A Workshop Call for Participation

Worn and Torn: Retrospectives and Lessons Learned from Fielding Research Systems
Ubicomp/ISWC '25, Full-day Workshop Espoo, Finland
October 12 or 13, 2025 (TBD)

A.1 Overview

In this workshop, we will gather researchers from across the Ubicomp and ISWC communities to discuss how we build the devices, systems, and test setups that enable scientific studies in the field. We encourage participants to recount their missteps and lessons learned, showcase their clever hacks, and share their favorite tools and products.

This workshop will distill multidisciplinary information to expand the knowledge and capabilities of hardware developers working at research-scale. While the majority of our workshop schedule will draw from accepted 1-page extended abstract submissions, we welcome in-person participation from the entire Ubicomp/ISWC community as an open-workshop.

A.2 Motivation

Researchers from the Ubicomp/ISWC communities frequently work with collaborators from beyond the computer science, HCI, and engineering disciplines. These interdisciplinary research partnerships provide members of our community with opportunities to expand our research scope beyond the traditional paradigms and equip our collaborators with tools and systems which are tailored to their study constraints and research goals.

These projects are especially exciting when research studies are conducted in the field where they may experience harsh environments, hostile users, or are deployed in unsupervised or remote locations. While the hardware systems and data collection techniques are critical to the successful gathering of field research data, the publications resulting from these partnerships often miss the hands-on experience we develop while building and fielding this actual hardware.

There are not many venues to publish these experiences. DIY builder venues may not appreciate our narrowly focused requirements, while academic publication is not usually appropriate for the details of these engineering efforts, often only having room for a short description of the final version of the experimental setup. We might spend much of our time ruggedizing equipment for use with animals, ensuring user wear-ability and comfort, or just getting our hardware to survive the duration of a study, but these tasks can often get the least space in a paper.

What did we create to perform the study? What did and didn't work? Where did we get the insight for the part that finally saved the day? What combination of hardware from different sources made the difference? What design and testing techniques worked for your specific situation?

This is the engineer's opportunity for show and tell. Bring your hardware, bring your horror stories, and brag about your successes. Tell us about the approaches that failed and why. Share your insights and help the community create new devices. Tell us about processes and procedures. Describe your failures and then the ultimate successes. Teach each other how to build.

A.3 Suggested Workshop Topic Areas

- *Research Scale Prototyping:* Design, development, and fabrication techniques and technologies which are uniquely appropriate for the budgets, timescales, and production volumes of research systems.
- *Multidisciplinary Usability:* User-centered development and testing techniques for including stakeholders such as animal study participants, urban residents, or scientists who utilize our hardware systems in their field research.
- *Ruggedization:* Tips and tricks for creating systems which survive harsh climates, submersion, destructive users, unexpected critters, and/or long duration remote deployments.
- *Accessibility:* How do we create systems that are affordable both fiscally and in terms of the required human capital? What considerations are necessary for creating systems that are reproducible?
- *Hardware on Soft Users:* Approaches to making systems wearable, despite unusual sensor and sensing locations, challenging environments, and specialized user tasks.
- *Scalable Leave-behind Systems:* Design considerations and trade-offs for environmental monitoring and similar systems that are intended to persist with minimal upkeep.
- *Communities of Practice:* Discussion of social and organizational methods to strengthen the field deployment community and share the community's collective knowledge.

A.4 Workshop Format

We expect submitters to come prepared to talk about their prior work in person, bringing as much show-and-tell as possible.

- *Lightning Talks:* Fast-paced 7-minute visually-oriented presentations rich with system details.
- *Breakout Discussions:* Small group discussions centered around each presenter's topics + demos.
- *Field Guide Zine:* Collaborative creation of a visual, printable zine which highlights each project discussed in the workshop.

A.5 Submission Information

Submissions should not be structured like a typical academic paper. We are looking for engineering how-to articles that would be more at home in Make magazine than a typical ACM publication. Give us specific vendors and part numbers. Tell us the details.

We want these to be relatively short text submissions with copious graphical detail. To keep submissions brief, cite existing papers for background, and consider sending in multiple submissions detailing the separate problems/solutions. Many of these submissions will map 1:1 with our lighitning talks and demos.

Accepted submissions must be in the ACM Conference Proceedings Primary Article Template. Authors should limit their text to 500 words, but should include an appendix with as many pictures, code snippets, and plots as needed to communicate the in-depth details about their project. Consult the 2025 Ubicomp/ISWC website for submission templates.