

Information Processing in Sensor Networks (IPSN '03)

Second International Workshop

at the Palo Alto Research Center (PARC)

Palo Alto, California, USA

April 22-23, 2003

Agenda

Monday, April 21, 2003

700-900P Welcome Reception and Registration

**Crowne Plaza Cabaña
Cyprus Room**

Tuesday, April 22, 2003

The hotel shuttle from Crowne Plaza Cabaña Hotel to PARC will depart from the front of the hotel every 20 minutes as scheduled:

640A

700A

720A

740A

800A

700-800A Registration and Continental Breakfast

PARC Auditorium Foyer

800-815A Welcome and Introduction

PARC Auditorium

Mark Bernstein, PARC

Feng Zhao, PARC

Leo Guibas, Stanford University

815-915A Keynote: "Smart Dust"

PARC Auditorium

Professor Kris Pister, Dust Inc. /UC Berkeley

915-1030A Session 1: Fundamental Limits and Trade-Offs

PARC Auditorium

Session Chair: Professor Jennifer Hou, UIUC

On the Many-To-One Transport Capacity of a Dense Wireless Sensor Network and the Compressibility of its Data

Daniel Marco, University of Michigan

Enrique Duarte-Melo, University of Michigan

Mingyan Liu, University of Michigan

David Neuhoff, University of Michigan

Distributed Sampling for Dense Sensor Networks: a "Bit Conservation Principle"

Animesh Kumar, University of California, Berkeley

Kannan Ramchandran, University of California, Berkeley

Prakash Ishwar, University of California, Berkeley

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Tuesday, April 22, 2003, continued

Energy-Quality Tradeoffs for Target Tracking in Wireless Sensor Networks

Sundeepp Pattem, University of Southern California

Sameera Poduri, University of Southern California

Bhaskar Krishnamachari, University of Southern California

1030-1045A Break

PARC Auditorium Foyer

1045-1200P Session 2: Query Processing and Data Organization

PARC Auditorium

Session Chair: Professor Ramesh Govindan, USC

Adaptive and Decentralized Operator Placement for In-Network Query Processing

Boris Jan Bonfils, University of Copenhagen

Philippe Bonnet, University of Copenhagen

Distributed Mapping, Tracking, and Summarizing in Wireless Sensor Networks

Michael Franklin, UC Berkeley

Joseph Hellerstein, UC Berkeley

Wei Hong, Intel Research, Berkeley

Samuel Madden, UC Berkeley

Kyle Stanek, UC Berkeley

Boundary Estimation in Sensor Networks

Robert Nowak, Rice University

Urbashi Mitra, University of Southern California

1210-100P Lunch

PARC Café Terrace

100-245P Poster Session

PARC Café

Session Chair: Jim Reich, PARC

Poster Presentation List attached

300-345P Invited Talk:

PARC Auditorium

**"The Convergence of Sensing, Actuation, Wireless
Networking and Computation"**

Professor P.R. Kumar, University of Illinois

345-400P Break

PARC Auditorium Foyer

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Tuesday, April 22, 2003, continued

400-515P Session 3: Sensor Tasking and Resource Management PARC Auditorium
Session Chair: Professor Kung Yao, UCLA

Scalable Control of Decentralised Sensor Platforms
Ben Grocholsky, Australian Centre for Field Robotics
Alexei Makarenko, Australian Centre for Field Robotics
Tobias Kaupp, Australian Centre for Field Robotics
Hugh Durrant-Whyte, Australian Centre for Field Robotics

Distributed Group Management for Track Initiation and Maintenance in Target Localization Applications
Juan Liu, PARC
Jie Liu, PARC
Jim Reich, PARC
Patrick Cheung, PARC
Feng Zhao, PARC

Using Predictable Observer Mobility for Power Efficient Design of Sensor Networks
Arnab Chakrabarti, Rice University
Ashutosh Sabharwal, Rice University
Behnaam Aazhang, Rice University

530-600P Conference Business Meeting (optional) PARC Auditorium

Hotel shuttle from PARC to the Crowne Plaza Cabaña Hotel will depart as scheduled:
500P
520P
540P

Banquet transportation from PARC and from the Crowne Plaza Cabaña Hotel will be provided with departure times and locations as follows:

<u>Departing from PARC to Mountain Winery</u>	<u>Departing from Crowne Plaza Cabaña to Mountain Winery</u>
545P	600P
615P	630P

630-730P Reception Mountain Winery

730-915P Banquet Dinner and Guest Speaker Mountain Winery
"The State of Distributed Systems"
David Cheriton, Stanford University

930P *All buses will depart Mountain Winery
Buses will return to both PARC and the Crowne Plaza Cabaña Hotel.*

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640A

700A

720A

740A

800A

700-800A Registration and Continental Breakfast **PARC Auditorium Foyer**

800-845A Keynote **PARC Auditorium**
"Pervasive Computing for Disaster Response, Mitigation and Recovery"
Joel Birnbaum (HP)

845-1000A Session 4: Coding and Information Theory
Session Chair: Professor Robert Nowak, Rice

Bounds on Achievable Rates for General Multi-terminal Networks with Practical Constraints

Mohammad Ali Khojastepour, Rice University

Ashutosh Sabharwal, Rice University

Behnaam Aazhang, Rice University

Source-Channel Communication in Sensor Networks

Michael Gastpar, University of California, Berkeley

Martin Vetterli, Swiss Federal Institute of Technology, Lausanne (EPFL)

Rate-Constrained Robust Estimation in an Unreliable Sensor Network

Prakash Ishwar, University of California, Berkeley

Rohit Puri, University of California, Berkeley

Sandeep Pradhan, University of Michigan, Ann Arbor

Kannan Ramchandran, University of California, Berkeley

1000-1015A Break **PARC Auditorium Foyer**

1015-1200P Session 5: Classification and Data Association **PARC Auditorium**
Session Chair: Professor Yuhon Hu, Wisconsin

Collaborative Signal Processing for Distributed Classification in Sensor Networks

Ashwin D'Costa, University of Wisconsin-Madison

Akbar Sayeed, University of Wisconsin-Madison

Multi-Target Sensor Management Using Alpha-Divergence Measures

Chris Kreucher, Veridian

Keith Kastella, Veridian

Alfred Hero, University of Michigan

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Distributed Multiple Identity Management in Wireless Ad-hoc Sensor Networks

Jaewon Shin, Stanford University

Leonidas Guibas, Stanford University

Feng Zhao, PARC

Hypothesis Testing Over Factorization for Data Association Problems

Alexander Ihler, MIT

John Fisher, MIT

Alan Willsky, MIT

1200-1250P Lunch

PARC Patio

100-200P Panel Discussion

PARC Auditorium

The Future of Sensor Network Technology:

Perspectives from Funding Agencies and Industry

Panelists:

Luke Hughes, Director of Research (Palo Alto), Accenture

Sri Kumar, Program Manager, Information Processing Technology Office, DARPA

Zach Lemnios, Deputy Director, Information Processing Technology Office, DARPA

Mari Maeda, Program Manager, National Science Foundation (to be confirmed)

Alex Morrow, Fellow, IBM

Robert Poor, CTO and Founder, Ember Corporation

200-315P Session 6: Target Localization and Array Processing

PARC Auditorium

Session Chair: Professor Thrasyvoulos Pappas, Northwestern

Energy-Constrained Collaborative Processing of Acoustics and Panoramic Imagery

Peter Boettcher, MIT Lincoln Laboratory

Gary Shaw, MIT Lincoln Laboratory

Array Processing for Target DOA, Localization, and Classification Based on AML and SVM

Algorithms in Sensor Networks

Len Yip, UCLA

Katherine Comanor, UCLA

Joe Chen, UCLA

Ralph Hudson, UCLA

Kung Yao, UCLA

Lieven Vandenberghe, UCLA

Energy Based Acoustic Source Localization

Xiaohong Sheng, Department of Electrical and Computer Engineering,

University of Wisconsin, Madison

Yu-Hen Hu, Department of Electrical and Computer Engineering,

University of Wisconsin, Madison

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315-330P Break PARC Auditorium Foyer

**330-515P Session 7: Network Initialization, Calibration,
 and Security PARC Auditorium**
 Session Chair: Professor Rajesh Gupta, UC Irvine

Colibration: A Collaborative Approach to In-Place Sensor Calibration
Vladimir Bychkovskiy, Computer Science Department, University of California Los Angeles
Seapahn Megerian, Computer Science Department, University of California Los Angeles
Deborah Estrin, Computer Science Department, University of California Los Angeles
Miodrag Potkonjak, Computer Science Department, University of California Los Angeles

On the Error Characteristics of Multihop Localization in AdHoc Sensor Networks
Andreas Savvides, University of California, Los Angeles
Wendy Garber, Ohio State University
Adlakha Sachin, University of California, Los Angeles
Randolf Moses, Ohio State University
Mani Srivastava, University of California, Los Angeles

Organizing a Global Coordinate System from Local Information on an Ad Hoc Sensor Network
Radhika Nagpal, MIT AI Lab
Howard Shrobe, MIT AI Lab
Jonathan Bachrach, MIT AI Lab

A Performance Evaluation of Intrusion-Tolerant Routing in Wireless Sensor Networks
Richard Han, University of Colorado
Shivakant Mishra, University of Colorado
Jing Deng, University of Colorado

515-530P Final Remarks and Thanks PARC Auditorium

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scheduled:*

*500P
520P
540P
600P
620P*