

Office Wellbeing by Design: Don't Stand for Anything Less

Luke Haliburton
LMU Munich
Munich, Germany
Munich Center for Machine Learning
(MCML)
Munich, Germany

Ida Damen
Fontys University of Applied Science
Eindhoven, Netherlands

Carine Lallemand
University of Luxembourg
Esch-Belval, Luxembourg
Eindhoven University of Technology
Eindhoven, Netherlands

Jasmin Niess
University of Oslo
Oslo, Norway

Aino Ahtinen
Tampere University
Tampere, Finland

Paweł W. Woźniak
Chalmers University of Technology
Gothenburg, Sweden



Figure 1: In this workshop, we aim to develop concrete steps that designers and practitioners can take to design a healthier future workplace. Image generated using DALL-E 3.

ABSTRACT

The modern workplace has been optimized towards increasing productivity, often at the cost of long-term worker wellbeing. This systemic issue has been acknowledged in both research and practice, but has not yet been solved. There is a notable lack of practical methods of incorporating physical activity and other wellbeing

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).
CHI EA '24, May 11–16, 2024, Honolulu, HI, USA
© 2024 Copyright held by the owner/author(s).
ACM ISBN 979-8-4007-0331-7/24/05.
<https://doi.org/10.1145/3613905.3636284>

practices into productive workplace activities. We see a gap between research endeavors and industry practice that motivates a call for increased collaboration between the two parties. In response, our workshop aims to bring together researchers and practitioners to work together in identifying a set of grand challenges for the field. Through collaboration, we will create a concrete research agenda to create a resilient future workplace that explicitly incorporates holistic worker wellbeing.

CCS CONCEPTS

• **Human-centered computing** → **Collaborative and social computing**; *Human computer interaction (HCI)*.

KEYWORDS

Wellbeing, Office Workers, Future of Work, Physical Activity

ACM Reference Format:

Luke Haliburton, Ida Damen, Carine Lallemand, Jasmin Niess, Aino Ahtinen, and Paweł W. Woźniak. 2024. Office Wellbeing by Design: Don't Stand for Anything Less. In *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI EA '24), May 11–16, 2024, Honolulu, HI, USA*. ACM, New York, NY, USA, 7 pages. <https://doi.org/10.1145/3613905.3636284>

1 MOTIVATION

The modern office is designed to prioritize productivity - we have developed technology to make nearly every work task easier and more efficient [33]. In pursuit of this goal, workplaces are deliberately designed so that workers move as little as possible [19], leading to workers spending the majority of their workday in a sedentary state [9]. This sedentary behavior not only leads to physical health problems but also exacerbates workplace stress[8], a prevalent issue linked to long-term health complications. Although this problem has long been recognized in both research and practice, office workers still predominantly sit while performing tasks at their desks or at conference tables in meeting rooms. Beyond taking breaks to interrupt work, there are currently limited tools and interventions for workers to integrate physical activity or stress-reducing movements into productive work tasks [12, 22].

Extensive research in public health has demonstrated the negative impacts of extended periods of sedentary behavior [6]. Persistent sitting increases the risk of cardiovascular disease [16], chronic low back pain [4], diabetes [37], dementia [28], and overall mortality [27]. Moreover, stress—often worsened by the lack of physical activity—adds another layer of health risk, leading to issues such as hypertension, mental health decline, and decreased work productivity [6, 8, 9]. Fortunately, increasing physical activity has been shown to improve cardiovascular capacity [26], reduce the risk of disease [7], and improve wellbeing [23], mood, and happiness [36]. In addition, regular physical activity reduces depression and anxiety symptoms [29], increases overall mental health [23], and improves cognitive functions such as attention and memory [5, 24]. As such, there is a clear opportunity to develop technologies to support workers in integrating physical activity and alleviating stress into their work. Beyond mere ‘active breaks’, this aims to create a thriving, health-focused workplace of the future.

Researchers in Human-Computer Interaction (HCI) have been tackling this issue from a variety of perspectives. For instance, recent studies have explored the effectiveness of walking meetings as a means to incorporate physical activity into productive tasks [1–3, 11, 13–15, 17, 20, 21]. Research has also delved into the utility of tangible prototypes [22, 25, 31], user-driven self-tracking [34, 35], or the implementation of autonomous standing desks [18] as interventions to enhance wellbeing. On the mental health front, prior HCI work has examined the potential of various technology-mediated stress management tools, ranging from biofeedback devices [38] to mindfulness applications [30, 32].

However, despite developments in research and the known health implications of prolonged sedentary behavior, it remains the default setting in contemporary office environments. This is not merely an issue of lack of awareness but a systemic inertia that perpetuates

outdated workplace norms. Beyond intermittent breaks, there are insufficient tools and strategies designed to embed physical activity within the workflow of everyday tasks [10]. The mismatch between scientific recommendations and current workplace practices is not only evident but also unsustainable. This workshop aims to be a catalyst for change, serving as a platform to not only bridge this divide but to redefine it. It's no longer enough to just acknowledge the health challenges; it's time to radically rethink our vision for the future workplace. Through this workshop, we assert that the moment has arrived to re-imagine a new kind of workspace—one that inherently empowers the health and wellbeing of employees.

Recognizing the interconnected nature of physical and mental health, this workshop welcomes contributions from researchers and practitioners keen on co-creating a healthier, stress-resilient workspace for the future. Our focus extends beyond isolated solutions, encouraging a holistic approach that integrates physical activity interventions with technology-enabled stress management strategies. This comprehensive viewpoint allows us to tackle workplace wellbeing from multiple dimensions, aligning with our vision of redefining what a health-focused workplace can truly represent.

1.1 Goals of the Workshop

The central objective of this workshop is to serve as a high-impact platform for fostering intensive discussions and collaborations among researchers, practitioners, and other stakeholders concerned with workplace wellbeing. The workshop is designed with several specific goals in mind:

- (1) **Idea Exchange and Interdisciplinary Collaboration:** We aim to recruit participants from both research and industry in fields related to workplace health, as well as industry team leaders interested in healthy work practices. With this, we aim to collaboratively develop strategies to bridge the gap between research and practice. We will actively encourage the formation of interdisciplinary research groups to catalyze innovative approaches. All of the accepted workshop papers will be made available on our website before the conference and will remain available to increase visibility and access for the wider research community. At the conference, we wish to exhibit a hybrid gallery showcasing the results of the workshop co-creation sessions, which will feature both physical and digital gallery exhibits.
- (2) **Publication:** We will produce post-workshop publications with two key aims: developing a research agenda for academia focused on workplace wellbeing, and communicating actionable insights to implement existing research in practice. Our multi-pronged publication efforts (papers, blog posts, & social media) aim to serve as foundational information for practitioners looking to implement best practices in workplace wellbeing. We will publish a blog article targeting an industry audience, apply for an article in *Interactions Magazine* on the workshop findings and our developed research agenda and we will create a visualization-based output (e.g. pictorial or after-movie) to disseminate our findings.

- (3) **Continuity:** Establish a network or community of practice around this topic, laying the groundwork for future collaborations, studies, and implementations. We will facilitate ongoing research in this community through the development of a comprehensive research agenda for healthy workplaces.
- (4) **Real-world Impact:** Identify pathways for translating academic research into actionable corporate policies, providing guidelines for how these research outcomes can influence the design of future workplaces in a practical manner. We will communicate our findings through blog posts and circulate them via industry partners on social media (e.g., LinkedIn).

By achieving these goals, the workshop will contribute significantly to reshaping the dialogue around workplace wellbeing, moving us closer to a future where the health and wellbeing of employees are integral to workplace design and operation.

2 ORGANIZERS

Luke Haliburton is a Ph.D. candidate in the Human-Centered Ubiquitous Computing group and the Munich Center for Machine Learning at LMU Munich. His Ph.D. research is primarily focused on developing technologies for healthy workplaces — developing and investigating prototype solutions to support walking meetings and automated standing desks. He also conducts research on mobile interaction, ubiquitous computing, machine learning ethics, and mindful technology use. As a former biomedical engineer, startup founder, and current startup mentor, Luke actively works towards developing a closer relationship between research and industry, aiming for more effective transitions between the lab and practice.

Ida Damen holds a Ph.D. in Industrial Design from Eindhoven University of Technology, where her dissertation focused on the role of technology in fostering active and healthy workplaces. Currently a researcher and lecturer at Fontys University of Applied Sciences, Ida is also affiliated with the Workplace Vitality Hub, a living lab devoted to workplace wellbeing. Her work bridges the gap between academic research and practical application, involving collaborations with interdisciplinary teams of psychologists, ergonomists, and technology experts. With an emphasis on design-oriented research, Ida has made significant contributions to the creation of innovative solutions aimed at seamlessly incorporating physical activity into office tasks.

Carine Lallemand is Assistant Professor in Experience Design at the University of Luxembourg and the Industrial Design Department at the Eindhoven University of Technology (Netherlands). She has a background in Psychology and Human-Computer Interaction. Her research activities are mainly centered on designerly ways to trigger behavior change for healthier lifestyles, with a particular focus on healthy office work and SportsHCI. As the leader of the TU/e Vitality squad, Carine has supervised over 50 Bachelor and Master students projects and published more than 20 peer-reviewed publications on healthy workplaces. She also has extensive experience in organizing academic workshops and seminars. Carine is the author of a textbook on UX methods, currently used in more than 100 curriculums in 6 French-speaking countries. She is also a passionate advocate for academia-industry relationships.

Jasmine Niess is an Associate Professor at the University of Oslo, Norway. She is co-affiliated with the Leibniz Science Campus

for Digital Public Health and actively engaged in multiple research projects focused on digital health interventions. Jasmin is an expert in developing innovative interaction techniques, studying the influence of psychological and experiential aspects in the realm of health and well-being technologies, and advocating for inclusive design principles within the digital health landscape. She places high importance on academic service and held multiple roles in the SIGCHI community (e.g. CHI 2024 courses chair). Due to her experience in multiple digital health-related projects, Jasmin has extensive experience in organizing workshops and other academic events engaging stakeholders from academia, industry and the health sector.

Aino Ahtinen received her Ph.D. in Human-Technology Interaction from Tampere University of Technology, Finland. Her research focused on the design of motivational applications to increase physical activity of people. Her post-doctoral research concerned the design of physically active ways of work, including for example the development of the Brainwalk walking meeting concept for contemporary knowledge work. She works currently as a University Lecturer at Tampere University (TAU), unit of Computing Sciences. In 2022, she received an excellent teaching award at TAU for designing and implementation of Brainwalks for students' supervision. She has also established a co-learning space Robostudio at TAU, and there, her team is experimenting about how to integrate robots to increase people's physical activity and wellness in several contexts.

Paweł W. Woźniak is an associate professor at Interaction design, Chalmers. Paweł's key interests lie in the intersection of technologies, physical activity and wellbeing. His focus is on understanding the everyday experiences of physical activity and designing better technologies that support wellbeing. Paweł loves to build stuff and he builds devices for sports particularly often. He has held multiple roles in the SIGCHI community (general chair of TEI'23, ISS'21, SIGCHI Poland chair). Paweł brings systems and personal informatics expertise to the workshop as well as track record of organising academic events.

3 WORKSHOP PROCEEDINGS & POST-WORKSHOP PLANS

We will make all of the accepted workshop papers available on our website before the conference so participants can familiarize themselves with the perspectives of other participants and facilitate rich discussions. The papers will remain available on our website after the event and we will also publish the proceedings on our website to increase visibility and access for the wider research community.

3.1 Post-Workshop Plans

We will apply for an article in Interactions Magazine where we will report on the workshop findings and highlight our developed research agenda. As our workshop also targets practitioners and has the goal of creating a concrete set of recommendations on best practices, we will also publish a blog article targeting an industry audience. To improve communication, especially with practitioners and everyday users (i.e., workers and managers in practice), we will create a visualization-based output (e.g. pictorial or after-movie) to disseminate our findings. As outlined earlier, we will continue

to host all accepted workshop papers both on our website and on our website after the workshop.

4 HYBRID EVENT

We plan to offer the workshop in a hybrid format with in-person and virtual components. The in-person segment will occur on location in Hawai'i on one of the CHI workshop days. As part of our vision for truly global participation, we recognize that some participants will be unable to attend in person. A hybrid event not only pragmatically increases opportunities to gather a higher and more diverse set of participants, but also increases the potential equity of participation. There will be an option for virtual participants to participate synchronously on the workshop day and we will also provide asynchronous materials to all participants (see Section 4.1).

In-person attendees will gather in a room at CHI where we will require seats for all attendees and ideally a workshop-style formation with a mix of sitting and standing tables for attendees to work in smaller groups. We will also move outside for discussions-in-motion, which will be coordinated by the workshop organizers.

Virtual (synchronous) participants will join the workshop via a Zoom call hosted by the organizers. We will stream all presentations through this Zoom call, and virtual participants will present their contributions and ask questions after each paper. During the discussions-in-motion, we will encourage the virtual participants to join the Zoom call via a mobile device and move outside. We will pair up virtual participants for remote discussions-in-motion in breakout rooms. One workshop organizer - being remote themselves - will chair the remote session and offer support to virtual participants. One of the outcomes of our workshop is a hybrid gallery showcasing the results of the workshop co-creation sessions, which will feature both physical and digital gallery exhibits.

4.1 Asynchronous Engagement

Prior to the workshop, we will distribute a "sensitization postcard" to all participants featuring videos and questions that are intended to probe the users and inspire critical thought about the topic. We will host all accepted workshop submissions on our website several weeks prior to the event and notify all participants so that they can view each other's contributions. All virtual participants will have the option to present their papers synchronously via Zoom, but will also be asked to prepare a short video presentation which can be played in case of connection issues.

5 ACCESSIBILITY AND ACTIVE ENGAGEMENT

We are dedicated to creating an inclusive environment and ensuring that all participants can participate in all workshop activities. We champion diversity and inclusivity, recognizing the unique experiences and perspectives each participant brings. While we employ active methodologies, like discussions-in-motion, it is essential to underscore that our understanding of 'active' is not limited to physical movement. We are acutely aware that standing or walking may not be feasible or comfortable for everyone. Therefore, we have put measures in place to ensure that all activities are adaptable and inclusive. We will select accessible routes and locations for all

outdoor activities and ensure that meeting points are within reasonable distances. We will inquire about accessibility needs before the workshop to develop appropriate preparations. Additionally, all organizers who are present in person will actively monitor the workshop for accessibility issues with the aim of preventing problems before they occur. We invite participants to engage in a manner that's most suitable for them, without any obligation to conform to a singular mode of participation. Our commitment is to ensure every attendee feels welcomed, valued, and empowered to contribute meaningfully to the workshop.

6 WORKSHOP ACTIVITIES

The workshop is planned as a one-day hybrid event and will consist of interactive sessions, a moving breakout session, group discussions, and design exercises. Participants will be encouraged to share their ongoing research, practical experiences, and future directions related to integrating healthy practices into the workplace. Each participant will contribute a vision of their ideal healthy workplace of the future and a Grand Challenge for the field (written, video, and audio submissions accepted, max. 4 pages or 5 minutes). There will also be asynchronous pre-workshop activities to inspire users to start thinking about the topics in advance (see Section 4.1). Participants should discuss their vision, prior research, perspectives, or insights on the workshop topic. The selection of participants will be a juried process where the workshop organizers assess the quality, novelty, potential for discussion, and variety of perspectives.

By bringing together multidisciplinary perspectives, including HCI, ergonomics, workplace design, engineering, public health, and biophilic design, we seek to foster a rich and fruitful discussion on the following topics:

- (1) Identifying the challenges and opportunities in integrating physical activity and stress resilience into the work environment.
- (2) Exploring novel technological interventions that promote or support physical activity and stress resilience during work tasks.
- (3) Discussing ethical considerations and potential barriers associated with implementing physical activity and stress resilience interventions in the workplace.
- (4) Formulating guidelines and best practices for designing a healthier future workplace that prioritizes physical activity and stress resilience.

A preliminary schedule for the workshop is outlined in Table 1.

7 CALL FOR PARTICIPATION

The modern office is designed to prioritize productivity - we have developed technology to make nearly every work task easier and more efficient. In pursuit of this, however, worker wellbeing has taken a backseat. Office workers are sedentary most of the day, and technologies are introduced to the workplace without considering the long-term impact on wellbeing. To design a resilient future workplace, there is a clear need for researchers and practitioners to work together in creating holistic, human-centered technologies and policies.

Our workshop will bring together practitioners and researchers working on and interested in related topics to discuss and take

Table 1: Preliminary schedule for the workshop.

Time	Section	Activity Description
9:00-9:10	Active Welcome & Ice-breaker	Physically Active Method: Stretching Exercise – Brief 10-minute stretching sequence to wake up the body and mind, to set a physically active tone for the day, and to break the ice.
9:10-10:00	Workshop Submission Presentations	Active Share Circle – Each presenter has 2 minutes to present a lightning talk based on the vision and grand challenge they submitted.
10:00-10:30	Coffee Break	We encourage attendees to move around the venue or outside.
10:30-10:45	Group Formation	Initial Probe – Organizers pre-place topics of interest (based on submissions and active share circle) in each corner of the room, with blank spaces for attendees to place additional topics of interest. <ol style="list-style-type: none"> (1) Attendees move to all the topics and add thoughts to each via sticky notes. (2) Attendees form groups at their topics of interest. (3) Group discussions based on probing questions at each topic.
10:45-12:00	Group Work on Evil Office	Adversarial Method: Storyboarding the “evil office of 2040” – Based on insights from the initial group discussions, each group creates visual representations of user journeys using drawings, photos, AI-generated images. Emphasis on both the roles of and interplay between technology, policies, and norms
12:00-13:00	Lunch	We will head to a green space for a group picnic and discussions. We provide a pre-organized option for food at the participant’s own expense.
13:00-14:00	Discussions-in-Motion on Ethics	Physically Active Method: Nature Move & Talk – Small groups go for a journey outside (if possible) to discuss ethical considerations related to designing the future workplace. We will provide probing questions to stimulate the discussions
14:00-14:45	Group Work on Stakeholders	Stakeholder Analysis – Based on all of the discussions so far, participants are asked to conduct a stakeholder analysis to identify: <ol style="list-style-type: none"> (1) Who are the important stakeholders (e.g., team leaders, researchers). (2) What are the specific needs, challenges, and opportunities for different stakeholder groups.
14:45-15:15	Coffee Break	We encourage attendees to move around the venue or outside.
15:15-16:00	Integrating Results of Group Work	We bring the groups together for a moderated discussion to develop tangible outcomes: Research Agenda – We aim to find common themes to create a research agenda for workplace wellbeing that tackles the most pressing problems. Recommendations for Practice – We will develop actionable recommendations for industry based on discussions between researchers and industry practitioners
16:00-16:30	Closing	
20:00	Group Dinner	We will invite participants to an optional (self-paid) post-event networking dinner to continue discussions started during the workshop

action toward establishing best practices in designing a healthier workplace. The in-person/hybrid one-day workshop will include presentations, discussions-in-motion, and collaborative methods.

Important Dates:

Submission deadline: 22 February 2024

Notification to authors: 28 February 2024

To apply, please submit your vision and a Grand Challenge for the field (written, video, or audio submissions accepted - max. 4 pages of text or 5 minutes of audiovisual material). Relevant topics include, but are not limited to:

- The role of HCI in shaping the healthy workplace of the future
- Integrating physical activity into the workplace

- Technology-supported/free active ways of working
- Redesigning workplaces to increase wellbeing, including norms and policies
- Supporting and increasing workplace resilience with technology/AI

Submissions will be reviewed by the organizers and selected according to their relevance to the workshop and the likelihood of sparking discussions. Please note that at least one author of each accepted submission must attend the workshop. All participants must register for both the workshop and at least one day of the conference.

For more information and to submit, please visit: <https://www.hcilab.org/workplace-wellbeing/>

REFERENCES

- [1] Aino Ahtinen, Eeva Andrejeff, Christopher Harris, and Kaisa Väänänen. 2017. Let's walk at work: persuasion through the brainwork walking meeting app. In *Proceedings of the 21st International Academic Mindtrek Conference on - AcademicMindtrek '17*. ACM Press, Tampere, Finland, 73–82. <https://doi.org/10.1145/3131085.3131098>
- [2] Aino Ahtinen, Eeva Andrejeff, Maiju Vuolle, and Kaisa Väänänen. 2016. Walk as You Work: User Study and Design Implications for Mobile Walking Meetings. In *Proceedings of the 9th Nordic Conference on Human-Computer Interaction (NordCHI '16)*. Association for Computing Machinery, New York, NY, USA, 1–10. <https://doi.org/10.1145/2971485.2971510>
- [3] Aino Ahtinen, Eeva Andrejeff, and Kaisa Väänänen. 2016. Brainwork: a mobile technology mediated walking meeting concept for wellbeing and creativity at work. In *Proceedings of the 15th International Conference on Mobile and Ubiquitous Multimedia (MUM '16)*. Association for Computing Machinery, Rovaniemi, Finland, 307–309. <https://doi.org/10.1145/3012709.3016062>
- [4] Sadegh Baradaran Mahdavi, Roya Riahi, Babak Vahdatpour, and Roya Kelishadi. 2021. Association between sedentary behavior and low back pain; A systematic review and meta-analysis. *Health Promotion Perspectives* 11, 4 (Dec. 2021), 393–410. <https://doi.org/10.34172/hpp.2021.50>
- [5] Peter Blomstrand and Jan Engvall. 2021. Effects of a single exercise workout on memory and learning functions in young adults—A systematic review. *Translational Sports Medicine* 4, 1 (Jan. 2021), 115–127. <https://doi.org/10.1002/tsm2.190>
- [6] John P. Buckley, Alan Hedge, Thomas Yates, Robert J. Copeland, Michael Loosemore, Mark Hamer, Gavin Bradley, and David W. Dunstan. 2015. The sedentary office: an expert statement on the growing case for change towards better health and productivity. *British Journal of Sports Medicine* 49, 21 (Nov. 2015), 1357–1362. <https://doi.org/10.1136/bjsports-2015-094618>
- [7] Lucas J. Carr, Kristina Karvinen, Mallory Peavler, Rebecca Smith, and Kayla Cangelosi. 2013. Multicomponent intervention to reduce daily sedentary time: a randomised controlled trial. *BMJ Open* 3, 10 (Oct. 2013), e003261. <https://doi.org/10.1136/bmjopen-2013-003261>
- [8] Aiden J. Chantry, Nicolette C. Bishop, Mark Hamer, and Nicola J. Paine. 2022. Sedentary behaviour, physical activity and psychobiological stress reactivity: A systematic review. *Biological Psychology* 172 (July 2022), 108374. <https://doi.org/10.1016/j.biopsycho.2022.108374>
- [9] Stacy Clemes, Sophie O'Connell, and Charlotte L. Edwardson. 2014. Office workers objectively measured sedentary behavior and physical activity during and outside working hours. *Journal of Occupational and Environmental Medicine* 56, 3 (Jan. 2014), 298–303. https://repository.lboro.ac.uk/articles/Office_workers_objectively_measured_sedentary_behavior_and_physical_activity_during_and_outside_working_hours/9624851
- [10] Ida Damen. 2021. *Designing for Active Office Work*. Phd Thesis 1 (Research TU/e / Graduation TU/e). Eindhoven University of Technology, Eindhoven.
- [11] Ida Damen, Rens Brankaert, Carl Megens, Pieter van Wesemael, Aarnout Brombacher, and Steven Vos. 2018. Let's Walk and Talk: A Design Case to Integrate an Active Lifestyle in Daily Office Life. In *Extended Abstracts of the 2018 CHI Conference on Human Factors in Computing Systems (CHI EA '18)*. ACM, Montreal QC, Canada, 1–10. <https://doi.org/10.1145/3170427.3174353>
- [12] Ida Damen, Hans Brombacher, Carine Lallemand, Rens Brankaert, Aarnout Brombacher, Pieter van Wesemael, and Steven Vos. 2020. A Scoping Review of Digital Tools to Reduce Sedentary Behavior or Increase Physical Activity in Knowledge Workers. *International Journal of Environmental Research and Public Health* 17, 2 (Jan. 2020), 499. <https://doi.org/10.3390/ijerph17020499>
- [13] Ida Damen, Anika Kok, Bas Vink, Hans Brombacher, Steven Vos, and Carine Lallemand. 2020. The Hub: Facilitating Walking Meetings through a Network of Interactive Devices. In *Companion Publication of the 2020 ACM Designing Interactive Systems Conference (DIS' 20 Companion)*. Association for Computing Machinery, New York, NY, USA, 19–24. <https://doi.org/10.1145/3393914.3395876>
- [14] Ida Damen, Carine Lallemand, Rens Brankaert, Aarnout Brombacher, Pieter van Wesemael, and Steven Vos. 2020. Understanding Walking Meetings: Drivers and Barriers. In *CHI*. ACM, Honolulu, HI, USA, 14. <https://doi.org/10.1145/3313831.3376141>
- [15] Ida Damen, Steven Vos, and Carine Lallemand. 2021. The Hubs: Design Insights for Walking Meeting Technology. In *Human-Computer Interaction – INTERACT 2021 (Lecture Notes in Computer Science)*, Carmelo Ardito, Rosa Lanzilotti, Alessio Malizia, Helen Petrie, Antonio Piccinno, Giuseppe Desolda, and Kori Inkpen (Eds.). Springer International Publishing, Cham, 610–629. https://doi.org/10.1007/978-3-030-85610-6_35
- [16] Earl S. Ford and Carl J. Caspersen. 2012. Sedentary behaviour and cardiovascular disease: a review of prospective studies. *International Journal of Epidemiology* 41, 5 (Oct. 2012), 1338–1353. <https://doi.org/10.1093/ije/dys078>
- [17] Luke Haliburton, Natalia Bartłomiejczyk, Paweł Woźniak, Albrecht Schmidt, and Jasmin Niess. 2023. The Walking Talking Stick: Understanding Automated Note-Taking in Walking Meetings. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (CHI '23)*. ACM, Hamburg, Germany, 16. <https://doi.org/10.1145/3544548.3580986>
- [18] Luke Haliburton, Saba Kheirinejad, Albrecht Schmidt, and Sven Mayer. 2023. Exploring Smart Standing Desks to Foster a Healthier Workplace. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 7, 2 (June 2023), 57:1–57:22. <https://doi.org/10.1145/3596260>
- [19] Luke Haliburton and Albrecht Schmidt. 2020. Technologies for healthy work. *Interactions* 27, 3 (April 2020), 64–66. <https://doi.org/10.1145/3386391>
- [20] Luke Haliburton, Paweł W. Woźniak, Albrecht Schmidt, and Jasmin Niess. 2021. Charting the Path: Requirements and Constraints for Technology-Supported Walking Meetings. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2 (Oct. 2021), 347:1–347:31. <https://doi.org/10.1145/3476088>
- [21] Mélodie Jacob, Ida Damen, and Carine Lallemand. 2023. Exploring the Embodied Experience of Walking Meetings through Bodystorming – Implications for Design. In *Proceedings of the Seventeenth International Conference on Tangible, Embedded, and Embodied Interaction (Warsaw, Poland) (TEI '23)*. Association for Computing Machinery, New York, NY, USA, Article 24, 14 pages. <https://doi.org/10.1145/3569009.3572795>
- [22] Philip Keller, Roy van den Heuvel, and Carine Lallemand. 2023. Bringing Movement to Digital Tasks at the Office: Designing an Acceptably Active Interface Interaction for Sending Emails. In *Proceedings of the Seventeenth International Conference on Tangible, Embedded, and Embodied Interaction (TEI '23)*. Association for Computing Machinery, New York, NY, USA, 1–8. <https://doi.org/10.1145/3569009.3573113>
- [23] Paul Kelly, Chloë Williamson, Ailsa G. Niven, Ruth Hunter, Nanette Mutrie, and Justin Richards. 2018. Walking on sunshine: scoping review of the evidence for walking and mental health. *British Journal of Sports Medicine* 52, 12 (June 2018), 800–806. <https://doi.org/10.1136/bjsports-2017-098827>
- [24] Sabine Kubesch, Laura Walk, Manfred Spitzer, Thomas Kammer, Alyona Lainburg, Rüdiger Heim, and Katrin Hille. 2009. A 30-Minute Physical Education Program Improves Students' Executive Attention. *Mind, Brain, and Education* 3, 4 (Dec. 2009), 235–242. <https://doi.org/10.1111/j.1751-228X.2009.01076.x>
- [25] Daphne Menheere, Ida Damen, Carine Lallemand, and Steven Vos. 2020. Ivy: A Qualitative Interface to Reduce Sedentary Behavior in the Office Context. In *Companion Publication of the 2020 ACM Designing Interactive Systems Conference (DIS' 20 Companion)*. Association for Computing Machinery, New York, NY, USA, 329–332. <https://doi.org/10.1145/3393914.3395822>
- [26] Jeremy N. Morris and Adrienne E. Hardman. 1997. Walking to health. *Sports Medicine (Auckland, N.Z.)* 23, 5 (May 1997), 306–332. <https://doi.org/10.2165/00007256-199723050-00004>
- [27] Alpa V. Patel, Maret L. Maliniak, Erika Rees-Punia, Charles E. Matthews, and Susan M. Gapstur. 2018. Prolonged Leisure Time Spent Sitting in Relation to Cause-Specific Mortality in a Large US Cohort. *American Journal of Epidemiology* 187, 10 (Oct. 2018), 2151–2158. <https://doi.org/10.1093/aje/kwy125>
- [28] David A. Raichlen, Daniel H. Aslan, M. Katherine Sayre, Pradyumna K. Bharadwaj, Madeline Ally, Silvio Maltagliati, Mark H. C. Lai, Rand R. Wilcox, Yann C. Klimentidis, and Gene E. Alexander. 2023. Sedentary Behavior and Incident Dementia Among Older Adults. *JAMA* 330, 10 (Sept. 2023), 934–940. <https://doi.org/10.1001/jama.2023.15231>
- [29] Amanda L. Rebar, Robert Stanton, David Geard, Camille Short, Mitch J. Duncan, and Corneel Vandelanotte. 2015. A meta-meta-analysis of the effect of physical activity on depression and anxiety in non-clinical adult populations. *Health Psychology Review* 9, 3 (Aug. 2015), 366–378. <https://doi.org/10.1080/17437199.2015.1022901>
- [30] Jacek Sliwinski, Mary Katsikitis, and Christian Martyn Jones. 2017. A Review of Interactive Technologies as Support Tools for the Cultivation of Mindfulness. *Mindfulness* 8, 5 (Oct. 2017), 1150–1159. <https://doi.org/10.1007/s12671-017-0698-x>
- [31] Sjoerd Stadhuis, Hans Brombacher, Steven Vos, and Carine Lallemand. 2021. Office Agents: Personal Office Vitality Sensors with Intent. In *Extended Abstracts of the 2021 CHI Conference on Human Factors in Computing Systems (Yokohama, Japan) (CHI EA '21)*. Association for Computing Machinery, New York, NY, USA, Article 174, 5 pages. <https://doi.org/10.1145/3411763.3451559>
- [32] Nada Terzimehić, Luke Haliburton, Philipp Greiner, Albrecht Schmidt, Heinrich Hussmann, and Ville Mäkelä. 2022. MindPhone: Mindful Reflection at Unlock Can Reduce Absentminded Smartphone Use. In *Designing Interactive Systems Conference (DIS '22)*. ACM, New York, NY, USA, 1818–1830. <https://doi.org/10.1145/3532106.3533575>
- [33] Neil Tyler. 2020. The Smart Office. *New Electronics* 53, 3 (Feb. 2020), 12–14. [https://doi.org/10.12968/S0047-9624\(22\)61109-X](https://doi.org/10.12968/S0047-9624(22)61109-X)
- [34] Tjeu van Bussel, Roy van den Heuvel, and Carine Lallemand. 2022. Habilityzer: Empowering Office Workers to Investigate Their Working Habits Using an Open-Ended Sensor Kit. In *Extended Abstracts of the 2022 CHI Conference on Human Factors in Computing Systems (New Orleans, LA, USA) (CHI EA '22)*. Association for Computing Machinery, New York, NY, USA, Article 264, 8 pages. <https://doi.org/10.1145/3491101.3519849>
- [35] Roy Van Den Heuvel and Carine Lallemand. 2023. Personal Informatics at the Office: User-Driven, Situated Sensor Kits in the Workplace. In *Proceedings of the 2nd Annual Meeting of the Symposium on Human-Computer Interaction for Work*

- (-conf-loc-, <city>Oldenburg</city>, <country>Germany</country>, </conf-loc-) (*CHIWORK '23*). Association for Computing Machinery, New York, NY, USA, Article 5, 13 pages. <https://doi.org/10.1145/3596671.3598577>
- [36] Feng Wang, Heather M. Orpana, Howard Morrison, Margaret de Groh, Sulan Dai, and Wei Luo. 2012. Long-term Association Between Leisure-time Physical Activity and Changes in Happiness: Analysis of the Prospective National Population Health Survey. *American Journal of Epidemiology* 176, 12 (Dec. 2012), 1095–1100. <https://doi.org/10.1093/aje/kws199>
- [37] Emma G. Wilmot, Charlotte L. Edwardson, F. A. Achana, Melanie J. Davies, Trish Gorely, Laura J. Gray, Kamlesh Khunti, Thomas Yates, and Stuart J. H. Biddle. 2012. Sedentary time in adults and the association with diabetes, cardiovascular disease and death: systematic review and meta-analysis. *Diabetologia* 55, 11 (Nov. 2012), 2895–2905. <https://doi.org/10.1007/s00125-012-2677-z>
- [38] Bin Yu, Mathias Funk, Jun Hu, Qi Wang, and Loe Feijs. 2018. Biofeedback for Everyday Stress Management: A Systematic Review. *Frontiers in ICT* 5 (Sept. 2018), 23. <https://doi.org/10.3389/fict.2018.00023>