



Evaluation of Mathematics, ICT and Technology (EVALMIT) 2023-2024

Self-assessment for research groups

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Institution: University of Oslo (UiO)

Administrative unit: Department of informatics (IFI)

Research group: Design of information systems (DESIGN)

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1. Organisation and strategy

The UiO Department of Informatics (IFI) is the largest unit for informatics training and research in Norway and Northern Europe with a staff of more than 400. The department also has the strongest international rankings in Norway. IFI has its core in computer science, but informatics is interpreted as a broad field in the department, ranging from microelectronics to participatory design. In 2023, IFI hosts five BSc and eight MSc study programmes, with close to 2500 students. The department is organized in 4 thematic sections, each of which comprising 2–5 research groups. The research group *Design of Information Systems* (Design) is one of 5 research groups in the *Digitalization* section at IFI.

1.1 Research group's organisation

User-oriented and societal research in informatics has been part of IFI from its start in 1977 as a research area (and group) originally labelled *Systems Development* and later *Information Systems (IS)*. In 2006 the IS group divided and the *Design of Information Systems* (Design) group was established. The *Design* group positions itself in the *Participatory Design (PD)* tradition, which was initiated by professor Kristen Nygaard at IFI in the 1970s. PD argues for sharing the power of technology (and design) with the people who will use the technology and aims to design technical solutions that increase the users' space for action, autonomy and well-being. PD maintains that a means to this goal is to actively involve users in the design process – from problem definition to shaping the solution. Moreover, facilitating a two-way mutual learning process enables ideation of alternative and novel solutions based on both users' and designers' knowledge.

The Design group's research focuses on the actual practices of designers and users. Our research concerns the concrete practices and methods of PD and how they can be improved and supported, but also how PD can address the larger societal issues and scale to include larger populations and larger projects. Our research is mainly qualitative and critical/interpretive, and includes empirical fieldwork and practical design with users, however, we also carry out quantitative research. Our research spans various digital technologies (e.g. tangible prototypes, robots, mobile devices and smart artefacts) and application areas (e.g., health care, museums). Our research explores diverse contexts (e.g., work, learning, leisure) but focuses on the home as the use context for technologies intended for all citizens (e.g., digital public services) where individual users are on their own. We particularly focus on inclusive solutions for vulnerable user groups. It is important for us to build prototypes that demonstrate that PD processes result in alternative technical solutions. In addition to empirical studies and practical design of prototypes, we contribute to theoretical research, methods and tools.

The conditions for PD have changed dramatically since its origin in the 1970s. We maintain that the original arguments for PD and the politics of technology are just as important today. Reflecting on the evolution of PD since the 1970s, we uphold its core values in today's digital society where our lives are deeply entangled with digital technologies. We aim to contribute to making PD relevant in today's society and take a larger role in a transition toward a more desirable and sustainable society.

Our group holds weekly discussions on various research topics or our ongoing projects. Twice a year, we engage in full-day seminars. Through these open and enriching exchanges, we build our collective understanding and group history. The faculty members meet regularly to discuss long-term strategic matters. The Design group operates as a community, sharing teaching and administrative responsibilities. On an informal level, we often have lunch together and stay connected through Teams, creating a supportive and inclusive work atmosphere.

The Design group today includes:

- 2 professors: Tone Bratteteig (group manager, study program manager), Alma Culén
- 4 associate professors: Jo Herstad, Suhas Joshi (currently 50% Head of Education at IFI), Jasmin Niess (since August 2022), Fabiano Pinatti (since October 2022)
- 1 senior lecturer: Guri Verne
- 5 internally funded PhDs: Rebekka Soma-Jestilä, Johanne Oskarsen, Nicholas Stevens (the 3 submit in Spring 2024), Harald Maartmann-Moe (submits in Fall 2024) and Heidi Bråthen (submits in Fall 2025). 2 PhD students started in 2023: Tora Jarsve and David Sampah.
- 5 adjunct professors (20%): Bill Gaver (University of Northumbria), Amela Karahasanovic (SINTEF), Trenton Schulz (Norwegian Computing Center), Astrid Twenebowa Larssen (Norwegian Health Directorate). Svein Hovde (Dept. of Sociology, UiO) has a 30% position and is therefore listed as a senior lecturer in IFI's lists (marked with * in table 1).

Bratteteig has led the group from its start. From 2025 the group leader function will rotate in 2-year periods. Bratteteig, Culén and Verne will retire in the next 5 years; the next 2 years will be used as a transition period where the group's legacy will be renewed to fit also the newest faculty members.

<https://www.mn.uio.no/ifi/english/research/groups/design>

Table 1. List of number of personnel by categories

	Position by category	No. of researcher per category	Share of women per category (%)	No. of researchers who are part of multiple (other) research groups at the admin unit	No. of temporary positions
No. of Personnel by position	Professors	2	100%		
	Associate professors	4	25%		
	Senior lecturers	1	100%		
	PhDs	5	60%		5
	Adjunct lecturer* (30%)	1			1
	Adjunct professor	1			1
	Adjunct assoc.professor	3	66%		3

1.2 Research group's strategy

a) The research group's main goals, objectives and strategies within the period 2012-2022.

The Design group's objective is to maintain our position as a research group recognized nationally and internationally for continuous high-quality empirical and theoretical research. We publish in PD, HCI, CSCW, Human-Robot Interaction, Information Systems, as well as eGovernment and various design research areas like Universal Design, Transition Design and Tangible Interaction.

The Design group aims to demonstrate the relevance of PD in today's society by advancing PD to include more aspects of the complex sociotechnical relations between digital technologies and their users and suggest ways to address them in empirical, theoretical and methodological ways. Our aim is to provide globally useful methods, tools and conceptualizations of PD for contemporary society. We will apply for external project funding together with industry and public sector.

Strategies for top-quality research also includes internationalisation / recruitment and high-quality teaching. Recruitment was a key focus for the Design group in 2012-2022. All our announcements for PhD positions have attracted well-qualified PhD applicants and in 2022, we successfully added two faculty members, reinforcing our commitment to diversity and academic excellence. Over the next three years, we aim to recruit a new faculty member leveraging the generational shift to strengthen our research and teaching aligned with PD's core values of democracy, user autonomy and well-being. We also aim to recruit an engineer to increase our capacity for developing robust prototypes.

Last but not least, the strategy emphasizes delivering high quality education in line with PD values through the study program *Design, Use, Interaction* (see c). We combine theory and practice and integrate research with student involvement. The close interplay between research and teaching has resulted in higher quality of the Master theses and in well-functioning recruitment of well qualified teaching assistants and PhD candidates. The group members have a (too) high teaching load, and we have lately taken measures to reduce the overall teaching load and provide more time for research.

b) The benchmark of the research group.

The main characteristic of the research and teaching of the Design group is the emphasis on the actual practices of use and design of digital technologies. Understanding how and why technologies are used or not used in practice and how and why particular technical solutions affect individuals and the larger society provides a basis for designing usable, useful and wanted IT systems. We want to be able to demonstrate that PD leads to imagining alternative design results, which requires building high fidelity robust prototypes.

The Design group benchmarks are related to our aims and strategy

- 1) Strengthen our high quality research and achieve more recognition and visibility for it by
 - a. obtaining funding for one large research project strengthening the common knowledge basis of the group. A common basis supports group members in maintaining diversity in research.
 - b. improving visibility by publishing more in influential outlets
 - c. being visible in social media and communicate our research to the public more systematically
 - d. increasing the visibility for our research results to the public by arranging a conference about PD in connection with the 100. birthday of Kristen Nygaard on August 27. 2026
 - e. paired with an international seminar with invited guests
- 2) recruit a new faculty member before Summer 2026 + an engineer (for the Digitalization section)
- 3) maintain the top quality of the study program in *Design, Use, Interaction* and find ways to make the program more robust and provide more time for research for the Design group members.

c) The research group's contribution to education (master's degree and/or PhD)

The study program *Design, Use, Interaction (DBI)* is shared by 4 research groups in the *Digitalization* section but the Design group has the main responsibility for the program and the program manager (Tone Bratteteig). The bachelor program is interdisciplinary and includes 40 ECTS from different disciplines (social / humanist sciences, law). *DBI* admits approx. 140 Bachelor and 45 Master students per year and we have succeeded in attracting approx. 50/50 women and men to the program. The study program is popular and attracts good applicants, and has grown over the years.

The Design group teaches 5 of the 6 Bachelor courses in the program, of which 3 are mandatory. 2 of these 3 courses are about *HCI* and the third introduces *PD* (a project with users). In addition, we teach advanced courses on *Transition Design* (project with industry) and "*Understanding use before*

use” (an overview of relevant social science theories about use). We present our research in all our courses and the student projects are designed to support our research. The group is also part of general courses mandatory for all informatics students: a 2. semester course where we introduce users and universal design (50% of 10 credits) and a 4. semester project course (20 credits) where we are involved in teaching universal design.

At the Masters level the Design group teaches 7 regular courses. We are responsible for the mandatory course on *Qualitative research methods*. We teach a *PD* course and 2 studio courses on *Research through Design* and *Tangible Interaction* as well as a course on *Interaction with AI*. Moreover, we provide an intro to the CSCW field in addition to a Master’s version of the course on “*understanding use before use*” for students who do not have their Bachelor degree from the DBI program. These courses aim to teach Master students the basics for writing a thesis within the respective research areas. We also have established 2 course codes to enable us to pilot courses and give a course only once. In 2023 these codes were used for piloting *Design for Dasein* (the relevance of phenomenology for IT design) and *Design for sustainability*, and to give a one-time course on *Writing a Research through Design master thesis*. Most of our courses at the Master’s level have a PhD version for PhD students without a Master’s degree from IFI/DBI.

The Design group supervise most of the master students in the program: in sum 99 Master’s students graduated in 2018-2022 (+ 25 in 2023). We currently supervise 26 Master’s students (2024). During 2018-2022 the average number of graduated Master’s students in Design per year was 19,8 (highest in IFI). 11 PhD students defended their dissertations in 2018-2022, 5 more will defend in 2024.

The Design group values high quality teaching and several members have won awards for excellent teaching: Tone Bratteteig was awarded the UiO Prize for Education 2016 and Olav Thon’s Prize for Excellent Teaching 2018, and Suhas Joshi got the Teacher of the Year Prize at UiO in 2016. Moreover, the Students’ Prize for Best Lecturer has been given to our group twice: Suhas Joshi in 2012 and Svein Hovde in 2014.

The group is involved in many education activities at the department: Suhas Joshi is co-Head of Education (2021-2024). We have been involved in interdisciplinary IT education since the 1990s: Tone Bratteteig has been part of the board of the interdisciplinary education in Computers and Law since its start in 1994. Guri Verne is member (leader in 2023) of the jury for the prize for the best Master’s thesis in mathematics and informatics given by the Norwegian Computing Center (2020-22). Jo Herstad has got funding for several small projects about digital tools in education and Alma Culén obtained a bilateral EEA grant to work on transition design education with Masaryk University, Brno.

d) The support provided by IFI

IFI provides excellent administrative support for our teaching and we work very well together.

IFI provides administrative support for the administrative and budget parts of research applications, and for following up on relevant calls. Both the department and the faculty give good support for ERC applications, with making the budget, checking requirements and reading the application.

The Design group also makes use of UiO’s secure storage of sensitive data from our fieldwork.

Unfortunately, the IFI building is not built for project courses and our students lack work spaces for their group work. Moreover, the Design group lacks technical support: the group has a lab but no engineer position to run it. Our lab is used for our two studio courses and as a work space for the group for workshops and prototyping activities; an engineer would contribute to our research by supporting the development of more robust prototypes. Our Bachelor students make use of *Sonen*:

IFI's makerspace, which is available for students in its opening hours. But *Sonen* is not a work space for longer projects.

1.3 Relevance to the institutions

IFI is proud of professors Ole-Johan Dahl and Kristen Nygaard whose work in developing the object-oriented programming language *Simula* earned international recognition. Dahl and Nygaard helped establish IFI as Norway's broadest informatics department. Nygaard's initiation of *Participatory Design (PD)* in the 1970s set a foundation that the Design group continues in both research and teaching. Today, PD principles like *user-centered design*, *Design Thinking* and *digitalization of organizations* have become mainstream, making relevant our research with its independent and solid empirical research and original theoretical and analytical contributions. Our focus on use and users has sparked collaboration with other research groups at IFI about practical effects of technical innovations. We contribute to the relevance of IFI's research for the general public and society.

The Design group's research concerns the actual effects of digital technologies for individuals and societies and how to design better alternatives. We argue that knowing the preconditions for a system to function well in a particular use context is important for its usefulness. Our PD tradition includes values that are basic to the *UN's sustainability goals* such as well-being and reduced inequalities. IT systems that are useful, usable and wanted contribute to a more sustainable society.

The study program *Design, Use, Interaction* and our emphasis on high quality teaching emphasizes values found in IFI's strategy. The program is designed in line with values basic to *UN's sustainability goals* on quality education and gender equality and it aligns with *UN Principles of Responsible Education*. By combining theory and practice we aim to make our courses durable and last through technological changes and also meet societal challenges today and in the future. Alma Culén is a member of the *Green Informatics council* representing our teaching and research on sustainability.

IFI's strategy emphasizes its broad informatics profile and the Design group contributes with research about actual use and design of digital technologies. We contribute to IFI's interdisciplinarity toward social and humanist sciences, law and design disciplines. We have a long-standing relation to public sector at governmental and municipal levels, and to healthcare institutions inside and outside of hospitals. Our research (including many of our student projects and Master's theses) is carried out in public organizations or industry settings outside of the university. These activities contribute to the employers' organizations and to the actual users involved in the projects.

Many of our projects end with a prototype, but most of these are not robust enough to be used independently of our support. Our designs do not, unfortunately, qualify for support from UiO's TTO: our impact on society could have been larger with an institution that could develop useful prototypes and small inventions further to production.

1.4 Research group's resources

During the last five years (2018-2022) the Design group has had less research funding than previous periods. We have collaborated with the Robin group at IFI on a research project exploring if and how robots can be an assistive technology for elderly people living independently in their homes: the *Multimodal Elderly Care Systems project (MECS)*. We have participated in two projects concerned with design for democracy and sustainability: a Creative Europe EU project on *People's Smart*

Sculpture (PS2) where we had a sub-project and a RCN funded BIA project working with industry on *Conserve & Consume Business Model Innovations (C2)*. RCN has also funded a Scandinavian research project exploring *which public services are suited for digitalization from a user perspective*, where the Design group was set up with one of four work packages. This project was paired with a project with a similar goal addressing the Norwegian context, funded by the Norwegian Welfare Administration. We also include an EEA Bilateral Scholarship about *Transition design: A new challenge to service and interaction design education* in collaboration with the University of Masaryk (see Table 4).

The Design group has also carried out a number of research projects with smaller funding. Examples are five research projects on universal design (Jo Herstad) and two smaller innovation projects with funding from the Regional Research Fund. We have also carried out research without funding in cooperation with external organizations and see this as a basis for further formal cooperation. One such example is our collaboration with the Norwegian Welfare Administration (NAV) where we have had the opportunity to analyze logs from real chatbot conversations with citizens (approx. 10.000) and evaluate the quality of the chatbot answers. This gives a basis for further research collaboration.

Table 2. Sources of R&D funding for the research group in the period 2018-2022.

	2018 (kNOK)	2019(kNOK)	2020 (kNOK)	2021(kNOK)	2022(kNOK)
Basic funding	3621	3788	4232	3588	4740
Funding from industry and other private sector sources					
Commissioned research for public sector					
Research Council of Norway	2200	825		86	245
Grant funding from other national sources	40	40		115	147
International funding e.g. NIH, NSF, EU framework programmes	359			292	292
Other					

1.5 Research group's infrastructures

a) National infrastructures the research group manages or co-manages.

The Design group was involved in starting the *PhD days*, now organized by the IS group. The Design group has participated in the PhD days with PhD students and lectures, but has become less involved over the years.

Together with SINTEF, we were responsible for a Gemini center about *User Experience design (UXD)* for two periods (reelected) from 2012-2018.

The Design group has had (and continues to have) extensive collaboration with a range of industries and museums for teaching (student projects and Master's theses).

b) The most important research infrastructures used by the group

The Design group has been instrumental in starting the *NordiCHI PhD Summer School* in collaboration with NTNU (Dag Svanæs). The first edition was in June 2023 at Baroniet Rosendal (owned by UiO). We will apply for continuing hosting the summer school again in collaboration with NTNU.

At UiO the Design group have represented IFI (and the Mathematics and Natural Science faculty) in the University programmes *UiO: Norden* and *UiO: Democracy*.

The group has been involved in *EUSSET: European Society for Socially Embedded Technologies* since its start, with Tone Bratteteig as one of its founding members. EUSSET was founded to promote a more interdisciplinary perspective on the design and use of digital technologies, based in a practice-centred view on computing with “roots in earlier theoretical and design research areas such as Scandinavian Participatory Design, the Socio-Technical School, and both the French and German psychology and sociology of work” [cf. EUSSET manifesto 2021]. EUSSET is engaged in organizing an annual CSCW conference series and hosts a digital library with its contributions. Currently, the Design group is involved in different roles in the EUSSET Steering Committee and its activities, e.g., the organization and realization of EUSSET International Summer School as a member of the organization team and of the lecturing staff.

1.6 Research group’s cooperations

The Design group is interdisciplinary and this also goes for our research and teaching: we combine social and humanist science knowledge with technical competence to understand design and use of sociotechnical systems. The Design group is instrumental in IFI’s relations to other faculties at UiO. The group also has a long relationship with Oslo Architecture and Design School. We differ from the disciplines we collaborate with by being able to design and program IT solutions (prototypes).

Table 3. Current interactions of the research group with other disciplines.

Interdisciplinary (within and beyond the group)	Collaboration with Dept. of Sociology, Dept. of Pedagogy, Dept. of Media and Communication, Dept. of Music, Center for Computers and Law, Dept. of Pharmacy, Faculty of Odontology and Medicine about teaching (Master’s theses, lectures, exams, PhD evaluation seminars) and research (seminars, common projects), University Hospitals about several Master’s theses and research projects. Advisory board for Computers and Law since 1994. Active in UiO’s projects on interdisciplinary informatics education since the 1990s, including establishing interfaculty study programs <i>Technology, Organization and Learning (TOOL)</i> with Dept. of Sociology and Faculty of Education and <i>Digital Media</i> with Dept. of Media and Communication and Center for Computers and Law. Member of UiO’s work group for the interdisciplinary <i>UiO: Democracy</i> programme hosted by the Faculty of Humanities. Cooperation with Oslo School of Architecture and Design (AHO) about teaching (courses, lectures, exams, exhibitions) and research.
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Collaboration with other research sectors e.g. higher education, research institutes, health trusts and industry.	Collaborating with other universities in Norway about teaching (lectures, exams, Summer school, PhD supervision, PhD evaluation seminars and PhD committees) and research seminars: NTNU, University of Bergen, Oslo Metropolitan University, Kristiania University College. Research collaboration with Agder University and Østfold University College. Collaboration with the research institutions SINTEF and Norwegian Computing Center through adjunct positions from both institutions. Cooperation with universities outside of Norway includes Masaryk University (on several research and teaching projects) as well as University of Siegen, University of St. Gallen, University College London, LMU Munich, Chalmers University of Technology, TU Lodz, RISE Research Institutes of Sweden AB (supervision of PhD students + paper writing) We get invitations for PhD committees and halfway seminars from other research groups at the department (DIN, IS, LTG) and from other universities in Europe (Sweden (Uppsala, Gothenburg, KTH Stockholm, Linnaeus, Umeå), Denmark (ITU, Roskilde, Aarhus), Finland (Oulo), Italy (Torino Polytech, Trento), Austria (TU Wien), UK (Limerick), Australia (Sydney) and more. The study program <i>Design, Use, Interaction</i> has its external advisor from Umeå University (Mikael Wiberg). Collaboration with industry / public sector: a long-standing collaboration with public sector at the governmental level: the Tax authorities, NAV (Norwegian Welfare Administration) and the Health Directorate, and at the municipal and local level: Oslo Municipality and its Care+ facilities (sheltered independent living), their home care and dementia care (Alma's hus, Geria). Collaboration with museums about exhibitions: The Children's Museum, Oslo Technical Museum and The Viking Age Museum. Collaboration with industry about student projects and PhD and Master's theses (e.g., the start-up <i>No isolation, Ruter</i> (traffic info, self-driving cars).
<u>Transdisciplinary</u> (including non-academic stakeholders) <i>Transdisciplinary research involves the integration of knowledge from different science disciplines and (non-academic) stakeholder communities with the aim to help address complex societal challenges.</i>	Much of the Design group's research and teaching is inter- and transdisciplinary, developing research results and curricula that draw on informatics combined with other disciplines. Research projects where the transdisciplinary aspects have been at the center are: <i>Rhyme</i>: design of soft instruments for music therapy for multi handicapped children; <i>Autonomy and Automation in an Information Society for All (A3)</i>: public and healthcare services for vulnerable populations; <i>Multimodal Elderly Care Systems (MECS)</i>: experiencing and experimenting with robots in the home for elderly people living in independent housing facilities; <i>The encyclopaedia genre project</i>: a humanist-lead UiO: Kultrans project about digitalization of the encyclopaedia. Master's theses on, e.g., digital support for dental health in nursing homes /dementia care, eye-steering equipment for ALS patients,

	communication tools for people with no speech (stroke, aphasia, cognitively challenges, dyslexia, deaf and blind), chatbot tailored to Kindergarten children, explorations of physical digital materials. The Design group also has achieved funding for projects about education (inside & outside of schools) and have been instrumental in digital art projects and exhibitions (see 2.1 / Table 4).
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2. Research quality

2.1 Research group's scientific quality

The Design group is a well-functioning group, constituting an open, trusting and exploring work environment for research and teaching. The group is interdisciplinary and the members represent a range of disciplinary perspectives but share a core interest in PD values. Our research contributes to a broad range of research areas, visible in the list of international conferences we have organized and chaired:

- *Nordes 2009: Nordic Design* in Oslo (with Oslo School of Architecture and Design),
- *PDC 2010: Participatory Design Conference* in Sydney (with Technical University of Sydney)
- *IRIS / SCIS 2013: Information Systems Research in Scandinavia / Scandinavian Conference on Information Systems* in Oslo (with the DIN group),
- *ECSCW 2015: European Conference on Computer-Supported Cooperative Work* in Oslo,
- *NordiCHI 2018: Nordic Computer-Human Interaction* in Oslo (with Oslo Metropolitan University)
- *ACM Group 2022/23* in Hilton Head Island, USA (with University of Colorado).
- *Transition Design Conference 2022* in Prague (with Masaryk University, Brno)

Group members have been paper chairs in several of the important conferences in our fields, e.g., *CSCW: Computer-Supported Cooperative Work* and *NordiCHI*. We have been involved as reviewers, ACs and sub-committee co-chairs / ACs in these conferences as well as in other major conferences like *DIS: Designing Interactive Systems*, *CHI: The ACM Conference on Human Factors in Computing Systems*, *INTERACT: International Conference on Human-Computer Interaction*. We have also organized smaller international events like symposium on *Digital Artistic Methods in Participative Urban Development*, *International Workshop on Cultures of Machine Participation*, *International Digital Art Share*.

The Design group has led the *IRIS steering committee* (1997-2001) and the *ECSCW Foundation* (2015-2017), has been/is member of the *NORDES* (2009-2011) and *PDC* (2010-2018) advisory boards and the *NordiCHI steering committee* (2016-present). Currently, we are part of *EUSSET* management team (Fabiano Pinatti). We are also represented in the editorial board of the *Journal Proceedings of the ACM on Human-Computer Interaction (PACMHCI)* and the advisory boards for *Journal of Computer-Supported Cooperative Work* and *FORMakademisk*.

The group's publications from 2018-2022 is found here:

<https://www.mn.uio.no/ifi/english/about/strategy/evalmit/design.html>

Below we present a list of 7 research projects and a list of 5 publications representing the Design group and its broad profile.

Table 4. List of 5-10 representative projects in the period 1 January 2012 – 31 December 2022.

Project 1: Autonomy and automation in an information society for all (A3) (2009-2014)	Project owner(s)	IFI: Design group. Project leader: Tone Bratteteig.
	Total budget and share to Design	RCN Verdikt grant no. 193172/S10: 9.634.400 NOK The project A3 funded 3 PhDs (Suhas Joshi, Guri Verne, Anita Woll). It was carried out in collaboration with the Tax Authorities, Oslo Municipality home care, and 2 University Hospitals (Rikshospitalet, Akershus Regional hospital). Several Masters students contributed to the project.
	Objectives and outcomes (planned or actual) and link to website	The <i>Autonomy and Automation in an Information Society for All</i> explored the use of digital technologies in a) in digitalized public services designed for all citizens (with the Tax authorities), b) the moving of health care to the home emphasizing “welfare technology” / assistive technologies for independent living at home (with Oslo Municipality and their Care+ homes), and c) patients and privacy on the net focusing on longitudinal treatment that includes the transition from child to youth (with 2 university hospitals). The overall aim of the project was to explore the practices and effects of digitalization for “an information society for all” (cf. the governmental white paper). The results include analyses that have been used by the collaborating partners in strategic and practical digitalization processes. The publications from the project includes a large number of papers and three PhD dissertations. https://www.mn.uio.no/ifi/english/research/projects/autonomy-and-automation/
Project 2: MECS, Multimodal Elderly Care Systems (2016-2020)	Project owner(s)	IFI: Robotics group in collaboration with the Design group. Project manager Jim Tørresen (ROBIN).
	Total budget and share to Design	RCN IKT+ program. The Design group got funding for a PhD student: Trenton Schulz approx. 3 mill. NOK. Jo Herstad participated in the project. In addition, more PhD students from the Design group (Diana Saplacan, Rebekka Soma) did their research connected to the project. Several Masters students contributed to the project.
	Objectives and outcomes (planned or actual) and link to website	The MECS project was a joint project continuing the Design group’s cooperation with Oslo Municipality Care+ sheltered living (from the A3 project) with the Robin group’s interest in applied robot technology. The project set out to investigate if and how elderly people living independently at home may use robot

		technologies. The Design group contributed with extensive user studies and PD workshops with users as a way to explore Human-Robot Interaction with elderly people. The Design group's research included practical experiments and theoretical (phenomenological) analyses. The Robin group focused on fall alarms, while the Design group focused more on the usefulness and understandability of HRI. https://www.mn.uio.no/ifi/english/research/projects/mecs/
Project 3: People's Smart Sculpture (2014-2018)	Project owner(s)	Creative Europe EU project, coordinated by The University of Applied Science, Bremen. Subproject at IFI: Design: Alma Culén.
	Total budget and share to Design	Grant number EC-EACEA 2014-2330: 393 900,00 Euro, UiO 208 625,54 with 50% self-contribution (partially funded a PhD student: Sumit Panday). Collaboration with 11 European partners, including universities (University of Kristiastad, University of Applied Science Düsseldorf, Helsinki Metropolia University of Applied Science, University of Applied Science Bremen and University of Oslo, Gauss institute Bitola) and cultural institutions (Museum of Broken Relationship Zagreb, Gdansk City Gallery Bitola Museum, Warehouse 9, Oslo Children's Museum). The Norwegian subproject featured collaboration with Oslo Children's museum, including Sentralen Culture House, Aftenposten Junior, Miljøagentene, Museum of Natural History, and Gdansk City Gallery.
	Objectives and outcomes (planned or actual) and link to website	Aim: foster participative art and collaborative urban art&culture processes in Europe's cross-cultural city spaces. With broad people's participation and collaboration between researchers, designers, artists and citizens, the project aimed to pioneer the future integrative culture of social collaboration, digital art, collaborative design, e-decision-making, eGovernance, social inclusion, urban play – through various interventions, sometimes analogous and other times including new digital tools, mobile devices, interactive screens or projections. The participation was seen as an essential element in tackling urban complexity and integrating diverse forms of cultural practice and diverse groups of people. The Norwegian subproject focused on children and youth. In total, the subproject held 40 events (called <i>CityKids</i>) in Norway for over 40.000 attendees offering novel cultural content to youth and families with young children. Besides events, the Norwegian subproject delivered several installations, and 10 publications (e.g., Co-creating Interactive Obstacles and DIY Skateboarding Spaces (CHIItaly, 2017), HearSay: Speculative Exploration of Intelligent Voice Based Interfaces (Nordes 2017), Framing smart consumer technology: Mediation, materiality, and material for design (International Journal of Design, 2018), Eyespy: Designing Counterfunctional Smart Surveillance Cameras (NordiCHI 2018).

		No web site but a CityKids example can be found here: https://www.facebook.com/events/1982856075323507/1982856101990171/?active_tab=discussion)
Project 4: Conserve & Consume Business Model Innovations (2014-2018)	Project owner(s)	Schibsted Vekst AS in collaboration with IFI: Design (Alma Cuén), Bengler and SINTEF
	Total budget and share to Design	RCN BIA project no. 235526: NOK 13.5 mill. IFI: Design got 1 PhD funded (approx. 3 mill. NOK): Swati Srivastava
	Objectives and outcomes (planned or actual) and link to website	The aim of the project was to explore how sustainable service models could be pushed from being niche phenomena to reach the mass market. In particular, the project aimed to contribute to the understanding of how innovative technologies and business models can facilitate sharing, lending, and reuse of product without sacrificing user experience and efficiency, with real-life implications for redistribution services and product-service-systems. The project featured Schibsted Growth, Greenphones and SoBo Community as the industrial partners. SINTEF Digital, University of Oslo, and Bengler were the research partners. The outcomes from UiO included an installation featuring a future service Zygo, at Nordes 2017. The work also led to 8 publications and new approaches discussed in Implications for Transitions to Sustainable Consumption: Finding Millennials' Behaviour Archetypes (IASDR 2019), Transition-oriented Futuring: Integrated Design for Decreased Consumption amongst Millennials (DRS 2018), Designing for the second-hand use of consumer goods (IHCI, 2017). <i>No web site</i>
Project 5: Transition design: A new challenge to service and interaction design education (responsible	Project owner(s)	UiO IFI: Design with Masaryk University, Brno
	Total budget and share to Design	EEA Bilateral Scholarship, no. EHP-CZ-ICP-2-019. Total budget: 101520.00 euro, UiO 50990 euro. Collaboration with Masaryk University in Brno and the Academy of Arts, Architecture and Design in Prague and with Oslo Municipality funding the Children Museum.
	Objectives and outcomes (planned or actual) and link to website	The project's aim was to increase competences of MUNI and UiO students in the field of transition design. Transition design refers to design-led societal transition toward more sustainable futures and the reconceptualization of lifestyles. It is based upon an understanding of the interconnectedness and inter-dependency of social, economic, political and natural systems, it challenges existing paradigms, envisions new ones, and leads to radical, positive social and environmental change.

education). EEA project (2021-2022)		The project resulted in several publications, and course implementations at both Masaryk University and UiO (e.g., Speculative and Critical Approach to Designing Technological Futures through HCI Education (Interaction Design and Architectures Journal, 2022), Designing for Transitions in Rural Transport (ICT, 2020), Project-based learning in human-computer interaction: a service-dominant logic approach (Interactive Technology and Smart Education Journal, 2022) <i>No web site</i>
Project 6: What public services should be digitalised? A citizen-centred analysis of what public services are suitable for digital channels (2021-2024)	Project owner(s) (	University of Agder, Collaboration with IFI: Design: Guri Verne (Work package 4) and with Linköping's University, IT University Copenhagen
	Total budget and share to Design	RCN: 86.419 NOK <i>project no.</i> 103066101. <i>For IFI: Design</i> 86.419 NOK financed by the RCN
	Objectives and outcomes (planned or actual) and link to website	The project aims to study citizens' use of public self-services and how the services can be designed to be easier to understand and use for the citizens. The study analyzes public services from NAV (Norwegian Welfare Administration). The project focuses on the digital communication channels as seen from a user perspective. Two papers by Guri Verne in 2023 (at eGov and ECSCW conferences, respectively) <i>No web site</i>
Project 7: Hvilke tjenester bør digitaliseres og hvordan? En analyse fra brukerperspektiv av hvilke offentlige tjenester som egner seg for digitalisering (2021-2024)	Project owner(s)	University of Agder, IFI: Design: Guri (20 %) In collaboration with University of Agder, Linköpings University, IT University Copenhagen
	Total budget and share to Design	Project no 102997101. Funded by NAV: Norwegian Welfare Administration: 193 000 NOK for 2021 and 2022.
	Objectives and outcomes (planned or actual) and link to website	the objective of the project is to critically analyze – from the citizens' perspectives – which public services are suitable for digital communication channels. Studies of citizens' use of public self-services and how the services can be designed to be easier to understand and use for the citizens. Two papers by Guri Verne (in eGov and CSCW outlets) https://www.uia.no/en/about-uia/faculties/faculty-of-social-sciences/prosjekter/digitalising-public-welfare-services-in-scandinavia

Publications

In our selection of 5 publications, we have chosen publications from the Design group that show the range of our research. We mainly do empirical research, but as the COVID pandemic made fieldwork difficult we have fewer papers that can represent this type of research from the period 2018-2022 than we normally have. The selection of papers also aims to show that our research is conceptual and interdisciplinary in that we combine technical knowledge with social and humanist science.

Table 5. Research group's contribution to publications

Publication 1: <i>Does AI make PD obsolete?: exploring challenges from artificial intelligence to participatory design.</i> Proceedings of PDC'18: the 15th Participatory Design Conference vol. 2, article no. 8, p. 1-5. (2018). https://doi.org/10.1145/3210604.3210646	Authors	Tone Bratteteig and Guri Verne
	Short description	The paper discusses how AI challenges PD and the possibilities for users to participate in design decisions. We show that classic PD methods can be useful also for designing IT solutions that include AI / machine learning (ML) with users.
	Research group's contribution	Both authors are faculty in the Design group. The paper combines a discussion about the technical characteristics of AI and ML with methods for PD demonstrating that we combine understanding the technical solutions with solid knowledge of methods and approaches in PD. The paper was the first paper on AI presented in a PD conference and has got a good number of citations.
Publication 2: <i>Using embodied experiences to re-design enabling technologies.</i> <i>Journal of Enabling Technologies</i> 13 (1). (2019). https://www.emerald.com/insight/content/doi/10.1108/JET-06-2018-0028/full/html?skipTracking=true	Author	Suhas Govind Joshi
	Short description	The paper reports from a research project using PD as an approach to design with and for older people aimed at enabling them to live independently in their homes (A3). Joshi combines PD with phenomenology to argue for a focus on the capabilities rather than the disabilities of the older adults. The paper presents design results and evaluation of these with the older participants.
	Research group's contribution	Suhas Joshi is an associate professor in the Design group. This paper builds on his PhD work where he worked with older adults over several years, experimenting with PD methods as well as arriving at usable prototypes demonstrating his approach. The paper also emphasizes the phenomenological approach

		underlying much of the Design group's research. Even if most of the group's research is qualitative, this paper demonstrate that we also use quantitative research methods when appropriate.
Publication 3: Strategies for Annotating Portfolios: Mapping Designs for New Domains. DIS'20: Proceedings of the ACM Designing Interactive Systems Conference (2020): 1633-1645. https://doi.org/10.1145/3357236.3395490	Authors	Alma Culén, Jorun Børsting, William Gaver
	Short description	The paper extends the concept of annotated portfolios (originally suggested by Gaver in 2012) to include designs for new domains, in particular annotation of the qualities of interaction and the design domain in addition to the trajectory of the design process and the ecosystem that the design will be part of. The paper builds on a case of design for and with people with Myalgic Encephalomyelitis (ME).
	Research group's contribution	All authors are members of the Design group: Alma Culen as professor, Jorun Børsting as PhD student and Bill Gaver as adjunct professor. The paper was presented at a DIS conference and represents a contribution from the group to the design-oriented HCI community. Annotated portfolios have become one of the primary ways of communicating research through design. This paper has extended the conceptual basis for annotating portfolios and illustrated how new domains for technology design could be opened and populated by new artefacts while considering the ecology of digital artefacts created. The paper is well cited.
Publication 4: A trajectory for technology-supported elderly care work. <i>Computer Supported Cooperative Work</i> 28: 127–168 (2019). https://doi.org/10.1007/s10606-018-9340-2	Authors	Anita Woll, Tone Bratteteig
	Short description	The paper draws on fieldwork from a project about PD with older adults for design of assistive technologies, focusing on the larger picture of digitalization of elderly care. The paper uses empirical data from several years of cooperation with elderly care institutions in Oslo municipality (A3). The analysis draws on theory from CSCW to discuss how assistive technologies can be designed to be useful for supporting elderly people in living independently in their home longer.

	Research group's contribution	Tone Bratteteig is a professor in the Design group where Anita Woll was a PhD student. It shows a theoretical contribution to the CSCW field and theoretical conceptualizations that go hand in hand with analyses of empirical data from fieldwork. The paper is published in the CSCW journal and is cited well.
Publication 5: <i>Animation Techniques in Human-Robot Interaction User Studies: A Systematic Literature Review. ACM Transitions on Human-Robot Interaction vol 8 (2), article 12: 1-22. (2019).</i> https://doi.org/10.1145/3317325	Authors	Trenton Schulz, Jim Tørresen, Jo Herstad
	Short description	The paper explores how techniques from film animation can be used to instruct a robot to move differently and, in this way, help potential users to better understand and predict its movements. The paper is a systematic literature review of how trials, pilots, and evaluation using animation techniques has been carried out in human-robot interaction research. The paper gives a basis for discussing human-robot interaction from a user perspective.
	Research group's contribution	Jo Herstad is an associate professor in the Design group and Trenton Schulz is an adjunct faculty. This paper is written in a research project in collaboration with the Robotics group at IFI (Jim Tørresen is professor in ROBIN). The paper is published in ToHRI and is included to show how the Design group works to use technical knowledge about IT to change / improve the interaction between the technology and its users.

Table 6. The research group's monographs/scientific books.

1	Bratteteig, T. (2021). <i>Design for, med og av brukere</i> . Text book (in Norwegian). Universitetsforlaget, Oslo https://www.universitetsforlaget.no/design-for-med-og-av-brukere-1
2	Bratteteig, T. and Wagner, I. (2014): <i>Disentangling Participation. Power and Decision-making in Participatory Design</i> , Springer CSCW series. https://link.springer.com/book/10.1007/978-3-319-06163-4
3	Gray, B., Ciolfi, L., & de Carvalho, A. F. P. (2020). <i>Made to Work: Mobilising Contemporary Worklives</i> . Abingdon and New York: Routledge. https://www.routledge.com/Made-To-Work-Mobilising-Contemporary-Worklives/Gray-Ciolfi-de-Carvalho/p/book/9781032172644
4	Berget, G, Bratteteig, T, Culen, A, Obrist, M, Sandnes, F.E. and Stolterman, E. (eds, 2018). <i>Proc. of the NordiCHI'18 conference</i> , Oslo October 2018 https://dl.acm.org/doi/proceedings/10.1145/3240167
5	Bjørn, P, Boulus-Røje, N, Bratteteig, T, Ellingsen, G, Kuutti, K, Schmidt, K. and Aanestad, M. (eds, 2015). <i>Proc. of the European Conf. on CSCW, ECSCW 2015</i> , Oslo September 2015. https://link.springer.com/book/10.1007/978-3-319-20499-4
6	Aanestad, M. and Bratteteig, T. (eds, 2013). <i>Nordic Contributions in IS Research: 4th Scandinavian Conference on Information Systems, SCIS 2013, Proceedings</i> . Springer. https://link.springer.com/book/10.1007/978-3-642-39832-2
7	Robertson, T, Bødker, K, Bratteteig, T. and Loi, D. (eds, 2010): <i>Proceedings of the 11th Conference on Participatory Design</i> , Sydney, Australia, ACM Press. https://dl.acm.org/doi/proceedings/10.1145/1900441
8	Mørch, A.I, Morgan, K, Bratteteig, T, Ghosh, G. and Svanæs, D. (eds, 2006): <i>Proceedings of the Fourth Nordic Conference on Human-Computer Interaction (NordiCHI 2006)</i> , ACM. https://dl.acm.org/doi/proceedings/10.1145/1182475
9	De Choudhury, M., Ding, X., Guha, S. and de Carvalho, A. F. P. (eds, 2023). <i>Proceedings of the ACM on Human-Computer Interaction (PACMHCI), 7(CSCW1)</i> , April 2023, ACM. https://dl.acm.org/toc/pacmhci/2023/7/CSCW1
10	De Choudhury, M., Ding, X., Guha, S. and de Carvalho, A. F. P. (eds, 2023). <i>Proceedings of the ACM on Human-Computer Interaction (PACMHCI), 7(CSCW2)</i> , October 2023, ACM. https://dl.acm.org/toc/pacmhci/2023/7/CSCW2

2.2 Research group's societal contribution

The Design group's focus on actual practices in design and use of digital technologies depends on research collaboration with organizations (and users) outside of IFI, which has given us good relations to external organizations (public and industry). Our research also emphasizes conceptualizations and theory, drawing on our broad disciplinary backgrounds to conceptualize use and design. The ways that we combine theory and practice in research also contribute to our teaching.

The Design group is recognized for good teaching and the study program that we lead: *Design, Use, Interaction*, is very popular. We consider the education that we provide to have a lasting impact on the future of IT development.

We contribute to the society also through research and project-based education, where our research has influenced design processes in the public sector emphasizing the user / worker aspects of technical solutions (used to revise tender announcements). Our experimental prototypes have been used as requirements specification in acquisition processes. Our analyses of use practices have had impact on organizations' design of their public communication. Our participatory projects have

resulted in user manuals and teaching materials. Moreover, many student projects have also contributed to their host organizations by providing studies and/or prototypes that can be used further by the organization.

Below we list some examples of the Design group's presentation of our research in various ways and media. Our research on use (and non-use) of digital technologies are often invited for presentations in media, and we have listed a couple of examples of interviews in radio and newspapers. We also have appeared several times in the UiO's research channel *Titan.uio.no*, below we list one of these but all PhD students and most of the Design group faculty have been interviewed by *Titan*. Some of the group members have had a large number of talks and presentations for trade unions and other stakeholder forums about our research. This also includes presentations in UiO events open to the general public and presentations for ministers and governmental decision-makers.

The Design group also presents research results (and student projects) as exhibitions in cooperation with several museums. We have listed some of these in Table 7 below.

Table 7. The research group's societal contribution

No.	Name of publication/product	Date of publication/product	Link to the document
1	Interview in <i>Titan.uio.no</i> : Alma Culén and Sumit Pandey on the use of AI in home technologies (Alexa, Google home etc)	2019	https://www.titan.uio.no/innovasjon/2019/forskningen-som-gjor-deg-kritisk-til-dine-digitale-hjelpere.html
2	Interview in <i>Norwegian Broadcasting NRK Radio P1 Ukeslutt</i> : Guri Verne on analogue living and the extra time and cognitive effort involved in digital living	27. June 2023	https://radio.nrk.no/serie/ukeslutt/sesong/202305/NMAG01002123 , from 29:15 min onwards.
3	Interview in <i>newspaper Aftenposten</i> : Tone Bratteteig on working from home with digital meetings	24. April 2020	https://www.aftenposten.no/kultur/i/zGJW9w/konsentrasjonsvansker-unnasluntring-og-brudd-paa-intimsoner-derfor-blir-du-sliten-av-videomoeter
4	Talk at <i>UiO's annual innovation conference "From data to insight"</i> : Tone Bratteteig on user perspectives on digitalization	10. January 2019	https://www.mn.uio.no/om/aktuelt/arrangementer/innovasjonskonferanse.html
5	Talk at the <i>annual Kommunal conference for trade union members</i> : Tone Bratteteig on digital exclusion ("utenforskap")	7. November 2018	https://frifagbevegelse.no/nyheter/forsker-gir-darlig-design-skylda-for-at-eldre-ikke-henger-med-digitalt-6.158.589303.a44799887b
6	Talk for the <i>Standing Committee on Health and Care Services</i> : Suhas Joshi on welfare technologies and accompanying research	October 2014, Oslo City Hall	<i>No functioning web site</i>
7	<i>Faglig Forum: National conference on «welfare technology»</i> , Oslo: Suhas Joshi on developing and evaluating new welfare technologies together with elderly users	December 2015	<i>No functioning web site</i>
8	Noise ("Ulyd") at Sentralen, Oslo: Alma Culén organized a speculative design exhibition as part of <i>CityKids</i>	April 2017 og March 2018	https://journalen.oslomet.no/2017/10/ulyd-pa-citykids

9	Klimahuset, Oslo: Suhas Joshi collaborated with a presentation and exhibition of digital technologies for the climate	May 2021	<i>No functioning web site</i>
10	Exhibition: <i>Together with the things: when art meets craft</i> . Svein Hovde contributed with 400 different exemplars of marking gauges ("rissemål") showing the variation and the craft involved in very simple tools	Lillehammer, March 2022	https://www.gallerizink.no/post/sammen-med-tingene

3. Challenges and opportunities

The ongoing generation shift in the Design group is an opportunity for consolidating the group and its shared values as well as for meeting some of the weaknesses of the group. The profile and strategy in this document are results of a team building process in the consolidated group. We share the values of the PD tradition and aim to address the challenges to PD from contemporary society. We also share the ambition to improve our abilities to produce prototypes demonstrating alternative – better – digital solutions.

The broad diversity of the Design group members requires that we from time to time come together to apply for a large research project that gathers all group members to address a common goal. With two new faculty it is time to apply again for a research project that can consolidate and enhance the group's common basis. We will build on more than 10 years research on conceptualizing PD as well as ongoing empirical research on use practices involving everyday technologies (like remote controls, mobile phones). We want to continue exploring how to include AI in PD. Last but not least, we aim to further the PD field by demonstrating how PD is relevant in today's society.

We publish and communicate our research results adequately, and the number of publications in top ranked outlets has improved with our 2 new faculty. We will improve the organization of our writing in order to increase the success rates in the top ranked outlets where we want to be visible.

The Design group is responsible for most of the courses in the *Design, use, interaction* study program. Our PhD students contribute to the teaching, which is good for their CVs, but they spend their duty hours very fast and the group's teaching responsibilities depend on their contributions. We will continue to deliver high quality teaching. But our passion for high-quality teaching is also the main weakness of the group as our teaching takes time from research, although utilizing student projects to contribute to our research helps. The high teaching load also implies a high administrative work load, and our success in teaching is seen as a good example to learn from at both department and faculty levels. This results in invitations to share our experiences and participate in improving student environment elsewhere, adding to the workload related to teaching and teaching administration. We are currently discussing how to reorganize and prioritize our teaching and research internally so that the distribution of teaching responsibilities becomes more robust and that everyone gets more time for the research and writing they prioritize.

The group has a good external network and we should utilize our good relations with external organizations more and make our collaborations more visible and maybe also more formalized. Our new colleagues have expanded the group's international network and visibility in Europe. They have also come with experiences from different ways of prioritizing and balancing research and teaching that the whole group can learn from.

The group has several good experiences collaborating with other research groups at IFI, e.g., the MECS project with the Robotics group, a new initiative with the network group and a teaching cooperation with the software engineering group. In addition, we are engaged in teaching collaboration with Dept. of Sociology, Dept. of Education and Center for Computers and Law. Our good relations to other research groups can be utilized more and better.

The Design group continues to contribute to the broad profile of IFI both in research and teaching. The importance of having a broad view of technology and technology design will increase in the years to come.