

The Rise of the Expert Amateur: DIY Culture and the Evolution of Computer Science

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Abstract

We are at an important technological inflection point. Most of our computing systems have been designed and built by professionally trained experts (i.e. us – computer scientists, engineers, and designers) for use in specific domains and to solve explicit problems. Artifacts often called “user manuals” traditionally prescribed the appropriate usage of these tools and implied an acceptable etiquette for interaction and experience. A fringe group of individuals usually labeled “hackers” or “amateurs” or “makers” have challenged this producer-consumer model of technology by creating novel hardware and software features to “improve” our research and products while a similar creative group of technicians called “artists” have redirected the techniques, tools, and tenets of accepted technological usage away from their typical manifestations in practicality and product. Over time the technological artifacts of these fringe groups and the support for their rhetoric have gained them a foothold into computing culture and eroded the established power discontinuities within the practice of computing research. We now expect our computing tools to be driven by an architecture of open participation and democracy that encourages users to add value to their tools and applications as they use them. Similarly, the bar for enabling the design of novel, personal computing systems and “hardware remixes” has fallen to the point where many non-experts and novices are readily embracing and creating fascinating and ingenious computing artifacts outside of our official and traditionally sanctioned academic and industrial research communities.

But how have we as “expert” practitioners been influencing this discussion? By constructing a practice around the design and development of technology for task based and problem solving applications, we have unintentionally established such work as the status quo for the human computing experience. We have failed in our duty to open up alternate forums for technology to express itself and touch our lives beyond productivity and efficiency. Blinded by our quest for “smart technologies” we have forgotten to contemplate the design of technologies to inspire us to be smarter, more curious, and more inquisitive. We owe it to ourselves to rethink the impact we desire to have on this historic moment in computing culture. We must choose to participate in and perhaps lead a dialogue that heralds an expansive new acceptable practice of designing to enable participation by experts and non-experts alike. We are in the milieu of the rise of the “expert amateur”. We must change our mantra -- not just performance, completeness, and usability but openness, usefulness and relevancy to our world, its citizens, and our environment.

This talk will explore elements of the DIY and maker culture and its relevancy to research questions across computational hardware, languages, and systems. Ultimately, this talk will outline and argue for expanding the design territory and potential opportunities for all of us to collaborate and benefit as a society from this cultural movement.

Categories and Subject Descriptors H.5.m Miscellaneous

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Speaker Bio

Eric Paulos is the Director of the Living Environments Lab and an Assistant Professor in the Berkeley Center for New Media (BCNM) and Electrical Engineering Computer Science Department (EECS) at UC Berkeley. Previously, Eric held the Cooper-

Siegel Associate Professor Chair in the School of Computer Science at Carnegie Mellon University (CMU) where he was faculty within the Human-Computer Interaction Institute with courtesy faculty appointments in the Robotics Institute and in the Entertainment Technology Center. Prior to CMU, Eric was a Senior Research Scientist at Intel Research in Berkeley, California where he founded the Urban Atmospheres research group. His areas of expertise span a deep body of research territory in urban computing, sustainability, green design, environmental awareness, social telepresence, robotics, physical computing, interaction design, persuasive technologies, and intimate media. Eric received his PhD in Electrical Engineering and Computer Science from UC Berkeley where he helped launch a new robotic industry by developing some of the first internet tele-operated robots including Space Browsing helium filled blimps and Personal Roving Presence devices (PRoPs). Eric is also the founder and director of the Experimental Interaction Unit and a frequent collaborator with Mark Pauline of Survival Research Laboratories.