



Improving Reality

#Excellence
In Action



Innovation

Innovation Is the Key to a Brighter Future

At Turku University of Applied Sciences (TUAS), we support the Turku region by developing services and products in cooperation with enterprises, small businesses and higher education institutions. The innovative enthusiasm of students is fostered with the experience and expertise of our staff, resulting in new solutions to meet regional, national and international needs.

Monitoring of Aquatic Ecosystems

The Baltic Sea marine environment and the aquatic ecosystems in the surrounding catchment area are vulnerable and facing several anthropogenic threats due to eutrophication, climate change and contamination from hazardous substances.

For cost-effective management and conservation measures, accurate information on the status of the ecosystems is crucial. TUAS works in wide cooperation with other organizations on these issues in numerous implemented and ongoing RDI projects.

In these projects, a strong focus has been put on using and testing new monitoring systems and applications which allow continuous and automated data collection of seasonal and short-term changes and phenomena in the aquatic environment which are difficult or impossible to observe using traditional sampling methodology.

Some of the applications also include automated data transfer from the field as well as online publishing of the results for the authorities and the public on websites.

Examples of these applications include an automated online early warning system for blue-green algae, monitoring of the Archipelago Sea water quality using an autonomous vertical profiler buoy system, and bioacoustic monitoring of marine mammals.

Virtual Reality in Driving Inspection VIRDI

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One of our successful RDI specialization areas at TUAS focuses on gamification and serious games. Virtual Reality in Driving Inspection (VIRDI), developed at Turku Game Lab, combines excellence in the scientific fields of cognitive neuroscience and game technology, to support the evaluation of the driving ability of people under 24 and over 75 years of age.

The developed portable VIRDI prototype measures driving skills and perceptual capacity. The prototype contains a kit with VR headset, steering wheel and pedals, which makes it easily transportable to driving schools, medical receptions and training facilities, and readily usable by authorities such as the police or doctors on the go.

VIRDI adds scientific credibility to the evaluation of driving behaviour as it provides a virtual setting where reaction times to the users' visual and aural stimuli, visual acuity and other input parameters can be measured. Extensive user testing shows VIRDI to be a valid and reliable toolkit.

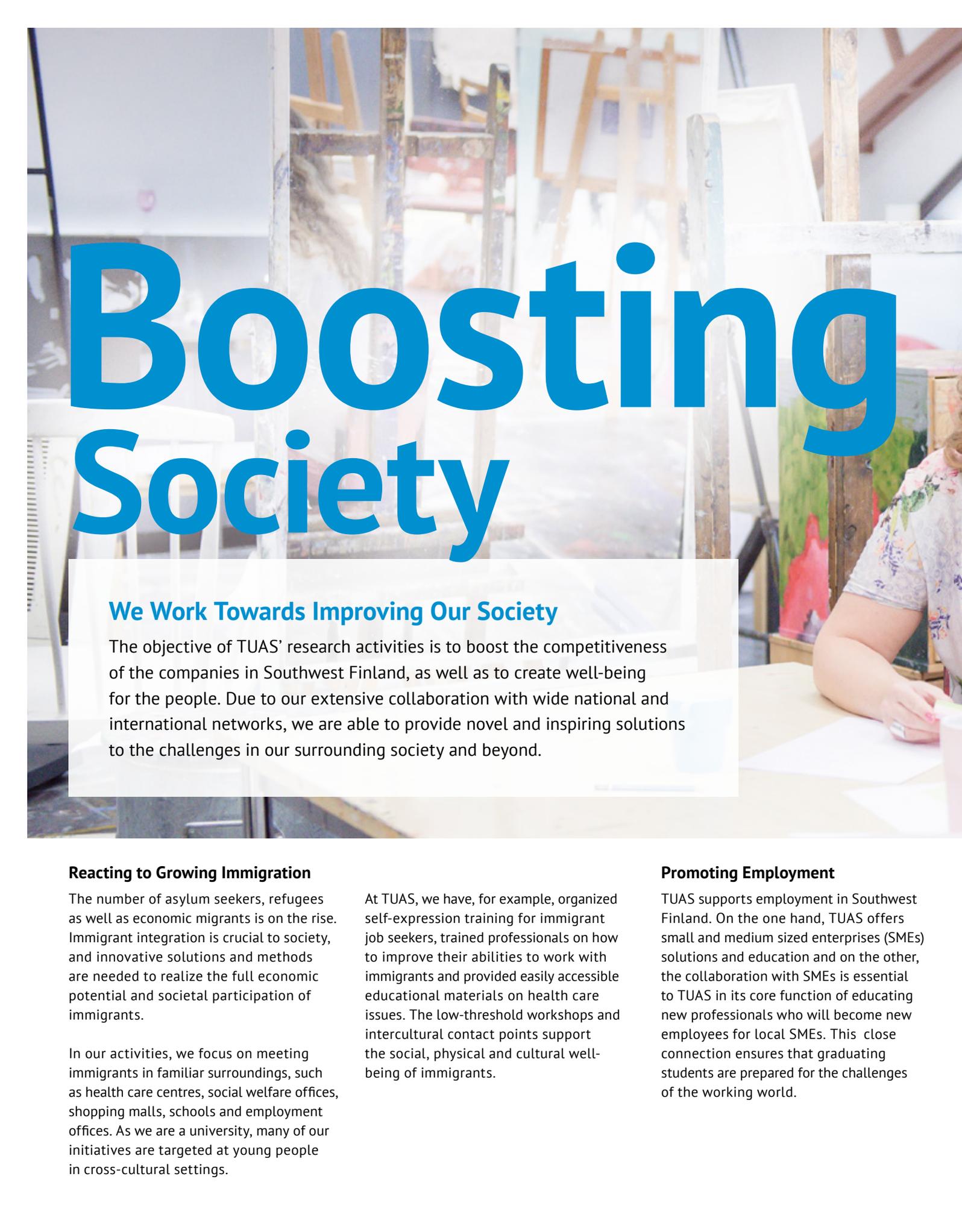
Luuppi

Luuppi (The Loop) is a machine learning-based tool for analysing online data in real time. It is comprised of a search engine, a learning user interface, a data processor, a sentiment analysis and a visualizer. The Loop analyses text elements that express emotions or opinions (choice of words, emoji, etc.) in online conversations and analyses the data for enterprises. Luuppi can be used to follow social media perceptions of a company both qualitatively and quantitatively. It is also suitable for data mining user experiences for product development and recognizing both prevailing and upcoming trends as well as the phenomena behind them.

Distribute

At TUAS, we have the best research on wireless communications in the whole of Europe and a top EU prize to prove it. TUAS is part of an international Horizon 2020 -funded consortium, DISTRIBUTE, that won the Horizon prize in the category of 'Collaborative spectrum sharing'. Our solution was found to be 'a highly novel approach that frees up the infrastructure and functions by supporting spectrum sharing and improves spectral efficiency dramatically.'

During the past decade TUAS has developed laboratory testing and field measurement systems required for the research on wireless communications and technologies. The earlier spectrum sharing systems have been centralized, but TUAS developed an autonomous distributed system which optimizes its own operation and utilizes multiple telecommunications systems on the same frequency band.



Boosting Society

We Work Towards Improving Our Society

The objective of TUAS' research activities is to boost the competitiveness of the companies in Southwest Finland, as well as to create well-being for the people. Due to our extensive collaboration with wide national and international networks, we are able to provide novel and inspiring solutions to the challenges in our surrounding society and beyond.

Reacting to Growing Immigration

The number of asylum seekers, refugees as well as economic migrants is on the rise. Immigrant integration is crucial to society, and innovative solutions and methods are needed to realize the full economic potential and societal participation of immigrants.

In our activities, we focus on meeting immigrants in familiar surroundings, such as health care centres, social welfare offices, shopping malls, schools and employment offices. As we are a university, many of our initiatives are targeted at young people in cross-cultural settings.

At TUAS, we have, for example, organized self-expression training for immigrant job seekers, trained professionals on how to improve their abilities to work with immigrants and provided easily accessible educational materials on health care issues. The low-threshold workshops and intercultural contact points support the social, physical and cultural well-being of immigrants.

Promoting Employment

TUAS supports employment in Southwest Finland. On the one hand, TUAS offers small and medium sized enterprises (SMEs) solutions and education and on the other, the collaboration with SMEs is essential to TUAS in its core function of educating new professionals who will become new employees for local SMEs. This close connection ensures that graduating students are prepared for the challenges of the working world.



“ I find theatre an excellent way to teach language and culture as well as to express one’s feelings. These kids are over 16, which means that they don’t have similar possibilities to integrate into Finnish school classes and day care groups as the younger kids do.”

– Finnish for Foreigners’ teacher

Arts and culture can improve our health and well-being in many ways. TUAS enhances the well-being of people from all walks of life through projects in the field of art and culture.

For example, students of Social Services and Performing Arts work together with social and youth workers, teachers and asylum seekers using art-based methods and community art. Another line of development work is to support the use of music in hospital and elderly care services.

Currently, TUAS is building a national multi-sectoral network which brings together research, education, practice and policy-making in the broad field of arts, culture and well-being. Our goal is to make arts and culture a permanent part of well-being services and health strategy in Finland. Everyone has the right to arts and culture as part of a good life!

Arts and Culture for Health and Well-being

LeanINNO training is a perfect example of combining the two. Businesses have come forward with their development points – for example, to increase the commitment of clients, motivate the employees and the use of resources – and highly educated job seekers and our students are at the ready to innovate solutions for the challenges. Team work has resulted in successful showcases for the teams and innovative solutions for the companies.

Circular Economy – Business Benefits

At TUAS, we are looking beyond the current ‘take, make and dispose’ industrial model. The circular economy is wiser by design. The main focus of our actions in the field of the circular economy lies in student-company cooperation and project work that increases the capacities of companies and students in the circular economy and produces new innovations.

Someone’s waste is someone else’s raw material. In the long run, we aim to help make a world where there is no waste.

- Without even realizing it, many companies generate waste that someone else could benefit from.
- Textiles can be reused in various ways. We at TUAS are working to establish an ecosystem formed by companies and other actors that would raise the circular economy for textiles.
- Through our innovative circular economy pilots, we support and advise companies in all kinds of resource efficiency related issues.



Learning Environments

Innovation Pedagogy is a teaching and learning approach developed at TUAS. Innovation Pedagogy is all about learners' own activity – the students are encouraged to pursue cross-field studies, to orientate towards working life and internationality and to have an entrepreneurial, inquisitive frame of mind. Learning is built on practical work. To facilitate this, TUAS has various learning environments where students engage in real-life projects commissioned by companies who value new innovative and out-of-the-box thinking.

Inspiring Learning

The FIRMA

The FIRMA is a learning environment where assignments from companies – both public and private – meet innovative students. The services consist of different kinds of ICT-related projects, such as website designs, small-scale database applications, and end user training sessions. Assignments related to Lego Robot camps and requirements analysis are currently a rising trend.

The FIRMA operates like a real working environment where peer learning is one of the key elements. The more experienced students tutor and support the junior level students. The management department

consists of student project managers and a student CEO. TUAS staff provide guidance and mentor the students when needed, help with the negotiations with customers and make sure that the learning goals are met during the projects.

A project-based learning approach not only deepens technical competence but also leads to innovative co-creation with product and service development. In addition, university-industry collaboration helps to reveal new insights, and creates networks with new and promising joint ventures with national and also international participants.



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Starting a company is a non-stop marathon of thinking, analyzing and problem solving. You can't leave your office at 16.00 and postpone all the challenges for another day."

– Agata Sankala,
Pointti Crew Cooperative of Business Academy



The TUAS Business Academy is Finnish business education at its best. It is based on teamwork: Students form cooperatives where they take on assignments from real clients supported by their teacher coaches. When the students graduate they already have a business network and solid experience of running their own business.

In Business Academy students are encouraged to apply and pilot theories in practice. TUAS has harnessed the students' young, creative energy and new ways of thinking into business services. Business Academy's innovative community of 250 operators can provide expertise and competence in several areas, such as accounting, planning a start-up company, event productions, promotions, sales and marketing as well as research and surveys.

Business Academy



Kunnonkoti

Kunnonkoti is a model home demonstrating how physical accessibility and safety can be enhanced in Finnish homes. Based on the expertise in different fields of science, such as well-being, health care and technology, Kunnonkoti serves as a point of testing for the latest assistive technology as well as a demonstration platform where visitors can get ideas on how to improve their own living environment. Kunnonkoti also provides individual planning for specific needs. There are approximately 2 600 visitors to Kunnonkoti each year and the model home collaborates actively with altogether 36 exhibitors.

Guru

The student-run advertising agency Guru is a full-service advertising agency where students work as advertising designers. Guru offers a variety of marketing, from single brochures to extensive concepts in various media. Although the students are coached by their lecturers, they are themselves in charge of the hands-on work.

Guru provides marketing and communication plans for business campaigns, graphic design of logos and other graphic elements, planning of marketing materials, media strategies and brainstorming sessions for fresh marketing ideas.

#ExcellenceInAction Turku University of Applied Sciences is an inspiring community of 10,000 members – an innovative and multidisciplinary higher education institution, which creates international competitiveness and well-being for Southwest Finland. Our graduates are practice-oriented professionals with top competencies.

#Innopeda is a learning method developed at TUAS. It is based on experimenting, sharing know-how and combining different approaches. With Innopeda we successfully connect teaching, research and development activities, internationality, and co-operation with working life.



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Turku University of Applied Sciences (TUAS) is one of the leading universities of applied sciences in Finland. We have a vast array of Research, Development and Innovation (RDI) services, tailored specifically to benefit the working life.

Due to our hands-on approach to problem solving and innovation in close cooperation with our broad network of collaborators, we are able to put the best heads together for premium results.

At TUAS, the creative and innovative ideas of students meet teachers' expertise and the experience of project professionals. Students are our creative and versatile resource in RDI activities. Development projects are closely linked to teaching activities, and students gain ECTS credits for their contribution.

In the top 3 We are constantly comparing the results of external RDI funding of the Finnish universities of applied sciences with our yearly external RDI funding of EUR 6.5–8 million.

Over 30 TUAS Research Groups working currently in active collaboration with our regional, national and international networks.

More than 160 ongoing projects with over 100 person-years (teachers, students and project staff) allocated to RDI operations every year.

Successful collaboration in several Horizon 2020 projects and acknowledged expertise in the coordination of Erasmus+ funded projects.