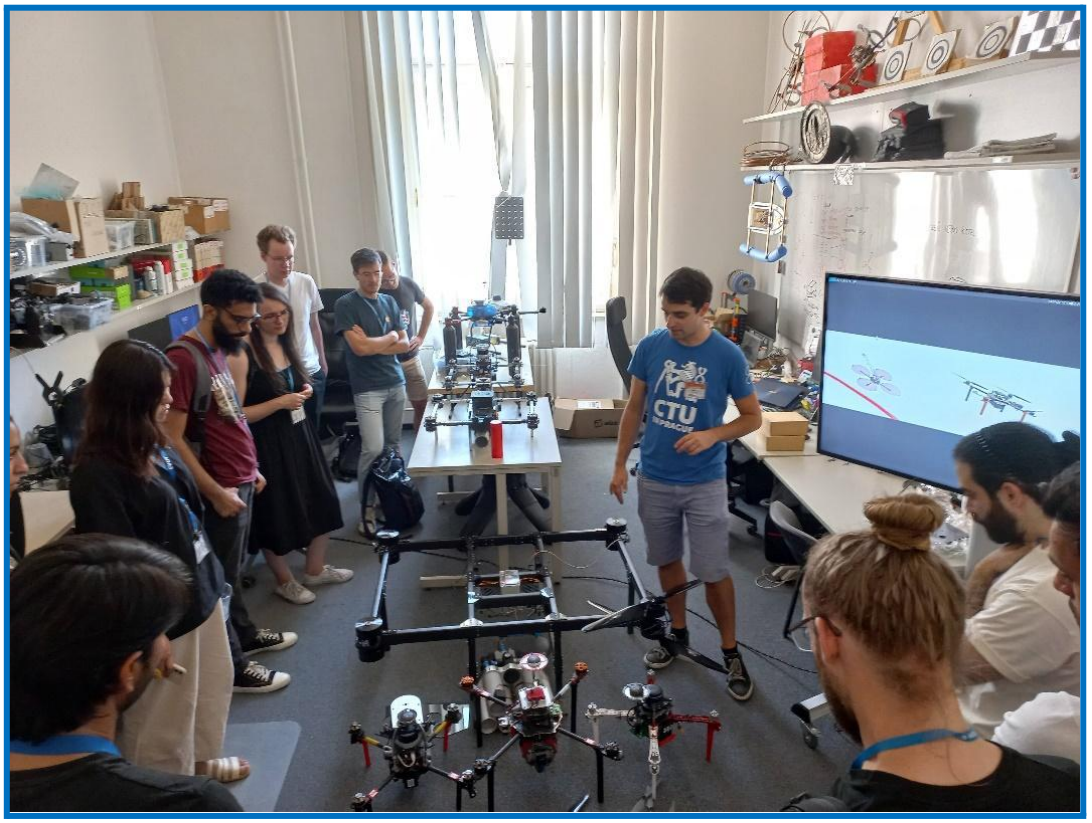

Figure - HW / MRS lab tour

Figure - networking / social program