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"DISTRIBUTED PROCESSING MODELS AND ALGORITHMS OF SENSOR DATA"

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ABSTRACT

In this article, models and algorithms for distributed processing of Sensor data were extensively covered. Wireless sensors and sensor platforms have been revealed.

Keywords: SNQP, sensorDP, WSN, SQL, IPSN, modem, conference, information, security, encryption, etc.

A sensor network query processor (SNQP), also called sensorDB, is a declarative programming language that translates instructions from programming and running applications into low-level instructions with high-level instructions understood by a user-friendly interface. operating system. The main idea of SNQP is to add a modeling layer to a distributed database such as WSN that can be searched by a query language similar to SQL.
International conference on information processing in sensor networks source, available under license cc by-sa 3.0, translation - details
"IPSN" redirects here. For other purposes, see Institute of Defense and nucléaire.
IPSN, IEEE / ACM International Conference on Information Processing in Sensor Networks, is a scientific conference day on sensor networks with its main focus on information processing aspects of sensor networks. IPSN encompasses many disciplines, including signal and image processing, information and coding theory, networking and protocols, distributed algorithms, wireless communication, machine learning, embedded systems design, and data. databases and information management.
13th IPSN 2014, Berlin, Germany, April 15-17, 2014
12th IPSN 2013, Philadelphia, PA, USA, 8–11 April 2013
11th IPSN 2012, Beijing, China, April 16-19, 2012
10th IPSN 2011, Chicago, IL, USA, April 12-14, 2011
9th IPSN 2010, Stockholm, Sweden, 12–16 April 2010
8th IPSN 2009, San Francisco, California, USA, 13-16 April 2009
7th IPSN 2008, (Washington U.) St. Louis, Missouri, USA, April 22-24, 2008
6th IPSN 2007, (MIT) Cambridge, MA, USA, April 25-27, 2007
5th IPSN 2006, (Vanderbilt) Nashville, Tennessee, USA, April 19-21, 2006

4th IPSN 2005, (UCLA) Los Angeles, CA, USA, April 25-27, 2005
3rd IPSN 2004, (UC Berkeley) Berkeley, California, USA, April 26-27, 2004
2nd IPSN 2003, (Xerox PARC) Palo Alto, California, USA, April 22-23, 2003
CSP Workshop 2001, (Xerox PARC) Palo Alto, California (see historical section for explanation of name)

Rating

Although there is no official ranking of scientific conferences on wireless sensor networks, IPSN is widely recognized by researchers as one of the two (along with SenSys) most prestigious conferences focused on sensor network research. [citation needed] SenSys system issues focuses more on algorithmic and theoretical considerations, while IPSN. The acceptance rate for 2006 was 15.2% for oral presentations, 25% overall (25 papers + 17 poster presentations, out of 165 accepted presentations).[citation needed]

History

IPSN started as a workshop at the Xerox Palo Alto Research Center in 2001, and it was originally called the Collaborative Signal Processing Workshop (CSP Workshop). After the success of the first event, in 2003, the workshop focused more on sensor networks and was renamed the International Workshop on Information Processing in Sensor Networks (IPSN). The event retained the abbreviation IPSN from 2003, but the full name was changed from International Symposium on Information Processing in Sensor Networks (2003 - 2004) to International Conference on Information Processing in Sensor Networks (2005 - 2007). IPSN is expected to retain the full name International Conference on Information Processing in Sensor Networks for years to come.

SPOTS Track

In 2005, IPSN introduced a separate track Sensory Platforms, Tools and Design Methods (SPOTS) to the conference. The IPSN track focuses on more information processing algorithms, and the SPOTS track focuses on platform tools and design methods for networked sensors.

A wireless sensor network (WSN) refers to a group of spatially distributed and isolated sensors to monitor and record the physical state of the environment and organize the collected data in a central location. WSN measures environmental conditions such as temperature, sound, pollution level, humidity, wind, etc.[1]

They are similar to wireless ad hoc networks in the sense that they rely on wireless connectivity and self-formation of networks so that sensor data can be transmitted wirelessly. WSNs are widely used autonomous sensors that monitor physical or environmental conditions such as temperature, sound, pressure, etc. and communicate their data to the main location through the network. Modern networks are dual, both collecting data from distributed sensors[2] and enabling control of sensor activity.[3] The development of wireless sensor networks originated from military applications such as battlefield surveillance;[4] today such networks are used in many industrial and consumer applications, such as industrial process monitoring and control, machine health monitoring, and others.

A WSN is built from "nodes" - from a few hundred to several hundred and even thousands, where each node is connected to one (or sometimes several) sensors. Each such sensor network node usually has several parts: a radio receiver with an internal antenna or connection to an external antenna, a microcontroller, sensors and an electronic circuit for communication with

an energy source, usually a battery or an embedded form of energy storage the work. A sensor node can vary in size from a shoebox to a grain of dust, although it works on "mats" of true microscopic dimensions that have yet to be created. Sensor node costs are similarly variable, ranging from a few to hundreds of dollars depending on the complexity of individual sensor nodes. resources such as energy, memory, computing speed, and communication bandwidth, the topology of WSNs may differ from the normal one. star network is an advanced multi-hop wireless mesh network. The propagation technique between hops in a network can be routing or flooding.[5][6]

Computer Science and Telecommunications, Wireless Sensor Networks is an active research area with many seminars and conferences organized every year, such as IPSN, SenSys, MobiCom and EWSN. As of 2010, wireless sensor networks have reached approximately 120 million remote units worldwide.

Risk identification

The Wide Area Surveillance System (WATS) is a prototype network for detecting a ground-based nuclear device[16] such as a nuclear "briefcase bomb". WATS is being developed at Lawrence Livermore National Laboratory (LLNL). WATS will consist of wireless gamma and neutron sensors connected via a communication network. The data received by the sensors is transferred to "data synthesis", which converts the data into easily interpretable forms; the integration of this information is the most important aspect of the system.[17][obsolete source] The process of combining data takes place not in a centralized computer, but based on a network of sensors and a specially developed algorithm Bayesian statistics.[18] WATS does not use a centralized computer for analysis, as researchers have found that factors such as latency and available bandwidth tend to create significant bottlenecks. Data processed in the field by the network itself (by transmitting small amounts of data between neighboring sensors) is faster and makes the network more scalable.[18]

Ease of deployment is an important factor in the development of WATS, as more sensors improve detection rates and reduce false alarms.[18] WATS sensors can be permanently deployed or mounted on vehicles for mobile protection of specific areas. One of the barriers to WATS implementation is the size, weight, power requirements, and cost of currently available wireless sensors.[18] The development of improved sensors is a key component of research at LLNL in the Nuclear Nonproliferation, Arms Control and International Security (NAI) Directorate.

WATS was profiled by the US House of Representatives Subcommittee on Military Research and Development during a hearing on nuclear terrorism and countermeasures on October 1, 1997.[17] At a subsequent meeting of this subcommittee on August 4, 1998, Chairman Curt Weldon noted that research funding for WATS had been cut by the Clinton Administration to bring the administration up to subsistence level, and the program had been badly reorganized.

Books.

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