



Fostering Opportunities Towards Slovak Excellence in Advanced Control for Smart Industries

D4.2. Training material documenting job shadowing and webinars

Date by 31.12.2023
v.1

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DELIVERABLE INFORMATION

| | |
|----------------------------|---|
| Work package | WP4 |
| Task | Task T4.1: Staff exchange and Knowledge-Transfer |
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| Deliverable lead | Ruhr University Bochum (RUB) |
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| Dissemination Level | Public |

| | |
|-----------------|---|
| Abstract | <p>The project aims at increasing the research and academic prospects of Slovak University of Technology in Bratislava, Slovakia (STUBA) and at initiating the evolution of STUBA into a modern, reputed excellent institution that performs high-quality research in advanced automatic control, educates top-quality scholars and industrial practitioners, and is successful in active dissemination and exploitation of its research and innovation efforts. For this purpose, STUBA teams up with two renowned research groups in automatic control from RU Bochum, Germany (RUB) and Pisa University, Italy (UNIP). The specific goals of the action are to reinforce the collaboration with the two research groups from Western Europe, to intensify research in advanced automatic control, to open up new collaboration channels through academic and industrial networking, to train excellent young/senior researchers and project managers, and to effectively disseminate and exploit the research results of STUBA. The unique features of the project are: - Adoption/amendment of internal research project-related rules and procedures and develop project management toolbox, - Research efforts aiming at the continued creation of high-quality research results and software tools, - Establishment of a series of guest scientific and academic lectures, - Exchanges and training of project managers and research (junior and senior) personnel, - Organisation of conferences and invited sessions, seminars with industry, and annual summer schools, - Preparation and implementation of a new PhD curriculum at STUBA, - Establishment of an academic-industrial research and innovation cluster.</p> |
| Keywords | Control theory and optimization; Sensor networks, embedded systems, hardware platforms; |

| | |
|--|---|
| | Embedded systems; Monitoring and control systems; Embedded systems in automation and control. |
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Document Revision History

| Version | Date | Description of change | List of contributors |
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Disclaimer

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

PARTNERS

The consortium of FrontSeat consists of 3 partners, as presented here below.



STUBA

Slovak University of Technology in Bratislava



RUB

Ruhr University Bochum



UNIVERSITÀ DI PISA

UNIFI

University of Pisa

EXECUTIVE SUMMARY

This document constitutes Deliverable 4.2 „Training material documenting job shadowing and webinars“ of the FrontSeat Project, funded by the European Union’s Horizon Europe research and innovation programme under the action number 101079342. The purpose of this report is to collect and summarize all the information on topics discussed and the corresponding training material, which was used by the RUB Research School in the project so far, to increase the excellence status of STUBA and to prepare and implement a new Ph.D. programme in smart control at STUBA. The supporting structures for the Ph.D. programme were based on best practice examples of RUB Research School with additional input from UNIP. This report covers a description of RUB Research School, their objectives at STUBA, the knowledge transfer with its respective staff exchanges and trainings, and the future steps. All the information and materials can serve as a blueprint for other technical universities in Slovakia.

ABBREVIATIONS

| Abbreviation | Expanded Version |
|--------------|------------------------|
| RUB-RS | RUB Research School |
| ESR | Early Stage Researcher |
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OBJECTIVES

Work Package 4 „Initiating a new Ph.D. programme“, corresponding to this deliverable, has multiple objectives. Primarily, the aim is to complement existing undergraduate and graduate programmes at STUBA with a new Ph.D. programme. The existing programme at STUBA is split into two separate parts, taking courses with written exams, and writing publications and the thesis. The first part takes up to two years and it resembles a master’s degree programme, while the second half is about researching for a specific scientific topic and writing the doctoral thesis. In order to increase the scientific output, it is necessary to initiate a new Ph.D. programme, as the first part is only weakly related to research and is almost equivalent to the graduate programme most Ph.D. have already completed before entering the Ph.D programme. Supporting structures, complementing the new Ph.D. programme, will be modeled after the RUB Research School with additional inputs from UNIP. RUB Research School has more than 10 years of experience in streamlining Ph.D. programmes and offers a wide spectrum of events for improving personal skills and increasing visibility. It is therefore advisable to transfer the necessary knowledge and experience to STUBA, and to aim for implementing these processes at STUBA by the end of the FrontSeat project. The transfer of knowledge is to be achieved through a series of staff exchanges between the participating universities, complemented by online discussions and seminars. Online seminars are dedicated to the exchange of information about the new university-wide Ph.D. programme and for setting up supplementary curricula with soft and generic skills. The seminars also cover the marketing activities of RUB Research School for international candidate recruitment.

RUB RESEARCH SCHOOL

RUB Research School (RUB-RS) is the campus-wide institution of all faculties for the promotion of doctoral and postdoctoral researchers of Ruhr-Universität Bochum. RUB-RS offers complementary qualification beyond disciplinary borders, dedicated consulting, and a unique *Research Around the World* internationalization programme. With this, RUB-RS supplements the offers of the 21 faculties so that RUB's 4.000+ emerging researchers can benefit from an extensive range of support and services preparing them in the best possible way for a career in academia and beyond. In order to accomplish all these tasks, the RUB-RS office consists of twelve people, with a wide variety of backgrounds. It is located directly at the campus of the university enabling fast communication with both researchers and university administration. In addition to direct communication with doctoral students, which is supplemented by personal advice and personal coaching offers for a wide range of tasks, the RUB-RS organizes a variety of other activities. To improve scientific output of RUB, the RUB-RS offers research-related workshops and online courses to all doctoral students and postdoctoral researchers on a regular base. In addition, interdisciplinary research events are organized to broaden the perspectives of researchers and to establish scientific clusters. These events are also attended by international researchers providing an even more differentiated exchange. Similar offers are also available for non-academic careers covering management and leadership workshops or special career and business events.

The doctoral school at STUBA is the counterpart to RUB-RS and was established in 2019. Its aim is to attract more Ph.D. students with measures that increase and improve their research output as well as their career opportunities. The doctoral school is currently offering one subject, which is related to teaching the methodology of scientific work. The corresponding lectures aim to improve publications, managing projects and discussing ethics. Most faculties at STUBA offer similar lectures, which leads to Ph.D. students staying at their institutes. With the range of courses differing between the institutes, Ph.D. students are trained to different standards. The four entities currently setting up the programme are Faculty of Chemical and Food Technology, Faculty of Materials Science and Technology, Faculty of Architecture and Design, and Institute of Management.

KNOWLEDGE-TRANSFER

The corresponding WP4 started at M3 of the project. Since then, several steps have already been taken towards the objectives to be achieved. All relevant meetings are briefly summarized here. Staff exchanges also include tables showing all the topics discussed and actions performed. The associated training material can be found in the appendix.

Kick-Off

Dr. Christiane Wüllner took part in the kick-off meeting on **October 27-28, 2022** where she introduced RUB-RS to the consortium and got to know STUBA and the participating partners. She was joined by Annegret Kunde when participating in an online meeting on **February 17, 2023** with an introductory presentation about RUB-RS and the planned schedule for WP4. This was followed by a presentation of Prof. Miroslav Fikar on the current Ph.D. curriculum in Smart Process Control at STUBA.

Online Meeting

The actual knowledge exchange on supporting structures for Early-Stage Researchers started with an online meeting with staff members from STUBA and RUB-RS on **March 13, 2023**. During the online meeting with Prof. Miroslav Fikar and Maria Buciova (STUBA), Dr. Christiane Wüllner and Annegret Kunde discussed basic requirements and goals for the development of the Ph.D. programme. Dr. Christiane Wüllner provided insights into the development and constitution of RUB-RS, which started as a project funded by third-party money and has developed into a permanent central institution of Ruhr-Universität Bochum supported by all departments and the rectorate. The RUB-RS website was used for orientation and provided a base for discussion. Dr. Ursula Justus, who is responsible for the qualification programme at RUB-RS, joined the meeting. Furthermore, the prerequisites at STUBA for the expansion of the support structures for ESRs were analysed. In preparation for the on-site exchange, the need for further development of the services was explored.

Staff Exchange STUBA at RUB

WP4 included staff exchanges to foster knowledge exchange and provide the opportunity for job shadowing and on-site, hands-on collaboration. Three staff exchanges are planned during the project. STUBA's staff will visit RUB twice and RUB-RS' experts will visit STUBA once. The first exchange took place from **April 24-26, 2023**, where Prof. Ján Híveš, Vice-rector for Science and Research, and Mária Búciová, Head of the Department of Science and International Scientific and Technical Cooperation, from STUBA visited RUB. During this time, the two STUBA staff members gained comprehensive insights into the various fields of activity of the RUB-RS and its history, as well as into the Ph.D. programmes and research activities with their respective labs of the Faculty of Mechanical Engineering. The exchange ended with planning the next steps in the project and the schedule for the next exchange.

| | | Topic/Activity | Related questions |
|----------------------------|-----------|---|---|
| Monday, 24 April | 11:05 AM | Arrival at DUS airport, transfer by train to hotel and RUB Campus | |
| | 2:00 PM | Lunch on Campus | |
| | 3:00 PM | RUB Research School's Development | Overview: How RS developed from funded project to permanent institution |
| | 6:30 PM | Dinner | |
| Tuesday, 25 April | 9:00 AM | Visit at Faculty of Mechanical Engineering | Meeting with the Dean Prof. Petermann |
| | 10:00 AM | Lab visit | |
| | 12:30 PM | Lunch on Campus | |
| | 1:30 PM | Talent Acquisition & Research Marketing | Incoming funding lines and career fairs |
| | 2:30 PM | Visibility | Website, Social Media |
| Wednesday, 26 April | 10:00 AM | Qualification & Advising | Demand oriented offers |
| | 11:00 AM | Discussing next steps within the FrontSeat project | |
| | 12:00 PM | Lunch on Campus | |
| | Afternoon | Transfer to DUS for vice-rector STUBA, flight at 5:50 pm | |
| | 1:00 PM | Internationalization | International funding opportunities for ESRs at RS |
| | 2:00 PM | Administration | Doctoral Data Base |
| | 3:00 PM | Summary, feedback, and next steps | |
| Thursday, 27 April | | Transfer to DUS for Maria Buciova, flight at 1:00 pm | |

Staff Exchange RUB-RS at STUBA

From **June 27-29, 2023**, Dr. Christiane Wüllner and Dr. Jörn Benzinger from RUB-RS visited STUBA for hands-on cooperation and continued discussions of the design of support structures for ESRs at STUBA. This included transfer of experience with setting up a university-wide Ph.D. programme and insights into the marketing activities of RUB-RS for international recruitment. It also covered RUB's ethics and integrity concepts as well as the incoming schemes.

| | | Topic/Activity | Related questions |
|---------------------------|------------|--|--|
| Tuesday, 27 June | | Travel to Bratislava | |
| | 6:00 PM | Welcome & Dinner | |
| Wednesday, 28 June | 9:00 AM | Importance of Research School at university | Presentation for rector, vice-rectors and deans of STUBA, Vazovova 5, 3rd floor |
| | 9:30 AM | Care for students, common events, building a community at RUB, HRS4R, questionnaires | Vazovova 5, 2nd floor |
| | 11:00 AM | Smart Process Control PhD program | Preparation of the new PhD program, meeting with prof. Fikar; Faculty of Chemical and Food Technology, Radlinskeho 9 |
| | 12:00 AM | Lunch | |
| | 13.30 PM | RUB Incoming Schemes | Presentation for doctoral students and postdocs, Vazovova 5, 1st floor |
| | Afterwards | Open exchange | |
| Thursday, 29 June | 9.00 AM | Importance of Research School at STUBA | Meeting with vice-rector for education and doctoral studies, Vazova 5, 2nd floor |
| | 10:00 AM | Ethics & Research Integrity at RUB | Why ethics & research integrity is important and how it is integrated in study offers, Vazovova 5, 2nd floor |
| | 11:00 AM | Lunch and Farewell | |

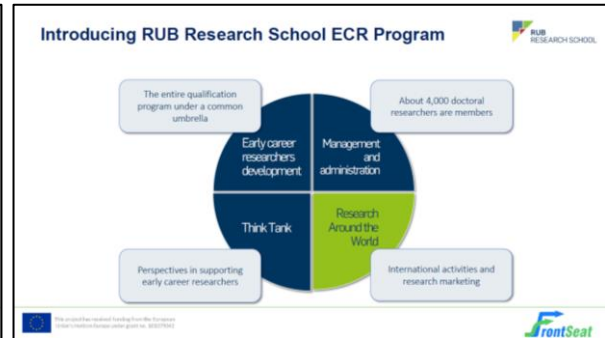
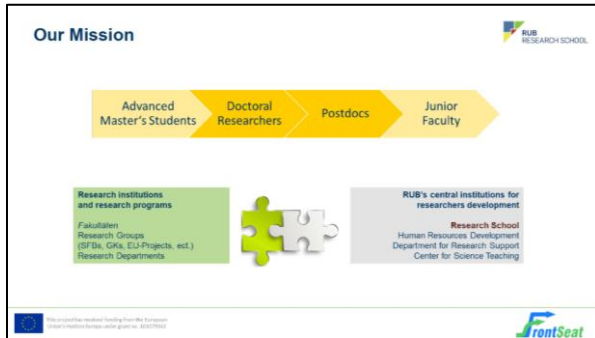
FUTURE STEPS

In recent months, considerable progress has been made towards a new Ph.D. programme and its systematic implementation. Current bottlenecks at STUBA have been identified and knowledge has been transferred to improve the doctoral network and to increase research visibility. After two successful staff exchanges, STUBA and RUB-RS are currently planning another visit of STUBA members at RUB for further development of doctoral education and marketing activities for international candidate recruitment in Bratislava, to ensure long-term excellence. Webinars on soft and generic skills for STUBA staff and doctoral students will be continued and expanded in the future. RUB-RS will serve as a news hub for the latest course offerings and trends regarding education. This will help to minimize the gap between doctoral students from STUBA and other comparable universities. RUB-RS will also contribute their expertise to building a doctoral community on the existing campus of STUBA, to increase networking opportunities and communication. All these measures are crucial for supporting the new Ph.D. programme to be successfully continued after the project.

APPENDIX

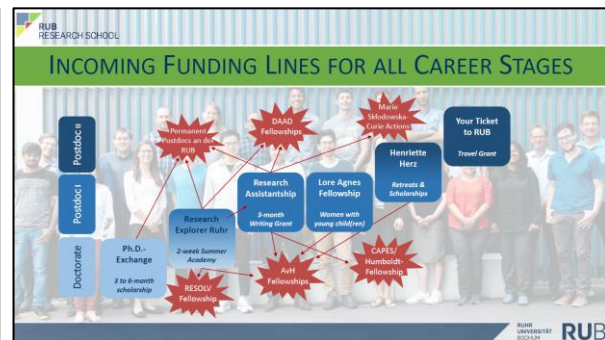
Kick-Off

Presentation 1:



Staff Exchange STUBA at RUB

Presentation 1:



Staff Exchange RUB-RS at STUBA

Presentation 1:

RUB RESEARCH SCHOOL

RUB UNIVERSITÄT BOCHUM

Research Career in Germany

Christiane Wüllner



Bratislava, June 28, 2023

DAAD

WHERE TO DO A DOCTORATE OR POSTDOC

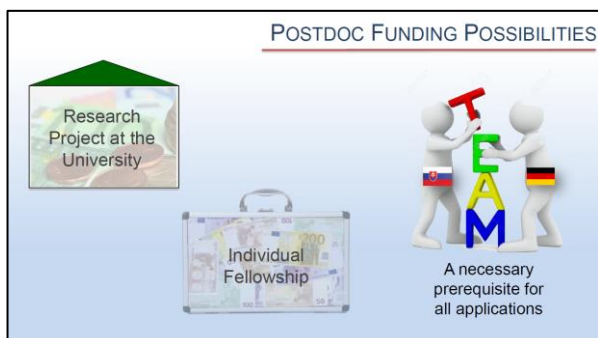
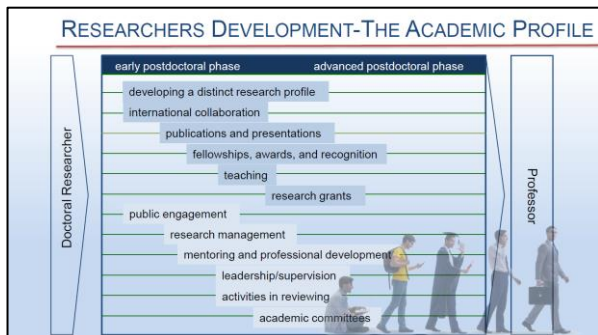
Approx. 400 Universities & Universities of Applied Sciences

Fraunhofer

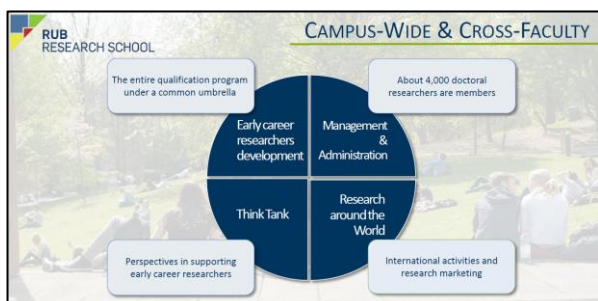
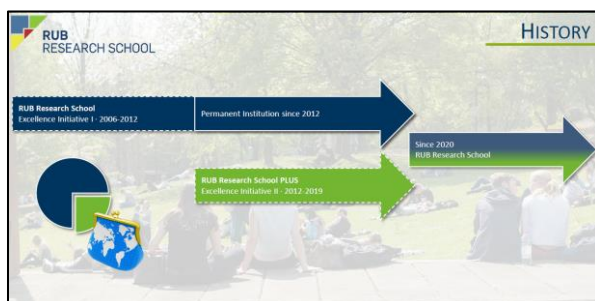
Leibniz Association

HELMHOLTZ

Companies/industrial research



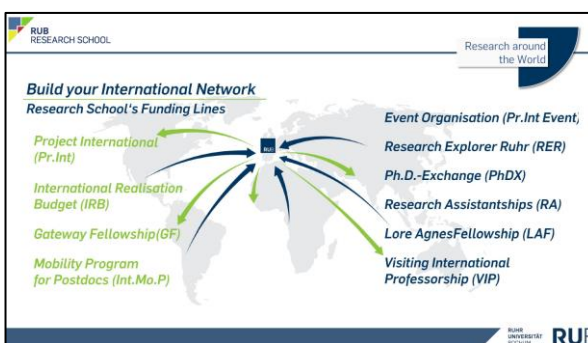
Presentation 2:





| RUB RESEARCH SCHOOL | RESOURCES |
|--|--------------------|
| Total Core Budget p.a. | 1 480 000 € |
| thereof | |
| Qualification program, Staff, Office supply | 680 000 € |
| Origin of funds: 512 000 € from RUB's central budget. Paid from central overhead share of 3 rd -party-funded projects, 168 000 € from RS treasure chest | |
| Research around the world program | 800 000 € |
| Origin of funds: 200 000 € lump-sum for admin. 50% Fakultäten, 50% RUB's central budget; | |
| 600 000 € for programme-line expenditures, pay-as-you-use and matching-funds principle: 50% Fakultäten, 50% RUB's central budget. | |

Presentation 3:



RUB RESEARCH SCHOOL

HENRIETTE HERZ SCOUTING PROGRAM

Prof. Dr. Martina Havenith-Newen
Physical Chemistry, Solvation Science

Prof. Dr. Anna Franckowiak
Multi-wavelength and Multi-messenger Astronomy

Prof. Dr. Stefan Berger
History, Social Movements

Prof. Dr. Albert Newen
Philosophy, Mind & Cognition

Prof. Dr. Sebastian Kruss
Physical Chemistry, Nanomaterials

Scouts can directly nominate international postdocs for a Humboldt Postdoc Fellowship

Kooperation des HUMBOLDT STIFTUNG

RUB

SUCCESS STORIES

Dr. Susana Carmona Castillo
Regular Postdoc Contract
Anthropology
Now: Research Associate at Maastricht

Dr. Helson Mario Martins do Vale
CAPES/Humboldt Fellow
Biology
Now: Professor at UNB

Dr. Hossein Jafarzadeh
Humboldt Fellow
Material Sciences
Sharif University of Technology

Dr. Dieter Reinisch
DAAD Postdoc Fellow
History
Universidad Diego Portales

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