

## Workshop on Applications of Embedded Systems

Sponsored by USENIX, The Advanced Computing Systems Association and the MIT Media Laboratory

<http://www.usenix.org/events/es2000>

March 21-23, 2000

Holiday Inn–Fisherman’s Wharf, San Francisco, California, USA

### Important Dates:

Submissions due: *November 15, 1999*

Notification to authors: *November 29, 1999*

Registration materials available: *January, 2000*

Final camera-ready papers due: *February 1, 2000*

Special Workshop on Intelligence at the Network Edge:  
*March 20, 2000*

Workshop on Applications of Embedded Systems:  
*March 21-23, 2000*

### Program Committee

Dan Geer, *SystemExperts Corp & USENIX*

Michael Hawley, *MIT Media Lab, Things That Think*  
*Other program committee members to be announced.*

### Workshop Overview

The PC monolith is breaking down; concentrated “core” elements of computing and communication, sensors and actuators will become embeddable in almost everything. The “jellybean” processors that currently pervade nearly every appliance, yet are utterly isolated, will be connectable through a wealth of emergent capillaries sprouting from the internet. Technologies will be produced that are inexpensive, low-power, and radically different from today’s chip-and-pc-board variety, e.g. printable circuits, wind-up electronics, wearable networks powered by walking or breathing, even edible circuitry. Ingredients like these will form the foundation of a vastly extended network of things that are very different from PC’s. Within ten years, a billion people on line will be joined by a trillion things with embedded networks.

The goal of this workshop is to convene a limited number of leading engineers and researchers from a wide cross section of academia, industry, and government to discuss critical challenges in developing and deploying embedded intelligence over a wide range of

applications. These are “out of the box” systems in every way, shape, and form. They demand big, bold, maverick thinking. They also demand that we share what we learn by doing, hence the focus on Applications of Embedded Systems.

This 3-day meeting will consist of invited talks, refereed papers, and work-in-progress reports, and a lot of time to mingle informally. This workshop will be preceded by the Special Workshop on Intelligence at the Network Edge, being held in the same venue on March 20, 2000.

We hope the results of this workshop will help clarify and coordinate the research and development agenda in embedded systems, recognizing that, in engineering and science, getting the problem statement right is much of the battle. Participants will engage in discussions that will encompass a range of areas from low-level materials innovations to novel forms of networking, new kinds of software systems to groundbreaking applications, usability to high-level policy.

### Workshop Topics

Submissions are being solicited in the following areas, including but not limited to:

- Applications in unusual domains: toys, appliances, cars, human implants, domestic, rural, outdoor, undersea
- Capillary network architectures (Bluetooth, IrDA, PLC, etc.)
- Software systems to make these systems work
- Case studies and especially those with cost-benefit analyses
- New interface paradigms
- Self-healing and self-assembling systems
- Drastic scaling issues and localization
- Secure communications

We particularly invite those working now in areas such as:

- Telecom such as cell phones, pagers, PDAs
- Domestic technology such as building control, appliances, toys
- Medical applications such as implants, sports/fitness instruments
- Industrial Automation especially where there is hybridization
- Automotive Applications

## Student Stipends

The USENIX student stipend program covers travel and hotel to enable full-time students to attend. Preference is given to students who are speakers. To apply, see: <http://www.usenix.org/students/>.

## What To Submit

The program committee invites submission of an extended abstract, which should describe original work concerning the design, implementation, and real application of embedded systems. We are not looking for tweaks to Linux, or stuffing WinCE palmtops into toys. Rather, we are seeking radical new architectures, exceptionally promising prototypes, and enlightening case studies. The abstract should convince the program committee that a good paper and 20-minute talk will result. Identify what has been accomplished, why it is significant, and compare it with relevant work in the field. Include references, illustrations, and performance data. Be incisive and cogent. If you do not have work to report, tell us why you should participate in this workshop. Preference for this limited attendance workshop will be given to those who have submitted abstracts.

## How and Where to Submit

Email the extended abstract (plain ASCII, HTML, or a URL) by November 15, 1999 to:

*es00papers@usenix.org*

The extended abstract should be 5-7 pages long or about 2500 words, not counting references and figures. You may also submit a full paper at this time. Full papers will go through a brisk editorial review cycle with the program committee, and should be 10-15 pages long. Camera-ready final papers are due on February 1, 2000 for publication in the workshop proceedings.

All submissions will be acknowledged electronically. If you do not receive word within 72 hours of submission, contact the program chairs: *es00chairs@usenix.org*.

All submissions will be held in strict confidence prior to publication, but they must not be bound by proprietary or non-disclosure arrangements.

## Registration Materials

Materials containing all details of the technical program, registration fees and forms, and hotel information will be available in January 2000. If you wish to receive the registration materials, please visit the workshop Web site or contact:

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