

Alminica AB

Ulrika, Sweden

Research

Innovation

Training

Education



Leaders of the Future Summer Camp 2023

Welcome to Sweden

Location: Ulrika Campus, Sweden

Where: Stenåkra Business and Competence Center, Ulrika

Summer Camp 2023 is a training for researchers with aim to create impact, and entrepreneurs with start-up from research, as well as other like-minded who want to create change that matters.

Stay as long as you want. First week will be direct leadership training. Following weeks you will be part of innovation ecosystem activities. If you stay longer, then you can be closely involved in a thematic area which we agree on and will be useful for your career.



Personal training and skill development

Be part of our network to expand your own network

Support to develop your own strategic impact plan



Leaders of the Future - Summer Camp 2023

Hosted by Mikael Syväjärvi

Stenåkra Business & Competence Center
Ulrika Campus, Sweden

Accommodation included in camp fee

www.researchtobusiness.tech



Leaders of the Future Summer Camp 2023

How to join

It is very easy. Present your research plan and its impact. Submit for evaluation.

What is necessary to be a research leader of the future? In this training we will share practices and experiences. You will get plenty of good practices to use for your career.

What it takes?

You have to believe in yourself. That you can do it. Then you will. By working together and positioning your research. To be a leader then you need to have aims. That is why impact is central.

During training you will get the most essential for your next career steps.

This is crucial. A large part of climate solutions until year 2050 come from things in research today. This is why you are important.

This camp is for you.

Make change
that matters



Summer Camp 2023

Ulrika Campus, Sweden

Location: Ulrika Campus, Sweden

Where: Stenåkra Business and Competence Center

Host: International Association of Advanced Materials

Each week is module base from below modules.



1. ADVANCED DIGITAL TECHNOLOGIES | Yassin Yomni

2. INNOVATION AND BUSINESS FOR SOCIETAL IMPACT |
Hyekyung Imottesjo

3. ECO ECONOMY – PLANNING FOR ECO SOLUTIONS | Anna
Kaczorowska

4. DEEPTech TO BUSINESS | Mikael Syväjärvi

5. Invited lecturers.

<https://www.researchtobusiness.tech/summer-camp-2023-2/>



Summer Camp 2023

Transdisciplinary skill development

Transdisciplinary content encourages participants to explore topics and issues from multiple perspectives and disciplines. This approach goes beyond traditional boundaries and promotes a broader understanding of complex problems.

It fosters critical thinking skills by encouraging participants to analyze problems and develop innovative solutions. The lectures in introduces to new frameworks, methodologies, and problem-solving approaches from various disciplines, and integrate such knowledge to address real-world problems.

One week (Monday to Friday); Course fee: 750 EUR

Included: course, transport (Linköping station), accomodation, board

Available weeks:

W27: July 3-7

W28: July 10-14

W29: July 17-21

W30: July 24-28

W31: July 31-Aug 4



An Innovation Ecosystem

In Ulrika, Sweden

Acting all over the world
using competence and
digitalization



A partnership by place based innovation

Two essential international innovation actors in the innovation ecosystem are Alminica AB and International Association of Advanced Materials (IAAM).

Alminica AB has JMS Center for Research Utilisation as educational division, and ICM Research Institute in research. IAAM has the Institute of Advanced Materials and Institute of AI and Robotics as research and educational acting bodies.

Together these interact with local actors to create a glocal partnership (global and local context in combination).



Team collaboration
is the essence that
creates progress.
The diversity is
a strength that
facilitates the global
partnerships.

www.ulrikaringen.se
www.alminica.se
www.researchutilisation.eu
www.icmresearchinstitute.se
www.iaamonline.org
www.iaam.se

Training and Courses

Educate the young generation and strengthen active researchers

Partnership create capacity that contributes to sustainable development goals. That will mainly happen by active young researchers and students supported by trainings and courses.

- Courses with focus on energy, environment, health, innovation, impact creation, research to business.
- Training online as well as onsite at Stenåkra Business and Competence Center in Ulrika Campus.



The innovation ecosystem partners have focus on collaborative efforts. This means that any interested individual or organization can get in touch with us about their interest in research, education, courses, or training.



Impact

Impact and capacity building

A knowledge based community for building impact and capacity, and grow network

How does it benefit you?

Our innovation ecosystem experts have experience in leading research and innovation, entrepreneurship, digitalization, and bringing research to societal use. They help you to develop skills in innovation, creativity, impact creation, communication, and leadership, positioning you at the forefront of emerging technologies and promoting yourself as a leader in your field.

Invest in your career by enhancing your skills and gaining an understanding of how to bring your research to societal use.

Emerging technologies

Emerging technologies involve multiple disciplines and interdisciplinary collaboration. Developing skills in working across different fields helps you to identify new research opportunities and create emerging technologies.

Value of network

Building a strong network is crucial for success in any field. We can provide you with training on how to build and maintain professional relationships, as well as strategies for identifying and connecting with potential collaborators and partners.

Grow your career and leadership

Career and leadership

Engage in society to show leadership and where your research findings contribute

Leaders in research and innovation must engage with the society and show how their findings contribute to real-world problems.

Staying up-to-date with the latest research trends and technologies is essential because you will have the ability to adapt to changes in the field.

Leadership training provides you with the skills needed for strategic planning, research positioning, and build network for collaborations which create progress in research and career.

Being part of a community helps you to develop ability to think creatively and innovatively. This leads to efficient problem-solving that makes you effective in developing new research avenues and technologies.

Communication is crucial to inform about your work to policymakers, industry professionals, and the general public. By investing in communication and outreach training, your skills in transferring of knowledge will be valuable ifor the society.

Your success as a researcher depends on your ability to create impact that matters and build your capacity to do so.

Our trainings, courses, and educational activities facilitate all this

Research to Business

Certificate Training

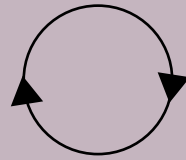
Coordinated by Dr. Mikael Syväjärvi

Individual training

Benefit by impact to own case

10 transfer of knowledge sessions

Join any time



Certificate Training

Impact by
research

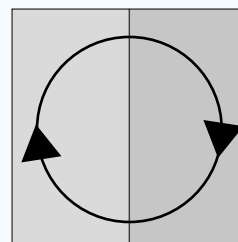
Career

Training Plan:

- (i) 10 Individual Training sessions. Personal one-to-one meeting every 2-3 weeks.
 - (ii) Attend the Transfer of Knowledge (ToK) sessions.
 - (iii) Own research impact assignment.
- The training program is 6 months. Enter at any time.
Complete training by following the training circle.

10 ToK sessions per training program.
At each session there is a focus topic.
Topic is discussed at second half of session.
Participants are expected to be active.

Research impact assignment by own case
(specific for your benefit).



Certificate Training

Training schedule

- 10 Individual meetings
- 10 ToK sessions
- Online mode (Zoom)



Coordinated by Dr. Mikael Syväjärvi

Certificate by Institute of Advanced Materials (Ulrika, Sweden)

Certificate is given when research impact assignment is finalized

www.researchtobusiness.tech

Details of Training Plan:

Capacity

There are many unknown factors for research to business and no recipes. It will not happen fast. We will need to create own capacity to facilitate how our research can come to next level. We can build our capacity by sharing experiences, examples and create knowledge transfer.

The training consists of 10 transfer of knowledge topics. These serve as exercises to understand the general principle of business from research cases.

Each participant will have their specific Research impact assignment. This is taken from your own case. You will describe this and build a research towards business roadmap. Each participant will get support and feedback by the lecturer and experts. It will act to build experience in describing potential business roadmap and impact from your research.

Impact

About

Dr. Mikael Syväjärvi is founder of **Alminica AB** that is an SME providing innovation services and has **ICM Research Institute** as research body. He is also Research & Innovation Coordinator at the **Institute of Advanced Materials**.

He is active in research regarding growth of advanced materials since 1995, such as graphene on silicon carbide, and novel approaches of silicon carbide for new energy applications. Since 2005 active in the entrepreneurial discovery process by creating startups and technology transfer from research and innovation. He has experience in broader contexts for research to market, such as avenues in European research and innovation strategy for smart specialisation for regional economic growth, and strategic national innovation programs. He is active in global partnerships for impact from research, educating next generation research leaders, and establish value chains and digitalization as tool to push development of energy and environmental technologies from advanced materials.

Certificate

After completed training, a certificate is provided by the **Institute of Advanced Materials** which offers advanced education and training programs for career growth and capacity building. The Institute of Advanced Materials has a global community and acts with the belief that collaborations inspire fruitful research and education exchange. This facilitates new technologies and competencies in advanced materials towards sustainable approaches in health, energy, and environment.

www.iaam.se



- Emerging technologies motivation by current technology
- Why publishing needs new approaches for usefulness
- Learn from silicon and silicon carbide generations
- Look into the future today
- The importance of value chain
- Technology alignment with place based innovation
- The entrepreneurial discovery process as career
- Go international from the start
- Disseminate to create partnerships
- Become leading to take lead



Capacity building



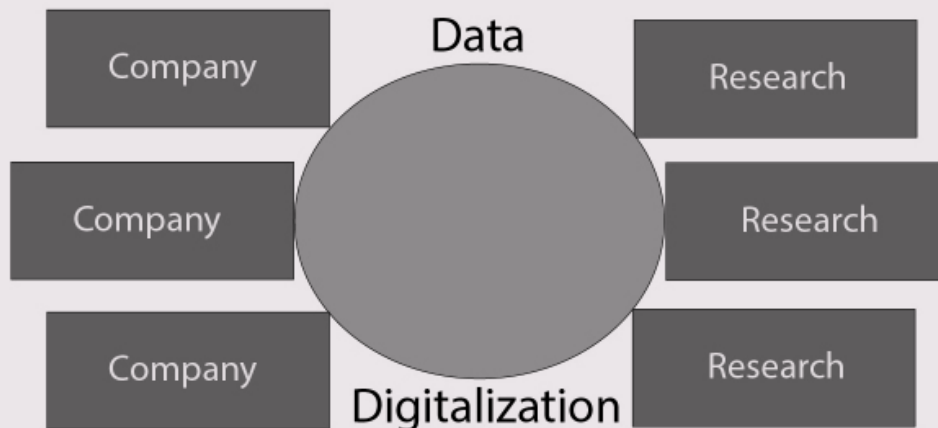
Shared data in multistakeholder community

Research to business | Impact creation | Utilisation
Shorten time to market | New business creation

Open publishing and innovation are important, but sharing data is the key to creating impact and new business opportunities.

The old one-to-one collaboration model is slow and inefficient. Instead, multistakeholder communities enable researchers to network, gain funding, and combine data from different sources to gain valuable insights. This fosters transparency and trust, which are essential for creating businesses.

By embracing shared data and multistakeholder processes, researchers and SMEs can unlock new innovations and create more efficient solutions for real-world problems.



Impact and financial values are created using digitalization.

Block chain and NFTs are means to secure the future impact and values.

Share today for values tomorrow

Data sharing in a community that acts jointly

**Research to business | Impact creation | Utilisation
Shorten time to market | New business creation**

Shared data revolutionizes research and create new business opportunities. It enables researchers to network and gain funding opportunities, combine data from different sources, and save time and resources.

Invest in data sharing today to position for the future

Digitalisation to Business

Certificate Training

From opens source and embedded systems
to computer vision and artificial intelligence

Digitalisation to Business

Coordinated by Dr. Yassin Jomni

Training Plan:

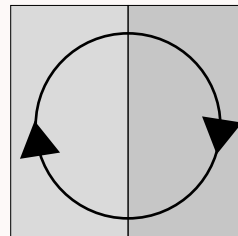
- (i) 10 Individual Training sessions. Personal one-to-one meeting every 2-3 weeks.
- (ii) Attend the Transfer of Knowledge (ToK) sessions.
- (iii) Own Digitalization Concept assignment.

The training program is 6 months. Enter at any time.
Complete training by following the training circle.

10 ToK sessions per training program.
At each session there is a focus topic.
Topic is discussed at second half of session.
Participants are expected to be active.

Digital Concept assignment
by own choice (specific for your benefit).

Training schedule
- 10 Individual meetings
- 10 ToK sessions
- Online mode (Zoom)



Coordinated by Dr. Yassin Jomni

Certificate by Institute of Advanced
Materials, IAAM (Ulrika, Sweden)

Certificate is given when research
digitalization assignment is finalized

www.researchtobusiness.tech



Details of Training Plan:

The training consists of 10 transfer of knowledge topics. These serve as exercises to understand the general principle of digitalization concepts and technologies.

Each participant will have their specific Digitalization Concept assignment. This is taken from your own interest. You will describe this and build a digital future scenario. Each participant will get support and feedback by the lecturer and experts. It will act to build competence in relevant digitalization concepts and technologies.

Topics

- The open enigma: open source, open culture, open hardware, open access, open data, etc
- Introduction to advanced digital technologies (examples from industry)
- Computer vision: Image processing and detection
- Implementation computer vision algorithms into embedded systems
- Applications in research and development in healthcare, automotive, defense
- Embedded software with focus on safety, cyber security for real time applications
- AI and ML implementation into embedded systems
- Robotic operating systems
- Modern software development
- Shared data for faster R&D to market

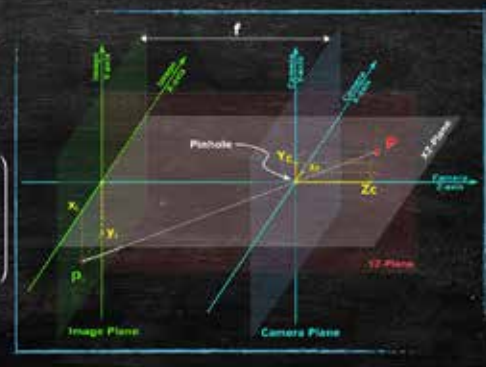
Intrinsic Matrix

$$u = x_i + c_x = \frac{1}{Z_c} \left(\frac{f_x}{w_p} X_c + c_x \right)$$

$$v = y_i + c_y = \frac{1}{Z_c} \left(\frac{f_y}{h_p} Y_c + c_y \right)$$

$$\begin{pmatrix} u \\ v \\ Z_c \end{pmatrix} = \begin{pmatrix} f_x & 0 & c_x & 0 \\ w_p & 0 & 0 & 0 \\ 0 & f_y & c_y & 0 \\ 0 & 0 & 1 & 0 \end{pmatrix} \begin{pmatrix} X_c \\ Y_c \\ Z_c \\ 1 \end{pmatrix}$$

$$P_i = \frac{1}{Z_c} \cdot M \cdot P$$

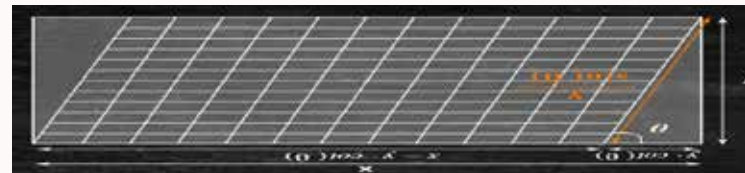


About

Dr. Yassin Jomni is a researcher, scientist, serial entrepreneur, engineer and book writer with an extensive experience in Algorithm Design and Engineering, Artificial Intelligence, Machine Learning, Computer Vision, Embedded Systems Design and Engineering as well as Embedded Systems safety and cyber security.

He has an extensive experience working in a wide number of fields ranging from district heating, flow metering, health tech, telecom, automotive, defense and aerospace industries.

Dr. Jomni is also active in early R&D to business and has founded three startups and co-owned one.



Certificate Training

Certificate

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www.iaam.se



Advanced Digital Technologies

The future that is here today

**Artificial Intelligence | Machine Learning | Computer Vision |
Machine Vision | Embedded Systems | Cyber Security**

Artificial Intelligence is the creation of intelligent machines that learn and solve problems. Machine Learning is a type of AI that enables machines to learn from experience and improve their performance without being explicitly programmed. Computer Vision is a subset of AI involving teaching machines to interpret and understand visual information such as images and videos. Embedded Systems are integrated software and hardware systems that perform specific functions.

These fields are interconnected, and progress in one field can lead to advancements in others. For example, Machine Learning algorithms are used in Computer Vision to improve image recognition, and Embedded Systems is used to develop devices that use Artificial Intelligence and Computer Vision algorithms to perform tasks such as facial recognition. Overall, these fields work together to create intelligent systems that can perceive and interact with the world around us.

In more detail:

Artificial Intelligence is the creation of intelligent machines that can think, learn, and solve problems like humans. AI involves various techniques such as rule-based systems, expert systems, decision trees, and neural networks. The AI systems can be further divided into two types: narrow or weak AI and general or strong AI.

Machine Learning (ML) is a subfield of AI that involves the development of algorithms that can learn and improve their performance based on experience. Machine Learning algorithms are trained on large datasets to recognize patterns and make predictions or decisions. There are three main types of ML, including supervised learning, unsupervised learning, and reinforcement learning.

Computer Vision is a subfield of AI that involves teaching computers to interpret and analyze visual data from the world around us, such as images, videos, and 3D models. Computer Vision involves a wide range of techniques such as object detection, image segmentation, facial recognition, and motion analysis.

Embedded Systems refers to the integration of software and hardware components into a single system that performs a specific function. Embedded systems are used in a wide range of applications such as smartphones, automobiles, medical devices, and industrial control systems. Embedded Systems can be programmed using various languages such as C, C++, and assembly language.

Advanced Digital Technologies

The added value for students and researchers

**Artificial Intelligence | Machine Learning | Computer Vision |
Machine Vision | Embedded Systems | Cyber Security**

University students and researchers with an interest in entrepreneurship can have value of understanding artificial intelligence, machine learning, computer vision, and embedded systems. It helps to identify opportunities for new products and services, create a competitive advantage, better understand their customers, improve their business operations, and stay up-to-date with the latest trends. These technologies are evolving quickly, so staying informed can help them develop innovative solutions and stay ahead of the competition.

With a solid understanding of these technologies, entrepreneurial students and researchers can identify new opportunities for innovative products and services. They can come up with ideas that leverage these technologies to solve complex problems or improve existing solutions. By incorporating advanced digital technologies into their business models, students and researchers can create a competitive advantage over traditional businesses that are not leveraging these technologies. They can develop products that are more efficient, effective, and user-friendly, giving them an edge in the marketplace. Advanced digital technologies can help students better understand their customer needs and pain points. They can use these technologies to develop solutions that address these needs and improve customer satisfaction. They can also use these technologies to improve their own business operations, for example use ML to automate repetitive tasks or computer vision to analyze data and make more informed decisions. The digital technologies are rapidly evolving fields, and staying up-to-date on the latest advancements and trends can be incredibly valuable. This knowledge can help to develop innovative solutions and stay ahead in their market.



Innovation and Business for Societal Impact

Certificate Training

Prioritise sustainable and resilient societal impact value with business and innovation based on EU New Bauhaus Compass model

Coordinated by Dr. Hyekyung Imottesjo

Training Plan:

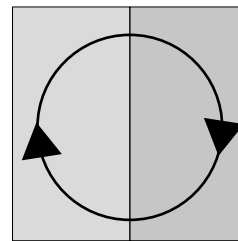
- (i) 10 Individual Training sessions. Personal one-to-one meeting every 2-3 weeks.
- (ii) Attend the Transfer of Knowledge (ToK) sessions.
- (iii) Own Societal Impact assignment.

The training program is 6 months. Enter at any time.
Complete training by following the training circle.

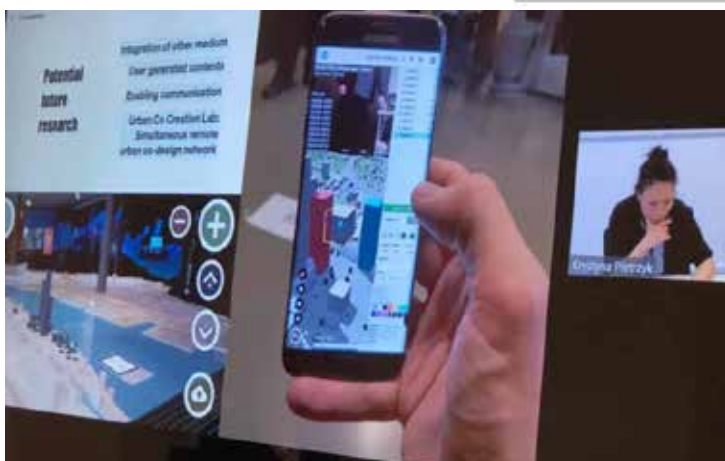
10 ToK sessions per training program.
At each session there is a focus topic.
Topic is discussed at second half of session.
Participants are expected to be active.

Societal Impact assignment
by own choice (specific for your benefit).

Training schedule
- 10 Individual meetings
- 10 ToK sessions
- Online mode (Zoom)



Innovations from research and technology



Coordinated by Dr. Hyekyung Imottesjo

Certificate by Institute of Advanced
Materials, IAAM (Ulrika, Sweden)

Certificate is given when societal impact
assignment is finalized

www.researchtobusiness.tech

Details of Training Plan:

The training consists of 10 transfer of knowledge topics. These serve as exercises to understand the general principle of innovation and business for societal impact. This course adopts EU New Bauhaus Compass model as primary societal impact guidelines.

Each participant will have their specific Societal Impact assignment. This is taken from your own interest. It will be formulated during 10 individual meetings. You will describe this and build a societal scenario in a an area of your interest. Each participant will get support and feedback by the lecturer and experts. It will act to build competence in relevant societal impact understanding.

- Session 1: Identifying the real needs and challenges of stakeholders for need-based services and innovation: Develop preliminary proposals
- Session 2: Enhance projects for societal impact based on EU New Bauhaus Compass model: Learn the sustainability concepts and develop scenarios for integration in the projects; To repurpose; To close the loop; To regenerate
- Session 3: Enhance projects for societal impact based on EU New Bauhaus Compass model: Learn the concept of 'Together' and develop scenarios for integration in the projects. To include; To consolidate; To transform
- Session 3: Enhance projects for societal impact based on EU New Bauhaus Compass model: Learn the concept of 'Beautiful' and develop scenarios for integration in the projects. To include; To consolidate; To transform
- Session 4: Enhance projects working processes for societal impact based on EU New Bauhaus Compass model: Learn the concept of 'Participatory Process' and develop scenarios for integration in the projects. To consult; To co-develop; To self-govern
- Session 5: Enhance projects working processes for societal impact based on EU New Bauhaus Compass model: Learn the concept of 'Transdisciplinary approach' and develop scenarios for integration in the projects. To be multidisciplinary; To be interdisciplinary; To be beyond-disciplinary
- Session 6: Enhance projects working processes for societal impact based on EU New Bauhaus Compass model: Learn the concept of 'Multi-level engagement' and develop scenarios for integration in the projects. To work locally; To work across levels; To work globally
- Session 7: Enhance projects working processes for societal impact based on EU New Bauhaus Compass model: Learn the concept of 'Multi-level engagement' and develop scenarios for integration in the projects. To work locally; To work across levels; To work globally
- Session 8: Enhance projects by assessing scalability, transferability, and innovative dimensions
- Session 9: Develop timelines, milestones, realistic and logical sequencing of business and innovation plans, expected output and contribution
- Session 10: Evaluation of final project proposals

About

Dr Hyekyung Imottesjo is an architect, urban designer and a researcher within the field of built environment. She specializes in urban planning systems based on complex adaptive system's theory and innovative visualisation and digitalisation. She has received her PhD from Chalmers University in Gothenburg, Sweden and has been involved in urban collaborative designing platform development as well as developing innovation ecosystems for societal impact.

Certificate

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www.iaam.se

Courses

Institute of Advanced Materials Programmes

Coordinated by Dr. Ashutosh Tiwari

Topic-specific courses and training delivered through lecture series of multidisciplinary experts from academia and industry.

- Biomedical Materials and Diagnostic Devices
- Graphene Materials and Sensors
- Advanced 2D Materials and Graphene
- Advanced Molecularly Imprinting Materials and Technology for Sensing
- Biosensors Nanotechnology and Nanomedicine Applications
- Advanced Bioelectronic Materials and Biomolecules
- Energy and Environmental Technologies of the Future
- Advanced Energy Materials and Renewable Sources
- Smart Materials and Interfaces
- Biotechnology and Sustainable Environment Management

Theory Course and Research Assignments.

Total credits of course: 15

Certificate is provided at completion of lecture attendance and assignment

Online mode (Zoom)

Duration of course: 6 months

- 3 months course lectures
- 3 months research assignment

<https://iaam.se/training-courses>



Introduction of course
participants
Research background and interest.

Let's connect you to transform your
knowledge for future leadership.



Education

Courses

Computer Vision and Embedded Engineering

Course responsible: Dr. Yassin Jomni

Computer Vision

Module 1: Introduction to computer vision (examples from industry)

Module 2. Computer vision: Camera calibration and 3D reconstruction

Module 3. Computer vision: Image processing

Module 4. Computer vision: Image detection

Module 5. Implementation computer vision algorithms into embedded systems

Module 6: Applications in research and development in healthcare, automotive, defense

www.researchtobusiness.tech/computer-vision/

Embedded Software Engineering

Module 1: Embedded software with focus on safety, cyber security for real time applications

Module 2: AI and ML implementation into embedded systems

Module 3: Robotic operating systems

Module 4: Modern software development

<https://www.researchtobusiness.tech/embedded-software-engineering/>



Dr. Yassin Jomni

Zinnova AB; Institute of AI and Robotics

Dr. Yassin Jomni is a researcher, scientist, serial entrepreneur, engineer and book writer with an extensive career working in a wide number of fields ranging from district heating, flow metering, health tech, telecom, automotive, defense and aerospace industries. Dr. Jomni has also founded three startups and co-owned one.

www.zinnova.se



Courses

Energy, Environment and Climate

FUTURE ENVIRONMENTAL TECHNOLOGIES

Course responsible: Mikael Syväjärvi

This course introduces new concepts in emerging environmental technologies. The participants will be familiar with the emerging technologies which are developed in research. Participation creates an awareness about the future to some regarding innovation and technologies.

SHARING DATA FOR SHORTEN TIME TO MARKET

Course responsible: Mikael Syväjärvi

Sharing data is necessary for making more usefulness. For researchers this is a way to show impact creation. For companies this is a way to position for the new markets which already are entering today.

Module 1. Impact in research and new technologies for shortening time to market. Mikael Syväjärvi.

Module 2. Open source enigma to data and its digitalization. Yassin Jomni.

Module 3. Sharing data and business model by block chain and NFTs. Mats Brodén.

PRACTICAL RESEARCH COMMUNICATION

Course responsible: Mikael Syväjärvi

Opportunities come from interaction and exchange in various ways. Popular scientific articles and other planned outreach activities are nice, but consumes time and energy. Those should be done from time to time, and act more as reference to what you say in more informal ways. That is the purpose of practical research communication. To share experiences, inspire, and get started. Mikael Syväjärvi will share his experiences in how short posts and activities in social media creates new collaborations and opportunities. Another is the effect of making videos. The research communication is favorable for your career.

Courses

Digital Tools, Built Environment, Infrastructure and Urban Transformation

INNOVATION FOR BUILT ENVIRONMENT AND SOCIETAL IMPACT

Course responsible: Hyekyung Imottesjo

The course provides hands-on guidance to identify global and local challenges, and stakeholder needs to develop innovation projects for resilient built environment. The course offers how to develop project ideas addressing considerations to inclusiveness, transdisciplinarity, sustainability, scalability, innovativeness and other relevant criteria for social impact (using EU New Bauhaus model). The four parts workshop modules include identifying challenges in interdisciplinary setting, developing transdisciplinary project proposal addressing the relevant criteria, exercises to evaluate other proposals applying relevant criteria, and to enhancing proposals based on the evaluation from the peer groups.

ITERATIVE PROTOTYPING FOR DIGITAL TOOL DEVELOPMENT

Course responsible: Hyekyung Imottesjo

Developing digital tools for social impact requires garnering what the true needs of the stakeholders are and iteratively prototyping to meet the user needs. During this course, students will develop surveys to understand the stakeholder needs, and identify relevant technologies. In interdisciplinary setting, the students will develop a conceptual prototype based on the identified needs of the stakeholders. With survey, questionnaires, students will introduce the concept to the stakeholders to develop a further wishlists for such digital tools. Students will use the wishlists to develop design element categories and specifications for the first prototype. Students will evaluate the concept of the tool, and the specifications for the prototype, and identify opportunities and risks of implementing the

Dr Hyekyung Imottesjo is an architect, urban designer and a researcher within the field of built environment. She specializes in urban planning systems based on complex adaptive system's theory and innovative visualisation and digitalisation. She has received her PhD from Chalmers University in Gothenburg, Sweden and has been involved in urban collaborative designing platform development as well as developing innovation ecosystems for societal impact.

Courses

Digital Tools, Built Environment, Infrastructure and Urban Transformation

DESIGN OF SUSTAINABLE INFRASTRUCTURE AND URBAN TRANSFORMATION

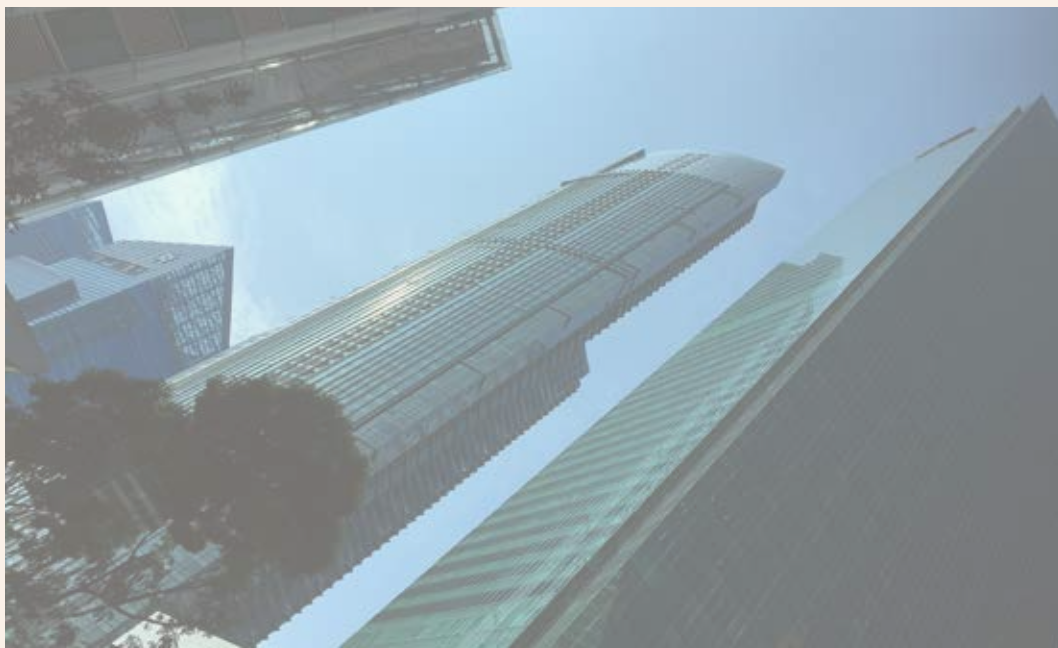
Course responsible: Anna Kaczorowska

Thematic blocks:

- a. Future Infrastructure – Development Challenges
- b. Infrastructure and Space
- c. Flows
- d. Information Infrastructure
- e. Urban Environment
- f. Resilience and Ecosystem Services



Dr. Anna Kaczorowska is an urban planner and academic with a background in architecture and urban design. Anna's professional focus revolves around integrated planning and design processes, specifically within the areas of socio-ecological, cultural, and infrastructural aspects of urban development. Anna's work aims to support sustainable urban transformation and enhance resilience in cities. Recently part of networks promoting cross-disciplinary research within academia and practice: C/o City Working Group: Planning for Biodiversity and Ecosystem Services (present), ISOCARP (International Society of City and Regional Planners). Since 2016 a member of the Excellence in Education Board, AESOP



Transdisciplinary deep teaching for impact

Requirements to respond to complexity of global challenges

Interconnectedness of global systems make the challenges complex, with solutions addressing certain challenge posing threat and exacerbating challenges in other areas. In this context, it is critical for the future young generations to tackle these unforeseeable challenges through multi-faceted, transdisciplinary perspectives by fostering complex questions as well as answers. By approaching challenges through critical lens of inquiry is not only necessary but is required.

The courses and trainings offered through the research and innovation ecosystem provide transdisciplinary perspectives with impact taking up the center of attention. Students will learn to develop relevant and critical questions. They will learn to develop methods to formulate relevant questions, and navigating through potential solutions by inter- and transdisciplinary efforts for multiple perspectives, and developing solutions that are complex, adaptable and scalable.

The courses will teach the students to develop relevant skills to develop projects for sustainable and resilient impact. Critical thinking, integrating multiple perspectives, systems thinking are specifically promoted through our deep teaching and training model.

Joint Courses with international universities

We have highly specialized areas of expertise that may not be available at a university. By offering joint courses, universities can gain access to this expertise, enriching the learning experience for their students.

Joint courses can also provide opportunities for collaboration between the private research institute and the university, leading to joint research projects, shared resources, and increased networking opportunities.

Online teaching allows for greater flexibility in scheduling and location, making it easier for students to participate in joint courses regardless of their physical location.

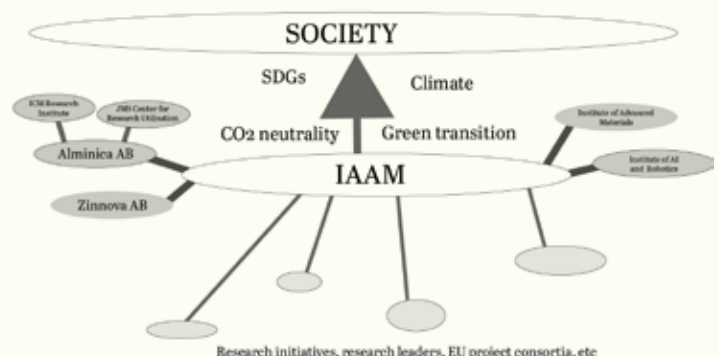
Joint courses are cost-effective as resources are shared and no need of recruiting new lecturers at the university, reducing the overall cost of offering the course at the university.

Joint courses can enhance the reputation and recognition of both institutions, particularly if the courses are designed to address pressing social, economic, or environmental challenges.

How does it work?

The university assigns a lecturer from their staff and who will be course responsible. The university acts to introduce the course in their education.

We will provide guest lecturers and course content. Content will be planned jointly.



Joint Courses with international universities

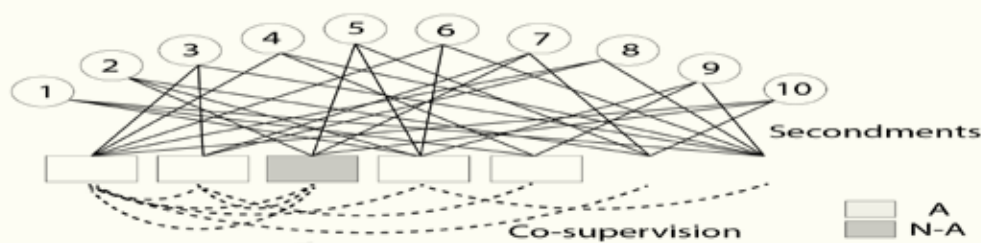
Joint courses benefits:

offer university lecturers the opportunity to learn new teaching methods and techniques from our lecturers. This can help to improve the university lecturer's own teaching practice and bring new ideas to their classes.

foster collaborative research opportunities between university lecturers at the university and our lecturers. This can lead to new research ideas and publications, as well as potential funding opportunities.

provide opportunities for university lecturers to connect with colleagues and experts from our network. This can lead to new professional connections, collaborations, and opportunities for professional development.

help to diversify the course offerings at the university, allowing lecturers to offer new and innovative courses that may not have been possible otherwise. This can attract new students and enhance the university's reputation.



Individual training and tailored courses for university

Learn what you need to learn about

Our trainings and courses are adaptable

We provide a toolbox with tools. It is a constant learning. The markets change, the world changes, we change. What is your interest now is modified in a near future.

Our courses are module based. One module can be replaced, added or a new created that is complementary.

That is why we can tailor courses for your interest. The trainings are individual. We focus on your need and provide your own toolbox and tools. Same for universities and other organizations, educational schemes can use courses and modify modules.



Career Development

Creativity and Innovation

CREATIVITY, INNOVATION, AND EDUCATION FOR SUCCESSFUL FUTURE CAREERS

Course responsible: Mikael Syväjärvi and Nasar Ali

Today's education is the future investment. Everything is changing rapidly and becoming global. This means that the students of today must be more adaptive. The course in innovation, future educational aspect and creativity provides an understanding of how the participants can benefit and become successful in their careers.

The course has four modules. These are a combination of lectures, interactive session, group work.

1. Creativity

- a. Be creative in an ordinary environment.
- b. Create new ideas by breaks in the workday.
- c. The power of walk and talk.

2. Innovation

- a. The unknown is an opportunity for ideas (risk vs inventive steps).
- b. Present the idea and innovation in a context so it makes sense.

3. Education

- a. The knowledge is the motor – this gives you the push forward.
- b. Learn to learn – how you stay competitive.

4. Networks and communities

- a. The network is your future opportunity.
- b. Sharing information is an investment.
- c. Leadership by initiatives and collaboration.



Career Development

Research Leadership Program

Program responsible: Mikael Syväjärvi and Hyekyung Imottesjo

This leadership program for researchers in advanced materials and innovation provides valuable training and development opportunities for individuals seeking to advance their careers. The program provides participants with the skills and knowledge needed to become effective leaders in the field of advanced materials.

The program includes modules focused on leadership skills, innovation and entrepreneurship, project management, communication, and strategic thinking. Participants will learn how to identify new opportunities, develop and execute strategies, and lead teams effectively to achieve their goals.

In addition, the program offers opportunities for participants to network with other researchers and professionals in the field of advanced materials, enabling them to build relationships and collaborations that are valuable for their careers.

We have experienced and knowledgeable instructors and mentors who provide guidance and support throughout the program. The program includes shared experiences, learnings and case studies that allow the participants to apply the skills and knowledge they have learned in a real-world context.

This leadership program for researchers in advanced materials and innovation will help to develop the next generation of leaders in their field, equipping them with the skills and knowledge needed to drive innovation and advance scientific discovery.

- develop skills needed to lead teams effectively, including training in areas such as communication, conflict resolution, and project management
- manage innovation processes, from ideation to commercialization; learn how to develop and implement strategies to encourage innovation within your team
- technical training in advanced materials and related fields; participants will have the knowledge and expertise needed to lead teams working on cutting-edge research projects
- network with other researchers and leaders in the field; advice on how strategically work with conferences, workshops, meeting mentors and advisors
- develop business and entrepreneurship; business plans, pitch ideas, and secure funding for their research projects
- importance of ethical conduct and social responsibility in scientific research; learn how to navigate complex ethical issues and ensure that your research is conducted in a responsible and sustainable manner

Individuals in a crowd

Standing out together

The modern world includes an ever fast change. We have to find our own advantages. Mass courses are not suitable for all. They also become out of date when the world changes.

Dynamics.

What we need today has to be available today.

That is why our courses and trainings are adaptable and more focus on individual needs and organizational needs.

Students and researchers have to show their advantages, skills and relevance. Companies have to be up to date with what is coming from today.

People make change. and push frontiers and businesses.



Young Leadership

Linear Algebra and Machine Learning Training

Details

Linear algebra is one of the subject which is chosen as a main topic to indicate relation between mathematics & machine learning.

Topics

Linear Algebra

- Vectors
- Systems of linear equations
- Matrices and matrix arithmetic
- Types of Matrices
- Eigenvalues – Eigenvectors
- Eigendecomposition

Machine Learning

- Supervised & unsupervised learning
- Linear & Logistic Regression
- Clustering
- Component Analysis

Skill Development

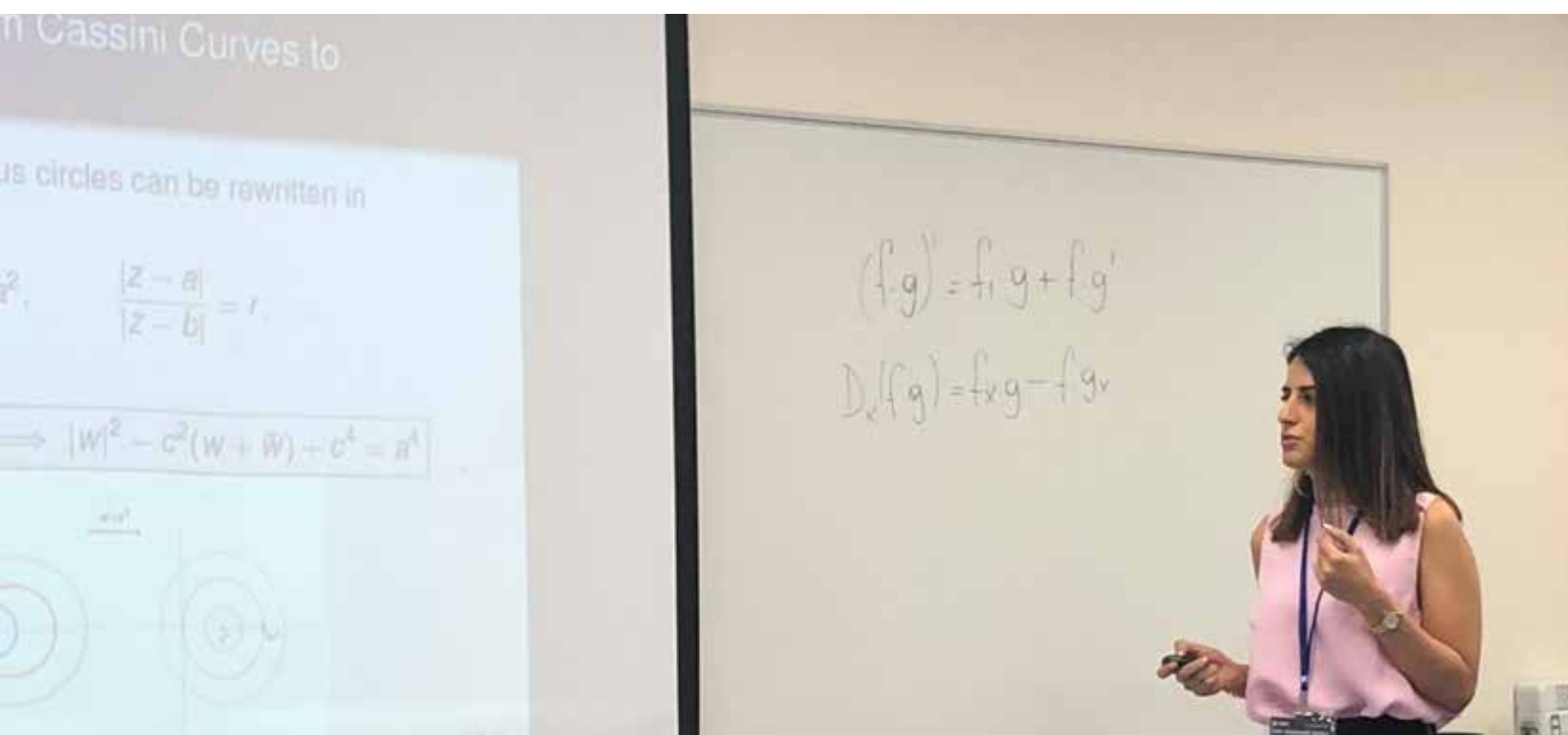
- Practices from the real life

About

Tugce Izci has BSc. & MSc.in Mathematics. She has teaching experience through mathematics in higher education with young generation since 2017.

Tugce Izci performed International Projects at Universities (Yale, Northwestern, ETH Zurich, Czech Tech., Urbino.

Currently she is a MSc. student at Linköping University - Statistics & Machine Learning. Additionally, she is a young talent developer at Alminica AB - Computer vision, Artificial Intelligence



Onsite

Courses and Training
Research and educational visits
Partnership Meetings
Consortia Building



Onsite including accomodation and full board

Courses, educational programmes and trainings are onsite at Ulrika Campus in Stenåkra Business & Competence Center. It also serves the purpose for planning meetings for building consortia with partnerships. The meetings can be from 2 days (lunch to lunch) to full week (lunch Monday - lunch Friday).

Contact Institute of Advanced Materials for updated information and partnership proposals.

www.iaam.se



Local business exchange

The local context is essential. The Ulrika innovation ecosystem is a placed based innovation. It uses strengths local and create economic growth and development from the community.

This is why we link forest, heat plant for town heating, digitalization, international network and research. All these interplay in various ways.

The key is to meet and discuss, exchange ideas and other relevant aspects which are useful now or in the future.



Stenåkra Business & Competence Center, the local store, the Ulrika annual market, the grill outside the shop on Saturdays, all these are meeting possibilities.

Development is driven by the community.



Emerging Technologies

linking industry and research
by
partnership creation

From research to business: key drivers for emerging technologies

Innovation capacity

(real) innovation impact from research towards emerging technologies

Advanced Materials

Impact from research

When does an emerging technology go from being emerging to be a technology?


Key enabling technologies

Aspects on bringing the emerging technology to grow new research avenues for potential future (emerging) technologies

Coordinator: Mikael Syväjärvi
ICM Research Institute | Alminica AB
Ulrika, Sweden

director@icmresearchinstitute.se





The climate urgency is more urgent than ever. Publishing will have less importance in coming years. It does not matter how high impact factor journal the publication is in.

We have to show a realistic contribution on how our research is creating usefulness.

Transfer of knowledge to build researchers capacity to show impact of research

It does not need to be a company start-up, or technology transfer. Present the research in some context. Explain how we believe that it will make impact. How it will take next step.

We do not need to know, but we need to propose a sensible suggestion based on our knowledge. It does not matter if that knowledge is acquired by own experience or training at the transfer of knowledge center in Ulrika, Sweden. We have at least made an attempt from our own situation. This is sufficient for a researcher.

There is no way to know which way will be the right to create usefulness of research. Taking a first step is realistic as motivation. It shows the will, courage and determination to be part of global solutions.

Part of Erasmus exchange



Student Traineeship Education and Training Staff

Individual training in an ecosystem of partnership organizations

Ulrikaringen Innovation and Digitalization

- Emerging technologies from advanced materials approaches
- Innovation capacity for sustainable exploitation
- Entrepreneurship from research and innovation
- Business approaches for bringing research to market
- International exchange as facilitator for global change
- Knowledge transfer as tool for sustainable implementation
- Digitalization and online training
- Multicultural meetings and experiences

www.ulrikaringen.se

www.alminica.se

www.researchutilisation.eu

www.icmresearchinstitute.se

www.iaam.se

www.iaamonline.org

ICM Research Institute | Alminica AB

Receiving organization

Contact: Mikael Syväjärvi

mikael@alminica.se

Institute of Advanced Materials

International Association of Advanced Materials

Partner organizations

Erasmus+

EU programme for education, training, youth and sport

Erasmus experiences

The young generation is the one which will create most contribution to long-term goals such as Sustainable Development Goals



Adamo from Italy

”it’s so different because in Italy there are a very open spaces in the nature”

”here for me it was discovered in your typical food and the other culture, and this was very a new experience for me”



”You have a very great places, very big places: more in the nature, in the open spaces. You have a lot of lands, and you have a lot of trees in the forest and big trees. So for me, it’s very different. Also the temperature is very different also in this Spring period because it is a pleasure to work because you don’t feel hot or very warm like in Italy, because it is not so windy and humidity is high. Here you feel fresh and you can stay more comfortable when you work.”

”Another thing I improved here was the language because when I came here my English was not so well. Now, also not well but it is more improved even though I have been here less than two months.”

Hosting Postdoctoral Fellowships

Marie Skłodowska-Curie Postdoctoral Fellowship

for researchers holding a PhD and wishing to acquire new skills through advanced training and international, interdisciplinary, and inter-sectoral mobility.

One of our institutes can be host. Additionally, we can include hosting at SME and that offers additional six months at the end of their fellowship to undertake a placement in a non-academic organisation in Europe.

Academic placement

Non-academic placement

The Marie Curie Fellowship offers postdocs the opportunity to work with top researchers in their field across Europe and beyond, creating opportunities for international collaboration and networking that could be beneficial for their future careers.

The fellowship can provide postdocs with the opportunity to broaden their research experience and develop new skills that can be valuable for future employment prospects. The fellowship offers substantial funding for research projects, enabling postdocs to undertake ambitious research projects that may not have been possible otherwise.

Being awarded a Marie Curie Fellowship is a prestigious achievement, providing postdocs with recognition for their research accomplishments and enhancing their reputation in the academic community.

The fellowship offers a range of career development opportunities, including training in research management, scientific communication, and leadership, which can be valuable for postdocs looking to advance their careers.

More information and application

www.marie-sklodowska-curie-actions.ec.europa.eu/actions/postdoctoral-fellowships

International

Asia, Middle East and Africa

For global solutions it is critical to act internationally. Our team of experienced project managers establish partnerships world wide.

Africa

Examples of established partnerships are in Training in innovation capacity and transfer of knowledge between local ecosystems for rural developnet and IT.



Christine Makichi Jerin Lubna

Asia

Examples of established partnerships are in courses and education, centres of excellence.



Mohanad Agha

Middle East

Examples of established partnerships are in IT, farming and technologies for the new generation.



The global effect

Transfer of knowledge in international context is the key component for global impact. The young generation is of particular importance to address long-term development and reach 2050 sustainable goals.

Naa Allotey

Sustainability

For global solutions it is necessary to act in sustainable ways. We can not travel to meet physically in the same way as before, especially when it is international and long distance travelling. We have to work in hybrid ways. Physical meetings are important for the long-term partnership over many years and even decades. It is also a way to understand new avenues when meeting young generations, cultures, and factors which matter for creating unexpected ideas. The online meetings are efficient as complementary activity. Overall, we can have fewer physical meetings with more frequent online meetings.

Focus area:

Sustainable Transport and urban planning: the matter of inclusiveness

Transport is central for sustainability. This is studied in various ways all over the world. Often projects do not consider gender aspects and inclusiveness, major influential components of sustainability. These factors are not looked into when the logistics and transport factors are planned. For that purpose we have started training modules and transfer of knowledge courses.

For more information: **Jerin Lubna**, Programme manager



Rural Growth & Digitalization

Rural development is commonly linked to the misuse of land-intensive natural resources such as forestry and agriculture. Modern ways of working rely on exploitation of the internet. This enables alternative occupations to develop in rural areas, thus freeing the rural growth from its traditional impact on nature.

Rural development is nowadays considered to be of noticeable importance in Sweden, as part of a strategy to improve the productivity by providing a higher socio-economic equality and stability of social and economic nature.

The idea is to offer opportunities through a digital transformation that is further improving people's livelihood





Sweden is vividly supporting new ideas and projects related to rural growth and digitalization. We have gathered information on various such projects, and listed and analyzed them in a dedicated document (in Swedish).

Our purpose is to get new ideas, compare, and find contact information for projects of interest. We also provide a list of different organizations that support start-up

Innovation hub on the countryside

In Linköping's municipality we are focusing our efforts on the creation and development of the Ulrikaringen eco-system. Ulrikaringen aims to become a hub of innovation and entrepreneurship by creating new opportunities through regional, national and international collaborations. Our purpose is to unite the small countryside companies strengthening their ability to design their own future. Via investing to the natural and digital growth of the area, Ulrikaringen shall attract international visitors, meetings, conferences, programs, new projects, etc.

Local to global





Culture and traditions are the things which bond people. These are important for the long-term collaboration. Development projects increase technology readiness level during a number of projects. That means long time aspects of collaboration.

Culture and traditions

This is also an opportunity of inspiration. Creativity feeds creativity. From one avenue to another.

Creativity feeds creative acts

Indo-Scandic Organization is the meeting space for culture and traditions.



Peoples World Commission on Drought and Flood

The People's World Commission on Drought and Flood (PWCDF) was established on the occasion of World Water Week 2022 in Stockholm, Sweden.

The goal is to reduce risks to lives, livelihoods, and ecosystems by building community resilience to extreme weather events such as droughts and floods through community-driven nature rejuvenation.

The secretariat of the commission is located in Ulrika, Sweden
www.pwcdf.org



Follow For All Waters on
Facebook and Youtube
[@forallwaters](https://www.facebook.com/forallwaters)





Nature

Closeby and seasonal changes.
Nature is just few meters away.

Work and live on the countryside

Nature inspire to think in news ways. We relax and come to insights in a way that is not possible in the regular office environment.

We apply "walk and talk" type of meetings. Besides the combination of fresh air and exercise, we present things without powerpoint. In such way we come to the essential points in more clear ways.

There are various opportunities, some are withing walking distance and some are within 30 minutes drive. The seasonal changes create a dynamic scenery that is unique.





Innovation Ecosystem

Ulrika, Sweden

**Research
Innovation
Training
Education**