



A glimpse into the Arctic future: equipping a unique natural experiment for next-generation ecosystem research

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PhD student - Early Stage Researcher (ESR15) "Big data" and shifts in research practices

About FutureArctic

The EU-funded Innovative Training Network [FutureArctic](#) aims to quantify how much carbon will escape from the Arctic in future climate. How do the multitude of ecosystem processes, driven by plant growth, microbial activities and soil characteristics, interact to determine soil carbon storage capacity? A group of fifteen PhD-students will study the [Forhot](#) ecosystem in Iceland, where a natural coincidence has provided us with the exceptional opportunity to actually look into the future.

Given the strong urgency of tackling and managing the climate challenge and the particularly important role herein of (sub)Arctic ecosystems, a rapid assessment of the ecosystem and ambient processes in this natural laboratory is essential. FutureArctic will achieve this challenge by adopting the fast advances made in the field of **machine learning and artificial intelligence (AI)**, **unmanned aerial vehicles (UAV)** and (remote) **sensor technology** into **environmental research at the ecosystem scale**, into a new concept of an '**ecosystem-of-things**'.

FutureArctic thus aims to channel an important evolution to automated machine-assisted fundamental environmental research. This is achieved through dedicated training of researchers with profiles at the inter-sectoral edge of computer science, artificial intelligence, environmental and agricultural science, sensor engineering and communication and social sciences. FutureArctic training ensures the **development of unique enviro-technological job profiles**, all with their own specialty, embedded in holistic knowledge on connected high-data throughput ecosystem research, ready for machine-assisted environmental ecosystem science and modelling.

About the host organization

The [University of Vienna](#) (UNIVIE) is the oldest university in the German speaking countries and one of the largest in Europe. With 20 Faculties and centers, the university is host of about 6700 researchers. The University of Vienna is a research university with high international visibility, offering study programs across the wide range of disciplines. We are committed to basic research that is open to applications and to research-led teaching, as well as to the engagement with societal concerns. We strive to actively promote the careers of young researchers, to contribute to the education of future generations and to support society's capacity of innovate. Being located in the heart of the city of Vienna, the University also offers not only an intellectually stimulating environment but also a high quality of life.

The [Department of Science and Technology Studies](#) (STS) is part of the Faculty of Social Sciences and is an internationally leading research centered department. It has a long-standing tradition of investigating the changing cultures and practices of research as well as the multi-faceted relations of science and society interactions, specifically in life sciences and biomedicine, nanotechnology and sustainability research. The department's aim is to foster research and debate concerning the co-evolution of science, technology and society with researchers and students from all disciplines, but also with wider constituencies of society. It is teaching an international English language program "Science-Technology-Society" and hosts a lively PhD community working on a broad variety of topics, one of the current foci being on big data and changing practices in society and research. We have a very strong tradition in interdisciplinary collaborations with the sciences and are proud of the stimulating, international work environment we are able to offer to our scholars. [Ulrike Felt](#), who will be the supervisor of the PhD student and head of the department is an internationally renowned scholar in the field of Science and Technology Studies and has successfully supervised numerous PhDs. The co-supervisor will be Jürgen Vangeyte scientific director of the Institute for Agricultural and Fisheries Research (ILVO) in Belgium.

Task description

Your PhD project

What does it mean to abandon the classical order of designing a hypothesis and test it experimentally, and work with correlations to make predictions based on huge datasets. Close empirical scrutiny of the challenges of applying machine learning in actual research projects is key to understand the nuances of change, as is close collaboration with the respective domain researchers. You will initiate case studies with ESRs and PIs, using methods of qualitative social science research such as interviews, participant observation and group discussions: how does the work with large data sets and algorithms impact questions posed, problems identified and answers produced?

In short, the project aims to produce social science insights on the use of machine learning approaches in ecosystem sciences. You will contribute to scholarly debates in Science and Technology Studies and related fields which focus on the use of big data in research practices. In particular, you will deliver new insights on researchers' reflections of the epistemic and practical challenges. This will trigger a reflexive debate among participants in the consortium.

Secondments

You will embark on secondments to other FutureArctic partners. You will spend a total of 10 months at different partners and beneficiaries, as FutureArctic unfolds, anticipating on challenges, opportunities and discussions arising during project development. You will bring together the different viewpoints on the interface between hypothesis-based science and AI-based analyses. The partners who will be spending time with will be decided in the first few months of your employment.

Benefits of working in an ITN

- ✎ You will be working within our international group of > 25 researchers
- ✎ You will get in contact with the other members of this international consortium and will benefit from the joint training platform to develop skills necessary for developing an "ecosystem-of-things".

Profile and requirements

- 📄 Applicants must hold a MA or equivalent in the field of science and technology studies or a related social science discipline
- 📄 Applicants must have a solid knowledge of qualitative social science methods.
- 📄 Applicants can be of any nationality.
- 📄 Applicants must have an ability to understand and express themselves in both written and spoken English to a level that is sufficiently high for them to derive the full benefit from the network training and to write their PhD thesis in English.
- 📄 Applicants must be eligible to enrol on a PhD programme at the University of Vienna (PhD programme in Social Sciences/Science Studies).

In addition:

H2020 MSCA Mobility Rule: researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organisation (Austria) for more than 12 months in the 3 years immediately before the recruitment date. Compulsory national service, short stays such as holidays, and time spent as part of a procedure for obtaining refugee status are not taken into account.

H2020 MSCA eligibility criteria: Early Stage Researchers (ESRs) must, at the date of recruitment by the host organisation, be in the first four years (full-time equivalent research experience) of their research careers and have not been awarded a doctoral degree. Full-Time Equivalent Research Experience is measured from the date when the researcher obtained the degree entitling him/her to embark on a doctorate (either in the country in which the degree was obtained or in the country in which the researcher is recruited, even if a doctorate was never started or envisaged).

Benefits

- ☛ You will be employed by the host organisation for 36 months.
- ☛ A competitive salary plus allowances. Moreover, funding is available for technical and personal skills training and participation in international research events.
- ☛ You will benefit from the designed training programme offered by the host organisation and the consortium.
- ☛ You will participate in international secondments to other organisations within the FutureArctic network and in outreach activities targeted at a wide audience.

Please, find additional information in the [Information package for Marie Curie fellows](#)

Application

Interested candidates are invited to apply for this position through the link below:

<https://sts.univie.ac.at/> Instructions for applications can be found here soon

Expected starting date: February 2020

More information and other vacant positions can be found on www.futurearctic.eu

Additional information

For additional information about the research project and this individual position, please contact:

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