HORIZON EUROPE CALLS 2024/2025

CLUSTER 3
CIVIL SECURITY FOR SOCIETY

NTNU digital in Europe: List of calls with their respective interested NTNU researchers

Proposed by: NTNU Brussels office, NTNU digital and IE Faculty
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Dear Reader,

Are you looking for the best researchers with whom to collaborate on Horizon Europe cluster 3 calls? Then please, read on.

At NTNU, the Norwegian University of Science and Technology, we have matched our researchers to the upcoming Horizon Europe 2023/2024 calls, based on both their expertise and the industry relations they can bring to the table.

As the largest university in Norway, we can be a powerful partner and collaborator. With more than 85 funded projects, of which 53 are already signed (accounting for more than € 32 million in funding) at the time of writing, we are setting even more ambitious targets for Horizon Europe 2023/2024 and going forward.

This document is one of six prospectuses that outline areas of expertise for - and of interest to - NTNU researchers, for each of the upcoming six clusters of Horizon Europe.

They are living documents. Even if you do not find an exact match, our research community would be thrilled to open a collaborative dialogue with you. Just ping a message to one of our institutional contact points, like NTNU's Brussels Office.

Together, we can create true “knowledge for a better world”

Tor Grande
Pro-rector of Research
Knowledge provides people with opportunities and influence, as well as a foundation for making wise choices. Knowledge inspires and challenges. It changes attitudes, mindsets, and how we perceive the world around us. Informed debate strengthens our democracy. NTNU's activities should benefit society as a whole and society can trust that our findings comply with best scientific practice.

Knowledge and technology development create opportunities for increasing sustainable value creation and finding answers to major challenges. Through the United Nations, the world has agreed on 17 Sustainable Development Goals. NTNU will contribute actively towards achieving the Sustainable Development Goals.

**NTNU’s strength is our competence in science and technology combined with academic breadth and interdisciplinarity.**
NTNU is a university with an international focus, with headquarters in Trondheim and campuses in Ålesund and Gjøvik. NTNU has a main profile in science and technology, a variety of programmes of professional study, and great academic breadth, including medicine, architecture, and entrepreneurship.

**KEY NUMBERS FOR 2022**

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<th>NOK 10 billion</th>
<th>44 170 students</th>
<th>7761 FTE</th>
<th>412 doctoral degrees</th>
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<td>annual budget</td>
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NTNU offers 397 programmes of study (2022), as well as continuing and further education. The university has the main responsibility for higher education in technology in Norway, and largest in engineering, teacher education and architecture. NTNU aims to be a national hub in programmes of professional study.

NTNU is the institution awarded the most funding from the Research Council in Norway, as well as being granted with 255 signed projects and a total funding of more than €141 million from Horizon 2020. Moreover, NTNU is a host or partner for 46 major research centers (SFF, SFI, and FME), and has internal initiatives to develop and recruit top researchers.

In Horizon Europe (HEU) - as of March 2023 - NTNU has 97 funded projects, of which 77 are already signed (accounting for more than €46 million in funding), positioning NTNU among the top HEU Norwegian actors, and among the top 10 actors within the European Higher Education Sector in HEU.

Beyond its science and technology profile, NTNU covers a broad range of social science and humanities (SSH) disciplines including sociology, political science, education, psychology, economics, history, cultural sciences and the arts. Researchers from SSH disciplines have successfully addressed societal issues and contributed to social innovation through involvement in more than 30 HEU projects so far, presenting NTNU as promising and strong partner in future European collaborations in all Global Challenge clusters under Horizon Europe.

From 2014-2023, NTNU has identified several strategic research areas and enabling technologies:
The NTNU Brussels Office represents NTNU in Brussels, provides strategic advice on European policies, promotes NTNU positions, manages or participates in strategic networks and initiatives in Brussels, and provides professional services to the NTNU community based on its Brussels presence.

The office represents both «the door to NTNU» for organizations that want to collaborate and create synergies with NTNU, and «the door to Europe» for colleague active in or willing to enter the European Arena.

NTNU opened the doors to its Brussels Office in 2015 and today the staff consists of four people, Director Massimo Busuoli, one intern and two trainees.

The office activities and services include the following:

- Promotion and representation of NTNU in Brussels
- Positioning of NTNU in relevant Brussels-based initiatives and bodies
- Contribution to improve NTNU's EU project portfolio
- Provide internship opportunities for NTNU employees and students
- Provision of logistic support and services in Brussels
NTNU Digital is a strategic initiative created to increase the understanding, use and development of digital technology to solve complex issues across research disciplines. The focus areas of NTNU Digital are Artificial Intelligence, Autonomous Systems, Cyber Security and Computational Technology. The core research areas can be shared across diverse applications, and the ambition is to achieve a beneficial cross-fertilization by bringing together researchers from different application areas but with commonalities in method and theory.

NTNU Digital provides the following resources across all the faculties at NTNU:

- Long-term positioning and participation in European Networks and Alliances
- Coordination, guidance and review of large, strategically important applications submitted for the European Framework Programmes and the national funding schemes
- Identification of new collaboration opportunities and overview of ongoing, relevant projects
- Internal platform to meet, obtain and share info across NTNU related to enabling digital technologies
- Promotion of NTNU research excellence and capacities within digital technologies in front of local, national, and international research and innovation arenas
NTNU Digital: Success stories

These are only several examples of NTNU Digital success stories.

Conceptual architecture and coordination of the MSCA COFUND PERSEUS proposal which aims to educate top-level researchers contributing to solve societal challenges within the areas of energy, healthcare, manufacturing, mobility, and ocean-based technology, through the use of digital technologies.

Strategic guidance and review of long-term strategic and prestigious research and innovation proposals submitted for the funding to the Research Council of Norway. These projects have been awarded: SFI Autoship - Autonomous ships for safe and sustainable operations, NorwAI - Norwegian Research Centre for AI Innovation, NORCICS - Norwegian Centre for Cybersecurity in Critical Sectors and CGF - Centre for Geophysical Forecasting.
The Faculty of Information Technology and Electrical Engineering (IE) has more than 65 percent of the Norwegian university education and research within our disciplines. We offer bachelor, master, and PhD degrees in our areas of expertise. We have the largest number of students at Master and PhD levels in Norway within our disciplines.

The research at the Faculty of Information Technology and Electrical Engineering addresses challenges ranging from basic research in mathematics, computer science, cybernetics, nano and microelectronics, to global research demands within energy, transport, health and welfare, robust and secure ICT services, cyber security and marine and arctic operations.

The different research fields are organized along the lines of 11 strategic research areas:

- Artificial Intelligence
- Autonomous Systems
- Cyber Security
- Small Satellite Lab
- Mathematics in Technology
- Data Science
- Internet of Things
- Energy Efficient Computing Systems
- Digital Twins
- Digital Enterprise
- Digital Electric Energy
Horizon 2020

IE Faculty participation

65 RESEARCH PROJECTS

Ranging from excellence projects within basic research (ERC), doctoral and postdoctoral training (MSCA) to collaborative R&I projects with higher TRL levels together with a number of European partners within research, public sector and industry.
Faculty of Information Technology and Electrical Engineering

We have great influence on and responsibility for new information-based industrial developments and developments within other areas of society which apply information and communication technology. Both our research and education are at a high international level.

Our PhD programs are popular for national and international students, either at a program within our faculty:

- **Computer Science**
- **Electric Power Engineering**
- **Electronics and Telecommunication**
- **Engineering Cybernetics**
- **Information Security and Communication Technology**
- **Mathematical Sciences**

Or through a cross-disciplinary program such as **Medical Technology**

We are also partners in two National research schools:

- **Nanotechnology for Microsystems**
- **Computer and Information Security**
COLLABORATING WITH NTNU

As the largest Norwegian university with high multidisciplinary nature, NTNU offers a wide range of expertise and competences. Specific mapping of available researchers willing to collaborate on Horizon Europe have been performed for all clusters, producing documents similar to this brochure. All the brochures are available at through the NTNU Brussels Office.

All the brochures are available here.

Should you be interested to explore collaboration opportunities in areas not present in any of these brochures, you can get in touch with the institutional entry points of the university

ENTRY POINTS

NTNU Brussels Office

NTNU Digital
Contact person: John Krogstie

Faculty EU advisors
AD - Faculty of Architecture and Design
   Tone Woie Alstadheim and Srutarshi Pradhan
HF - Faculty of Humanities
   Chamila Thushari Attanapola and Thomas Aarnseth
IE - Faculty of Information Technology and Electrical Engineering
   Nathalie Søyseth and Filip Jessen
IV - Faculty of Engineering
   Ingunn Syrstad Bøgeberg and Miriam K. Khider
MH - Faculty of Medicine and Health Sciences
   Emma Louise Walton
NV - Faculty of Natural Sciences
   Thais Mothe-Diniz and Eugen Gravningen Sørmo
SU - Faculty of Social and Educational Sciences
   Bård Li and Jens Rohloff
ØK - Faculty of Economics and Management
   Elisabeth Strand Vigtel
VM - NTNU University Museum – Astrid Johansen
NTNU in Gjøvik – Anne Hilde Ruen Nymoen
NTNU in Ålesund – Medya Temelli Fenerci
Here you can find potential NTNU professors and employees that are interested in collaborations on destination 1.

The following pages are sorted by the calls for the destination presented in the work programme for cluster 3. To simplify your navigation among available expertises per topic, the list of topics have been made clickable.
Call - Fighting Crime and Terrorism 2023

FCT02 - Improved forensics and lawful evidence collection

HORIZON-CL3-2023-FCT-01-02: A harmonized European forensics approach on drugs analysis

FCT04 – Increased security of citizens against terrorism, including in public spaces

HORIZON-CL3-2023-FCT-01-04: Open topic
Call - Fighting Crime and Terrorism 2024

FCT02 - Improved forensics and lawful evidence collection

HORIZON-CL3-2024-FCT-01-02: Open topic
Andreas Erbe
Department of Materials Science and Engineering
Faculty of Natural Science

Expertise
- Materials degradation (corrosion) on a molecular, mesoscopic to macroscopic level
- Materials interaction with environment (incl. complex biological environments in the body)
- Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques
- Surface treatment of metals and semiconductors (pretreatment, etching, etc.)
- Electrochemical techniques
- Data analysis and machine learning techniques in relation to the above

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other European countries; surface pretreatment industries); Local museums.

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN.
Govert Valkenburg
Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Expertise
Interpretive social-scientific expertise. Social scientist with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects
My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS (privacy and security),
MILESECURE2050 (low-carbon transitions and energy security).
Govert Valkenburg
Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Expertise
Interpretive social-scientific expertise. Social scientist with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

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Relevant projects
My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS (privacy and security),
MILESECURE2050 (low-carbon transitions and energy security).

Contact information
govert.valkenburg@ntnu.no
+47 94896748
Govert Valkenburg
Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information
govert.valkenburg@ntnu.no
+47 94896748

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Interpretive social-scientific expertise. Social scientist with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

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Relevant projects
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European projects have included:

PRISMS (privacy and security),
MILESECURE2050 (low-carbon transitions and energy security).
Here you can find potential NTNU professors and employees that are interested in collaborations on destination 2.

The following pages are sorted into the calls for the destination presented in the work programme for cluster 3. To simplify your navigation among available expertises per topic, the list of topics have been made clickable.
Call - Border Management 2024

BM01 – Efficient border surveillance and maritime security

HORIZON-CL3-2024-BM-01-02: Interoperability for border and maritime surveillance and situational awareness

BM02 – Secured and facilitated crossing of external borders

HORIZON-CL3-2024-BM-01-03: Advanced user-friendly, compatible, secure identity and travel document management

HORIZON-CL3-2024-BM-01-04: Integrated risk-based border control that mitigates public security risk, reduces false positives and strengthens privacy
Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information
mohammadreza.aghaei@ntnu.no
+47 40635872

Expertise


Relevant links
outside academia


Relevant projects

• Experiences in several national and EU-funded projects:

  • COLLECTIEF – Collective Intelligence for Energy Flexibility. Role: Coordinator

  • Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV) Role: WG chair/WG vice-chair/Core group member/Member of committee

  • SOLAB - Outdoor Test Field for Solar Energy Research Role: Project manager

  • Autonomous and Intelligent Monitoring Based on UAV and IoT Platform for Large-Scale PV Plants (AimPV) Role: Coordinator/Project manager

  • The Research Center for Sustainable Solar Cell Technology (SUSOLTECH)

  • Energy Systems Integration (ESI)

  • MyCIGS collaborative research project – improving copper-indium-gallium-sulphide (CIGS) thin-film production
Govert Valkenburg
Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information
govert.valkenburg@ntnu.no
+47 94896748

Expertise
Interpretive social-scientific expertise. Social scientist with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

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Relevant projects
My research experience of 20 years has been entirely project-based.

European projects have included:

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MILESECURE2050 (low-carbon transitions and energy security).
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Department of Interdisciplinary Studies of Culture
Faculty of Humanities

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Relevant projects
My research experience of 20 years has been entirely project-based.

European projects have included:
PRISMS (privacy and security),
MILESECURE2050 (low-carbon transitions and energy security).
Here you can find potential NTNU professors and employees that are interested in collaborations on destination 3.

The following pages are sorted into the calls for the destination presented in the work programme for cluster 3. To simplify your navigation among available expertises per topic, the list of topics have been made clickable.
Call - Resilient Infrastructure 2023

HORIZON-CL3-2023-INFRA-01-02: Supporting operators against cyber and non-cyber threats to reinforce the resilience of critical infrastructures

Call - Resilient Infrastructure 2024

INFRA02 – Resilient and secure urban areas and smart cities

HORIZON-CL3-2024-INFRA-01-02: Resilient and secure urban planning and new tools for EU territorial entities

HORIZON-CL3-2024-INFRA-01-03: Advanced real-time data analysis used for infrastructure resilience
Dimitrios Tzioutzios
Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
dimitrios.tzioutzios@ntnu.no

Expertise
- Disaster risk management; Natech (Natural hazard-triggered Technological) accidents; Risk communication; Hydrogen safety; Participatory decision-making; Disaster preparedness; Community risk perception; Technology acceptance; Serious gaming; Spatial and land-use planning

Relevant projects
SUSHY Project:
SuStainability and cost-reduction of Hydrogen stations through risk-based, multidisciplinary approaches (European-Japanese consortium) [ongoing]

Relevant links
outside academia
Local government organisations in Japan, Colombia and Greece
First responder associations in Japan
Companies in the petrochemical and energy sector in Japan, Colombia and Norway
Private and public research institutes in Japan, Colombia, Greece and Norway

Yin Shen
Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
yin.shen@ntnu.no

Expertise
- Fault diagnosis/prognosis and fault-tolerance
- Reliability, safety, and security
- System and control theory
- Data-driven monitoring and optimization
- Machine learning and computer vision
- Applications on health diagnosis and cyber-physical systems

Relevant projects
2022-2025: Reinforcement Learning to Improve Maintenance Strategies, funded by MTP, NTNU, PI.
2021-2024: Digital twin qualification for maintenance, funded by SUBPRO Centre for Research-based Innovation (SFI) within subsea production and processing, PI.
2020-2023: The digital transformation and data-driven methods in the reliability of safety systems, funded by SUBPRO Centre for Research-based Innovation (SFI) within subsea production and processing, PI.

Relevant links
outside academia
DNV

Local government organisations in Japan, Colombia and Greece
First responder associations in Japan
Companies in the petrochemical and energy sector in Japan, Colombia and Norway
Private and public research institutes in Japan, Colombia, Greece and Norway
Arvind Sharma
Department of Information security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Expertise
IoT, Embedded system, Renewable Energy, smartgrid, Cyber Security

Expertise specific to this call:
Testing, technology development and assessment, techno-economic modelling

Contact information
arvind.sharma@ntnu.no
+47 46710948

Relevant projects
Energy and cyber security

Relevant links outside academia
Industry and research institution

Govert Valkenburg
Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Expertise
Interpretive social-scientific expertise. Social scientist with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

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These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Contact information
govert.valkenburg@ntnu.no
+47 94896748

Relevant projects
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European projects have included:

PRISMS (privacy and security),

MILESECURE2050 (low-carbon transitions and energy security).
Andreas Erbe
Department of Materials Science and Engineering
Faculty of Natural Science

Expertise
- Materials degradation (corrosion) on a molecular, mesoscopic to macroscopic level
- Materials interaction with environment (incl. complex biological environments in the body)
- Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques
- Surface treatment of metals and semiconductors (pretreatment, etching, etc.)
- Electrochemical techniques
- Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN.

Contact information
andreas.erbe@ntnu.no
+47 73594048

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other European countries; surface pretreatment industries); Local museums.

Ivan Depina
Department of Civil and Environmental Engineering
Faculty of Engineering

Expertise
Natural hazards, geological hazards, critical infrastructure development and management, climate change, resilience, geotechnical engineering, water-induced landslides, quantification of effects of climate change, risk analysis, risk-based decision-making, digitalization, monitoring, IoT

Relevant projects
SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.
KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides
CRES - climate resilient infrastructure

Contact information
ivan.depina@ntnu.no
+47 40389387

Relevant links outside academia
Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood
Industry - contacts in research organizations and institutes
Govert Valkenburg
Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information
govert.valkenburg@ntnu.no
+47 94896748

Expertise
Interpretive social-scientific expertise. Social scientist with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

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Faculty of Engineering

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Relevant link
outside academia
Local government organisations in Japan, Colombia and Greece

First responder associations in Japan

Companies in the petrochemical and energy sector in Japan, Colombia and Norway

Private and public research institutes in Japan, Colombia, Greece and Norway

Expertise
Disaster risk management; NATECH (Natural hazard-triggered Technological) accidents; Risk communication; Hydrogen safety; Participatory decision-making; Disaster preparedness; Community risk perception; Technology acceptance; Serious gaming; Spatial and land-use planning

Relevant projects
SUSHY Project:
SuStainability and cost-reduction of Hydrogen stations through risk-based, multidisciplinary approaches (European-Japanese consortium) [ongoing]
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Relevant links outside academia
Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes

Expertise
Natural hazards, geological hazards, critical infrastructure development and management, climate change, resilience, geotechnical engineering, water-induced landslides, quantification of effects of climate change, risk analysis, risk-based decision-making, digitalization, monitoring, IoT

Relevant projects
SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.

KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides

CRES - climate resilient infrastructure
Franz Tscheikner-Gratl
Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
Franz.Tscheikner-Gratl@ntnu.no
+47 41398749

Relevant links outside academia
Secretary of the working group on urban drainage asset management (UDAM) of the IWA/IAHR joint committee on urban drainage - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes
IWA/IAHR joint committee on urban drainage member - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Relevant projects
B-watersmart - accelerating water smartness in coastal Europe - SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.
KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides
CRES - climate resilient infrastructure
Sessile: serviceable, environmentally responsible & safe—integrating automated legionella mitigation into potable building water system design Stopup - protecting the aquatic environment from urban runoff pollution
Conpass - collaboration on nature-based solutions performance assessment

Expertise
Asset management of urban water infrastructure: interactions between multiple urban infrastructures, Asset management of green infrastructure, Rehabilitation and adaptation management of urban (water) infrastructure, Modelling: deterioration modelling of urban infrastructures, Uncertainties in modelling Improvement of current hydraulic models, sensor placement and modelling practices, Urban water management: integrated catchment analysis (and modelling), Decision making processes in environmental engineering, Adaptation to climate change
Mohammadreza Aghaei

Department of Ocean Operations and Civil Engineering
Faculty of Engineering

Contact information
mohammadreza.aghaei@ntnu.no
+47 40635872

Expertise


Relevant projects
• Experiences in several national and EU-funded projects:
  • COLLECTIF – Collective Intelligence for Energy Flexibility. Role: Coordinator
  • Performance and Reliability of Photovoltaic Systems: Evaluations of Large-scale Monitoring Data (PEARL PV). Role: WG chair/WG vice-chair/Core group member/Member of committee
  • SOLAB - Outdoor Test Field for Solar Energy Research. Role: Project manager

Relevant links outside academia

Arvind Sharma

Department of Information security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information
arvind.sharma@ntnu.no
+47 46710948

Expertise
IoT, Embedded system, Renewable Energy, smartgrid, Cybe Security

Expertise specific to this call:
Testing, technology development and assessment, techno-economic modelling

Relevant projects
Energy and cyber security
Yin Shen
Department of Mechanical and Industrial Engineering
Faculty of Engineering

Expertise
- Fault diagnosis/prognosis and fault-tolerance
- Reliability, safety, and security
- System and control theory
- Data-driven monitoring and optimization
- Machine learning and computer vision
- Applications on health diagnosis and cyber-physical systems

Contact information
yin.shen@ntnu.no

Relevant projects
2022-2026: RELIASYS: Norway-South-Korea-Brazil-China-USA partnership for Cyber Physical Sustainability, funded by the Norwegian Directorate for Higher Education and Skills, PI.
2022-2023: Towards safety and security of autonomous systems against cyberphysical attacks, funded by SUBPRO Centre for Research-based Innovation (SFI) within subsea production and processing, PI.
2023-2026: Integrated safety and security design for autonomous systems against cyber-physical attacks, funded by Enabling Technologies, NTNU, PI.

Andreas Erbe
Department of Materials Science and Engineering
Faculty of Natural Science

Expertise
- Materials degradation (corrosion) on a molecular, mesoscopic to macroscopic level
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Industry - contacts in research organizations and institutes

Expertise
Natural hazards, geological hazards, critical infrastructure development and management, climate change, resilience, geotechnical engineering, water-induced landslides, quantification of effects of climate change, risk analysis, risk-based decision-making, digitalization, monitoring, IoT

Relevant projects
SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.
KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides
CRES - climate resilient infrastructure
Franz Tscheikner-Gratl
Department of Civil and Environmental Engineering
Faculty of Engineering

Expertise
Asset management of urban water infrastructure: interactions between multiple urban infrastructures, Asset management of green infrastructure, Rehabilitation and adaptation management of urban (water) infrastructure, Modelling: deterioration modelling of urban infrastructures, Uncertainties in modelling improvement of current hydraulic models, sensor placement and modelling practices, Urban water management: integrated catchment analysis (and modelling), Decision making processes in environmental engineering, Adaptation to climate change

Relevant projects
B-watersmart - accelerating water smartness in coastal Europe - SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.
KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides
CRES - climate resilient infrastructure Sessile: serviceable, environmentally responsible & safe—integrating automated legionella mitigation into potable building water system design Stopup - protecting the aquatic environment from urban runoff pollution Conpass - collaboration on nature-based solutions performance assessment

Contact information
Franz.Tscheikner-Gratl@ntnu.no
+47 41398749

Relevant links outside academia
Secretary of the working group on urban drainage asset management (UDAM) of the IWA/IAHR joint committee on urban drainage - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood
Industry - contacts in research organizations and institutes
IWA/IAHR joint committee on urban drainage member - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood
Industry - contacts in research organizations and institutes
Member of the Norwegian working group of the Scandinavian Society of Trenchless Technology (SSTT) - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood
Industry - contacts in research organizations and institutes
Here you can find potential NTNU professors and employees that are interested in collaborations on destination 4.

The following pages are sorted into the calls for the destination presented in the work programme for cluster 3. To simplify your navigation among available expertises per topic, the list of topics have been made clickable.
Call - Increased Cybersecurity 2023

HORIZON-CL3-2023-CS-01-02: Privacy-preserving and identity management technologies

Call - Increased Cybersecurity 2024

CS01 - Systems Security and Security Lifetime Management, Secure Platforms, Digital Infrastructures

HORIZON-CL3-2024-CS-01-01: Approaches and tools for security in software and hardware development and assessment
Arvind Sharma

Department of Information security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Contact information
arvind.sharma@ntnu.no
+47 46710948

Relevant links
Industry and research institution

Expertise
IoT, Embedded system, Renewable Energy, smartgrid, Cyber Security

Expertise specific to this call:
Testing, technology development and assessment, techno-economic modelling

Relevant projects
Energy and cyber security

Govert Valkenburg

Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Contact information
govert.valkenburg@ntnu.no
+47 94896748

Relevant links

Expertise
Interpretive social-scientific expertise. Social scientist with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects
My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS (privacy and security), MILESECURE2050 (low-carbon transitions and energy security).
Arvind Sharma

Department of Information security and Communication Technology
Faculty of Information Technology and Electrical Engineering

Expertise
IoT, Embedded system, Renewable Energy, smartgrid, Cyber Security

Expertise specific to this call:
Testing, technology development and assessment, techno-economic modelling

Contact information
arvind.sharma@ntnu.no
+47 46710948

Relevant links outside academia
Industry and research institution

Relevant projects
Energy and cyber security
Franz Tscheikner-Gratl
Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
Franz.Tscheikner-Gratl@ntnu.no
+47 41398749

Relevant links outside academia
Secretary of the working group on urban drainage asset management (UDAM) of the IWA/IAHR joint committee on urban drainage - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes
IWA/IAHR joint committee on urban drainage member - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes
Member of the Norwegian working group of the Scandinavian Society of Trenchless Technology (SSTT) - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes

Expertise
Asset management of urban water infrastructure: interactions between multiple urban infrastructures, Asset management of green infrastructure, Rehabilitation and adaptation management of urban (water) infrastructure, Modelling: deterioration modelling of urban infrastructures, Uncertainties in modelling Improvement of current hydraulic models, sensor placement and modelling practices, Urban water management: integrated catchment analysis (and modelling), Decision making processes in environmental engineering, Adaptation to climate change

Relevant projects
B-watersmart - accelerating water smartness in coastal Europe - SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.

KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides

CRES - climate resilient infrastructure
Sessile: serviceable, environmentally responsible & safe—integrating automated legionella mitigation into potable building water system design Stopup - protecting the aquatic environment from urban runoff pollution

Conpass - collaboration on nature-based solutions performance assessment
Here you can find potential NTNU professors and employees that are interested in collaborations on destination 5.

The following pages are sorted into the calls for the destination presented in the work programme for cluster 3. To simplify your navigation among available expertises per topic, the list of topics have been made clickable.
Call - Disaster-Resilient Society 2024

DRS02 - Improved Disaster Risk Management and Governance

HORIZON-CL3-2024-DRS-01-01: Prevention, detection, response and mitigation of chemical, biological and radiological threats to agricultural production, feed and food processing, distribution and consumption

DRS03 - Improved harmonisation and/or standardisation in the area of crisis management and CBRN-E

HORIZON-CL3-2024-DRS-01-03: Harmonised / Standard protocols for the implementation of alert and impact forecasting systems as well as transnational emergency management in the areas of high-impact weather/ climatic and geological disasters

DRS04 - Strengthened capacities of first and second responders

HORIZON-CL3-2024-DRS-01-04: Hi-tech capacities for crisis response and recovery after a natural-technological (NaTech) disaster

HORIZON-CL3-2024-DRS-01-05: Cost-effective sustainable technologies and crisis management strategies for RN large-scale protection of population and infrastructures after a nuclear blast or nuclear facility incident
Andreas Erbe

Department of Materials Science and Engineering
Faculty of Natural Science

Contact information
andreas.erde@ntnu.no
+47 73594048

Relevant links
outside academia
Many industry partners (metal-producing industries in Norway and other European countries; surface pretreatment industries); Local museums.

Expertise
- Materials degradation (corrosion) on a molecular, mesoscopic to macroscopic level
- Materials interaction with environment (incl. complex biological environments in the body)
- Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques
- Surface treatment of metals and semiconductors (pretreatment, etching, etc.)
- Electrochemical techniques
- Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN.

Dimitrios Tzioutzios

Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
dimitrios.tzioutzios@ntnu.no

Relevant link
outside academia
Local government organisations in Japan, Colombia and Greece
First responder associations in Japan
Companies in the petrochemical and energy sector in Japan, Colombia and Norway
Private and public research institutes in Japan, Colombia, Greece and Norway

Expertise
- Disaster risk management; Natech (Natural hazard-triggered Technological) accidents; Risk communication; Hydrogen safety; Participatory decision-making; Disaster preparedness; Community risk perception; Technology acceptance; Serious gaming; Spatial and land-use planning

Relevant projects
SUSHY Project:
SuStainability and cost-reduction of Hydrogen stations through risk-based, multidisciplinary approaches (European-Japanese consortium) [ongoing]
Dimitrios Tzioutzios
Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
dimitrios.tzioutzios@ntnu.no

Relevant link
outside academia
Local government organisations in Japan, Colombia and Greece
First responder associations in Japan
Companies in the petrochemical and energy sector in Japan, Colombia and Norway
Private and public research institutes in Japan, Colombia, Greece and Norway

Expertise
Disaster risk management; Natech (Natural hazard-triggered Technological) accidents; Risk communication; Hydrogen safety; Participatory decision-making; Disaster preparedness; Community risk perception; Technology acceptance; Serious gaming; Spatial and land-use planning

Relevant projects
SUSHY Project:
SuStainability and cost-reduction of Hydrogen stations through risk-based, multidisciplinary approaches (European-Japanese consortium) [ongoing]
Franz Tscheikner-Gratl
Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
Franz.Tscheikner-Gratl@ntnu.no
+47 41398749

Relevant links outside academia
Secretary of the working group on urban drainage asset management (UDAM) of the IWA/IAHR joint committee on urban drainage - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes
IWA/IAHR joint committee on urban drainage member - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes
Member of the Norwegian working group of the Scandinavian Society of Trenchless Technology (SSTT) - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes

Expertise
Asset management of urban water infrastructure: interactions between multiple urban infrastructures, Asset management of green infrastructure, Rehabilitation and adaptation management of urban (water) infrastructure, Modelling: deterioration modelling of urban infrastructures, Uncertainties in modelling Improvement of current hydraulic models, sensor placement and modelling practices, Urban water management: integrated catchment analysis (and modelling), Decision making processes in environmental engineering, Adaptation to climate change

Relevant projects
B-watersmart - accelerating water smartness in coastal Europe - SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.

KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides

CRES - climate resilient infrastructure
Sessile: serviceable, environmentally responsible & safe—integrating automated legionella mitigation into potable building water system design Stopup - protecting the aquatic environment from urban runoff pollution

Conpass - collaboration on nature-based solutions performance assessment
Dimitrios Tzioutzios
Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
dimitrios.tzioutzios@ntnu.no

Expertise
Disaster risk management; NATECH (Natural hazard-triggered Technological) accidents; Risk communication; Hydrogen safety; Participatory decision-making; Disaster preparedness; Community risk perception; Technology acceptance; Serious gaming; Spatial and land-use planning

Relevant projects
SUSHY Project: SuStainability and cost-reduction of Hydrogen stations through risk-based, multidisciplinary approaches (European-Japanese consortium) [ongoing]

Relevant link outside academia
Local government organisations in Japan, Colombia and Greece
First responder associations in Japan
Companies in the petrochemical and energy sector in Japan, Colombia and Norway
Private and public research institutes in Japan, Colombia, Greece and Norway
Franz Tscheikner-Gratl
Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
Franz.Tscheikner-Gratl@ntnu.no
+47 41398749

Expertise
Asset management of urban water infrastructure: interactions between multiple urban infrastructures, Asset management of green infrastructure, Rehabilitation and adaptation management of urban (water) infrastructure, Modelling: deterioration modelling of urban infrastructures, Uncertainties in modelling improvement of current hydraulic models, sensor placement and modelling practices, Urban water management: integrated catchment analysis (and modelling), Decision making processes in environmental engineering, Adaptation to climate change

Relevant projects
B-watersmart - accelerating water smartness in coastal Europe - SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.
KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides
CRES - climate resilient infrastructure
Sessile: serviceable, environmentally responsible & safe—integrating automated legionella mitigation into potable building water system design
Stopup - protecting the aquatic environment from urban runoff pollution
Conpass - collaboration on nature-based solutions performance assessment

Relevant links outside academia
Secretary of the working group on urban drainage asset management (UDAM) of the IWA/IAHR joint committee on urban drainage - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood
Industry - contacts in research organizations and institutes
IWA/IAHR joint committee on urban drainage member
Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood
Industry - contacts in research organizations and institutes
Member of the Norwegian working group of the Scandinavian Society of Trenchless Technology (SSTT) - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood
Industry - contacts in research organizations and institutes
Andreas Erbe
Department of Materials Science and Engineering
Faculty of Natural Science

Contact information
andreas.erbe@ntnu.no
+47 73594048

Expertise
- Materials degradation (corrosion) on a molecular, mesoscopic to macroscopic level
- Materials interaction with environment (incl. complex biological environments in the body)
- Vibrational spectroscopy (IR, Raman) in complex matrices, especially for materials surface analysis, study of solvation/hydration, and in combination with electrochemical techniques
- Surface treatment of metals and semiconductors (pretreatment, etching, etc.)
- Electrochemical techniques
- Data analysis and machine learning techniques in relation to the above

Relevant projects
Many fundamental and applied research projects, most of them via national funding initiative, but also including MSCA-ITN.

Relevant links outside academia
Many industry partners (metal-producing industries in Norway and other European countries; surface pretreatment industries); Local museums.

Dimitrios Tzioutzios
Department of Mechanical and Industrial Engineering
Faculty of Engineering

Contact information
dimitrios.tzioutzios@ntnu.no

Expertise
Disaster risk management; Natech (Natural hazard-triggered Technological) accidents; Risk communication; Hydrogen safety; Participatory decision-making; Disaster preparedness; Community risk perception; Technology acceptance; Serious gaming; Spatial and land-use planning

Relevant projects
SUSHY Project:
SuStainability and cost-reduction of Hydrogen stations through risk-based, multidisciplinary approaches (European-Japanese consortium) [ongoing]

Relevant links outside academia
Local government organisations in Japan, Colombia and Greece
First responder associations in Japan
Companies in the petrochemical and energy sector in Japan, Colombia and Norway
Private and public research institutes in Japan, Colombia, Greece and Norway
Franz Tscheikner-Gratl
Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
Franz.Tscheikner-Gratl@ntnu.no
+47 41398749

Relevant links outside academia
Secretary of the working group on urban drainage asset management (UDAM) of the IWA/IAHR joint committee on urban drainage - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes
IWA/IAHR joint committee on urban drainage member - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes
Member of the Norwegian working group of the Scandinavian Society of Trenchless Technology (SSTT) - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes

Expertise
Asset management of urban water infrastructure: interactions between multiple urban infrastructures, Asset management of green infrastructure, Rehabilitation and adaptation management of urban (water) infrastructure, Modelling: deterioration modelling of urban infrastructures, Uncertainties in modelling Improvement of current hydraulic models, sensor placement and modelling practices, Urban water management: integrated catchment analysis (and modelling), Decision making processes in environmental engineering, Adaptation to climate change

Relevant projects
B-watersmart - accelerating water smartness in coastal Europe - SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.

KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides

CRES - climate resilient infrastructure
Sessile: serviceable, environmentally responsible & safe—integrating automated legionella mitigation into potable building water system design Stopup - protecting the aquatic environment from urban runoff pollution

Conpass - collaboration on nature-based solutions performance assessment
Destination 6: Strengthened Security Research and Innovation

Here you can find potential NTNU professors and employees that are interested in collaborations on destination 6.

The following pages are sorted into the calls for the destination presented in the work programme for cluster 3. To simplify your navigation among available expertises per topic, the list of topics have been made clickable.
Call - Support to Security Research and Innovation 2024

SSRI 02 – Increased innovation uptake

HORIZON-CL3-2024-SSRI-01-01: Demand-led innovation through public procurement

HORIZON-CL3-2024-SSRI-01-02: Accelerating uptake through open proposals for advanced SME innovation
Katja Levy
Department of Sociology and Political Science
Faculty of Social and Educational Science

Contact information
catherine.r.levy

Relevant links
outside academia
5 years work experience in the German Bundestag (as research assistant to Vice President)

4 years work experience with Siemens Shanghai; several think tanks on China and Asia; Green Party Germany; several charitable foundations in China

Expertise
Foreign policy analysis of China
Social policy analysis of China;
Comparative politics perspectives on China

Relevant projects
Social Functions of Charitable Foundations in China
Policy dialogues between European countries and China
Collaborative efforts of social service provision in Germany and China
Volunteering in the UK and China
Franz Tscheikner-Gratl

Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
Franz.Tscheikner-Gratl@ntnu.no
+47 41398749

Relevant links outside academia
Secretary of the working group on urban drainage asset management (UDAM) of the IWA/IAHR joint committee on urban drainage - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research organizations and institutes
IWA/IAHR joint committee on urban drainage member - Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Relevant projects
B-watersmart - accelerating water smartness in coastal Europe - SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.

KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides

CRES - climate resilient infrastructure
Sessile: serviceable, environmentally responsible & safe—integrating automated legionella mitigation into potable building water system design
Stopup - protecting the aquatic environment from urban runoff pollution
Conpass - collaboration on nature-based solutions performance assessment

Expertise
Asset management of urban water infrastructure: interactions between multiple urban infrastructures, Asset management of green infrastructure, Rehabilitation and adaptation management of urban (water) infrastructure, Modelling: deterioration modelling of urban infrastructures, Uncertainties in modelling improvement of current hydraulic models, sensor placement and modelling practices, Urban water management: integrated catchment analysis (and modelling), Decision making processes in environmental engineering, Adaptation to climate change
Govert Valkenburg
Department of Interdisciplinary Studies of Culture
Faculty of Humanities

Expertise
Interpretive social-scientific expertise. Social scientist with additional backgrounds in engineering and classical music, well-versed in processes of knowledge production, knowledge exchange, and the use of knowledge for democratic and managerial processes.

Has contracted important expertise in connecting high-tech research and development with traditional and indigenous knowledges, and with cultural categories, moral and ethical frameworks, and public and political debate.

These connections have been made across such diverse fields as energy and sustainability transitions, medical research, infrastructures, and digital technologies in relation to privacy and security.

Relevant projects
My research experience of 20 years has been entirely project-based.

European projects have included:

PRISMS (privacy and security),

MILESECURE2050 (low-carbon transitions and energy security).
Franz Tscheikner-Gratl
Department of Civil and Environmental Engineering
Faculty of Engineering

Contact information
Franz.Tscheikner-Gratl@ntnu.no
+47 41398749

Relevant links outside academia
Secretary of the working group on urban drainage
asset management (UDAM) of the IWA/IAHR joint committee
on urban drainage - Public sectors - road and railway
authorities, meteorological institute, national warning
services for landslides and flood

Industry - contacts in research
organizations and institutes
IWA/IAHR joint committee on
urban drainage member - Public sectors - road and railway
authorities, meteorological institute, national warning
services for landslides and flood

Industry - contacts in research
organizations and institutes
Member of the Norwegian working group of the
Scandinavian Society of Trenchless Technology (SSTT)
- Public sectors - road and railway authorities, meteorological institute, national warning services for landslides and flood

Industry - contacts in research
organizations and institutes

Expertise
Asset management of urban water infrastructure: interactions between multiple urban infrastructures, Asset management of green infrastructure, Rehabilitation and adaptation management of urban (water) infrastructure, Modelling: deterioration modelling of urban infrastructures, Uncertainties in modelling Improvement of current hydraulic models, sensor placement and modelling practices, Urban water management: integrated catchment analysis (and modelling), Decision making processes in environmental engineering, Adaptation to climate change

Relevant projects
B-watersmart - accelerating water smartness in coastal Europe - SFI Klima 2050 - societal risks associated with climate changes and enhanced precipitation and flood water exposure within the built environment.

KlimaDigital - use of IoT technologies to develop monitoring solutions for water induced landslides

CRES - climate resilient infrastructure
Sessile: serviceable, environmentally responsible & safe—integrating automated legionella mitigation into potable building water system design Stopup - protecting the aquatic environment from urban runoff pollution

Conpass - collaboration on nature-based solutions performance assessment