Against this background, the aim of the project is to 1) gauge users' attitutes toward the sharing and capture of digital user data, 2) identify users' practices for accepting/blocking the sharing digital user data, and/or 3) if possible: develop and propose frameworks or concrete solutions for improving users' own control over what digital user data they share and how. The project can focus on specific demographics or groups of users.

The PhD project is about user empowerment in the digital age and about supporting the agency of the users. Furthermore, the project connects to current scholarly discussions about privacy and personal data, datatification, and platform economy.

The ideal candidate will have competencies within design and/or technical research and/or development.

Start date: upon agreement

Proposed supervisor: Aske Kammer
Contact: Aske Kammer (aska@itu.dk)
Research Group: Digital Platforms and Data

The PhD project can be conducted in collaboration with the Business IT and/or Computer Science departments (depending upon final shaping of the project).

If successful, the position is planned to be fully financed by ITU

**Playing European Identity: On European cultural history presented in (non-European) games.**

Games, with their sophisticated world building and involved storytelling, often use history as their reference point and background, particularly European history. However, many of these games are created by companies based outside of Europe. The designers working on these games reference an image of historical Europe based on fiction literature, fantasy, movies and other games as much as (or more than) on actual European history. Instead of seeing a historical Europe, we play with a fictional, or perhaps even a ludic Europe.

This PhD explores this ludic Europe and its reception, to see to what degree games may influence the image of historical Europe. The PhD should explore how Europe is depicted in a chosen set of games, and how the players of these games understand Europe, as well as, for the European players, how this matches their own understanding of their identity as Europeans, and for the non-European players: what ideas and prejudices they have about European culture and history based on games.

This study will use qualitative methods to study both players and games. The ideal candidate is able to demonstrate a good knowledge of game studies, has a realistic idea about how games and game worlds can communicate ideas and shape identities, as well as a good working knowledge of traditional and digital ethnographic methods, and knowledge of textual analysis used on games.

Candidates are encouraged to submit applications outlining a three-year PhD project focused on identity formation in games, and the interplay of history and fiction in this process. Directions to take an application can include, but is not limited to:

- Romanticism and idealisation of European history.
- Europe as a fragmented arena of war.
- European struggles of class reflected in games; fiction or structure.

- Nationalist images of Europe.
- Collaborative diversity in European game structures.
- Gameplay as a bridge across language and culture barriers.
- European game subcultures based on language, geography or other in-game identity markers.

Start date: September 2020

Proposed supervisor: Torill Elvira Mortensen
Contact: Torill Elvira Mortensen (toel@itu.dk)
Research Group: Center for Computer Games Research and Culture and Technology (CulT).

If successful, the position is planned to be fully financed by ITU

**Generative Machine Learning for Procedural Content Generation**

Generative methods in machine learning have surged in popularity since the first inception of generative adversarial networks in 2014. Since then a number of different architectures and methods have been proposed with very successful applications especially in the area of synthetic images generation.

However, beyond the realms of image and sound processing the techniques have seen little to no experimentation, with just a handful of very recent papers investigating their application in procedural content generation.

In this PhD project, we would like to investigate how procedural machine learning methods can be further developed to support the interactive creation of game components such as NPC behaviors or levels layout.

The aim is to explore the expressive range and the controllability of such methods to empower designers, artists and content creators in general with intelligent tools.

Start date: September 2020

Proposed supervisor: Paolo Burelli
Contact: Paolo Burelli (pabu@itu.dk)
Research Group: Center for Computer Games Research

If successful, the position is planned to be fully financed by ITU

**Coordinated misinformation campaigns**

The diffusion of problematic information online is a recognized danger for healthy democratic processes. Contemporary social media and interconnected media ecologies make possible to orchestrate mis/disinformation campaigns with unprecedented reach and efficacy. The project, leveraging Facebook data obtained through one of the Facebook/Social Science One “Social Media and Democracy” research grant will investigate emergence, propagation and evolution of problematic information on Facebook.

Start date: upon agreement

Proposed supervisor: Luca Rossi
Contact: Luca Rossi (lucr@itu.dk)
Research Group: NERDS / Digital Platforms, Data and Society

The PhD project is conducted in collaboration with the Computer Science department and co-supervisor Michele Coscia.

If successful, the position is planned to be fully financed by ITU

**Diversity and political contention in digital platforms and data**

There is increasing awareness of discrimination of vulnerable populations (based on gender, race, or sexual orientation) in the gathering of and acting upon data – not only by private companies but also state institutions. While critical studies show that social movements, protest and activism can leverage new data and technologies to create social change, the (potential) role of data in critical projects remains understudied. This project is concerned with the role of digital media technologies, platforms and data for political contention, protest, activism, social movements, racism, bias and diversity. Within this broad framework, we are particularly interested in a PhD project that combines digital media data analysis with other methods (such as ethnography, interviews, surveys) to trace the political, cultural and scientific practices underlying platforms and data in the context of such questions. Doing so, this project will contribute to the undertaking of data-driven research that provides evidence to drive social change.

Start date: upon agreement

Proposed supervisor: Christina Neumayer
Contact: Christina Neumayer (chne@itu.dk)
Research Group: Digital Design

The PhD project can be conducted in collaboration with the Business IT and/or Computer Science departments at ITU (depending upon the final shaping of the project).

If successful, the position is planned to be fully financed by ITU

**Public libraries as an arena for user-driven service innovation**

Public sector research demonstrates overwhelming evidence that e-government systems and services are not meeting targets for performance, effectiveness, and adoption by citizens, and a growing number of researchers agree that this is due to lack of participation from citizens in development of public e-services, like tax services, social benefit services etc. This problem is related to a *digital divide* regarding use of current e-services, marginalising user groups lacking digital skills, and it also blocks the potential in developing future services based on open public data as an emerging resource. In parallel, public libraries hold an undiscovered potential to become a partner in service innovation, with their non-commercial nature and long tradition for aiming to bridge the digital divide. The fast-growing number of maker-spaces in libraries illustrate this potential, but co-creation and user-driven innovation in libraries seldom deal with technology or development of e-services.

This PhD-project addresses these issues, exploring the potential of public libraries as facilitators for user-driven service innovation and technology exploration. The project taps into the broad range of active

library visitors and existing library activities as a resource for engaging users. Design cases can involve improving existing public e-services in collaboration with service developers, but also exploring new possibilities with e.g. open public data as a base for new service innovations and technology experiments. The main objective for the project is to explore how a facility can be set up at a public library to empower citizens to participate actively in user-driven service innovation and technology exploration. A second objective is to capture and document knowledge of best innovation practices and service solutions, as well as develop knowledge on drivers and enablers for successful digital transformation and its long-term impacts on society.

The successful applicant is expected to have a strong academic background in interaction design, service design or other fields of design, and preferably experience from co-design and prototyping technologies. Also, studies in IT-related subjects is an advantage.

Start date: Fall 2020

Proposed supervisor: Jörn Christiansson
Contact: Jörn Christiansson (jrme@itu.dk)
Research Group: Co-design

If successful, the position is planned to be fully financed by ITU

**Technology innovation within municipalities**

Economic constraints and fewer people who must care for more citizens in the near future stimulates municipalities to rethink how they deliver services to their citizens, like social care. Introducing novel technology is one strategy used by municipalities to provide a high quality of service also in the future. As a result, IoT, blockchains, cloud-based services, AI and robotics are all examples of technology innovations that today are introduced within these organizations, often with a top-down approach (from management and down to individual employee).

This PhD project should explore and tap the innovation potential that exists at a grass root level within a municipality by inviting municipality workers to engage in technology and service innovation through co-design. The purpose is to explore the innovation potential within municipalities and through technology, interventions and experimentation (e.g. co-designing prototype-grade interactive systems and services) map out current and future technology and service needs within organizations and explore the role innovative technology can have transforming municipalities and their services.

The successful applicant is expected to have a strong academic background in interaction design, software development or other similar fields, and preferably experiences from co-design.

Start date: Fall 2020

Proposed supervisor: Erik Grönvall
Contact: Erik Grönvall (erig@itu.dk)
Research Group: Co-design

If successful, the position is planned to be fully financed by ITU

**Gaming at the extreme**

The notion that digital games might cause addiction has been the topic of at times heated debates in academia and amongst lay people for quite some time. With the WHO's inclusion of Gaming Disorder and Hazardous Gaming in the draft of the new ICD-11 the debate has become even more heated. At the same time e-sports, or the professionalization of gaming, has turned into the fastest growing industry in the world. These two recent developments, more than ever before, increases the need for knowledge about the potential effects of digital games on the public in general and the players who play to extremes in particular.

We seek a PhD student to do original and high-quality work on extreme gaming, and the messy intersection of highly esteemed and highly stigmatized gaming. A successful candidate will develop their own three-year research project within this field on the basis of their own expertise.

Start date: upon agreement

Proposed supervisor: Rune K. L. Nielsen
Contact: Rune K. L. Nielsen (rkln@itu.dk)
Research Group: Center for Computer Games Research

If successful, the position is planned to be partly financed by ITU and partly financed by external resources

**Hybrid experience design at the Munch Museum**

In a collaboration between the Munch Museum and the IT University, we seek a PhD candidate with an interest in experience design to experiment with hybrid experiences with the museum's digital collections. The project builds on the museum's work in the GIFT project (gifting.digital), through which the museum has established a digital test lab working with three main areas: digital exhibitions, digital experiences for school children, and digital offers for mobile. The candidate will work in a practice-based approach (e.g. as research through design, action research or similar), immersed in the museum's learning, curatorial, and research teams. The project may explore a range of approaches such as playful design, affective design, mixed reality, artificial intelligence and other relevant areas in the intersection of emerging technologies, art and experience design

Start date: upon agreement

Proposed supervisor: Anders Sundnes Løvlie
Contact: Anders Sundnes Løvlie (asun@itu.dk)
Research Group: MAD Art & Design

If successful, the position is planned to be partly financed by ITU and partly financed by the Munch Museum