

## KITTIPAT APICHARTTRISORN

### Office Address

Air Traffic Data Systems Engineering Department  
Aeronautical Radio of Thailand  
Sathon, Bangkok, Thailand 10120  
(+66) 2285-9177

### Permanent Address

7/639 Vibhavadee-Rangsit Rd.  
Chatuchak, Bangkok 10900  
(+66) 2537-0097

## OBJECTIVE

A Ph.D. student position in Computer Science with research interest in computer networks, resource allocation, software-defined networking, sensor networks, and internet of things.

## EDUCATION

*Master of Science*, Computer Science

Chulalongkorn University, Bangkok, Thailand      GPA 3.75 / 4.00      November 2010  
THESIS - Distributed Time Synchronization in Wireless Sensor Networks  
ADVISOR - Asst. Prof. Dr. Chalermek Intanagonwiwat

*Bachelor of Engineering*, Electrical Engineering

Kasetsart University, Bangkok, Thailand      GPA 2.49 / 4.00      October 2004

## EMPLOYMENT

*Senior Systems Engineer*

January 2007 - Present

Air Traffic Data Systems Engineering Department  
Aeronautical Radio of Thailand, Bangkok, Thailand

- Developed new selection criteria for applicant screening and selection at GPD Tucson. Conducted job analysis, wrote criteria, identified skill codes for applicant tracking, established rater reliability.
- Interviewed applicants for positions in Assembly, Warehousing, and Direct Customer Response.
- Assistant Co-op Coordinator. Initiated and maintained computer tracking for Co-op program. Organized all co-op seminars and activities, co-op directory.
- Representative on GPD Compensation Task Force. Prepared job descriptions, assigned corporate position code, and submitted for division approval.

*Network Engineer*

March 2005 - September 2006

1tonet Co., Ltd., Bangkok, Thailand

- Served as consultant for new management team in techniques for managing change.
- Developed and administered organizational climate survey.
- Facilitated management-employee feedback sessions.

## PUBLICATIONS

- “A Stable and Equitable Desynchronization Algorithm for Multi-Hop Wireless Sensor Networks”

**Authors** Supasate Choochaisri, Kittipat Apicharttrisorn and Chalermek Intanagonwiwat

**Publication Name** ACM Transactions on Sensor Networks (TOSN)

**Publication Date** *Under submission*

**Abstract** N/A

- “A Moving Object Tracking Algorithm Using Support Vector Machines in Binary Sensor Networks”

**Authors** Dusadee Apicharttrisorn, Kittipat Apicharttrisorn and Teerasit Kasetkasem

**Publication Name** The 13th International Symposium on Communications and Information Technologies

**Publication Date** *To appear*

**Abstract** *Wireless sensor technologies have enabled us to deploy such small sensors to monitor an area of interest. Object tracking is one of the most attractive applications to be implemented with wireless sensor networks (WSNs). However, many solutions are struggled with energy-draining global positioning system (GPS), poorly-performed trilateration for indoor usage, and impractical, complex algorithms to be implemented in sensor nodes. This paper proposes a moving object tracking algorithm using support vector machines (MOT-SVM). The MOT-SVM takes advantage of light-weighted directional binary sensor networks, and state-of-the-art signal processing algorithms, namely the support vector machines and particle filters. We compare our proposed algorithm with the Aslam's work [1] through the simulation. We examine our algorithms for various movement scenarios such as the linear, random and the 8-model trajectories, and the scenarios in which observing sensors make observation errors.*

- “Desynchronization with an artificial force field for wireless networks”

**Authors** Supasate Choochaisri, Kittipat Apicharttrisorn, Kittiporn Korprasertthaworn, Pongpakdi Taechalertpaisarn and Chalermek Intanagonwiwat

**Publication Name** SIGCOMM Computer Communication Review

**Publication Date** March 2012

**Abstract** *Desynchronization is useful for scheduling nodes to perform tasks at different time. This property is desirable for resource sharing, TDMA scheduling, and collision avoiding. Inspired by robotic circular formation, we propose DWARF (Desynchronization With an ARTificial Force field), a novel technique for desynchronization in wireless networks. Each neighboring node has artificial forces to repel other nodes to perform tasks at different time phases. Nodes with closer time phases have stronger forces to repel each other in the time domain. Each node adjusts its time phase proportionally to its received forces. Once the received forces are balanced, nodes are desynchronized. We evaluate our implementation of DWARF on TOSSIM, a simulator for wireless sensor networks. The simulation results indicate that DWARF incurs significantly lower desynchronization error and scales much better than existing approaches.*

- “Energy-Efficient Gradient Time Synchronization for Wireless Sensor Networks”

**Authors** Kittipat Apicharttrisorn, Supasate Choochaisri and Chalermek Intanagonwiwat

**Publication Name** 2010 Second International Conference on Computational Intelligence, Communication Systems and Networks (CICSyN)

**Publication Date** July 2010

**Abstract** *Wireless sensor network (WSN) applications usually demand a time-synchronization protocol for node coordination and data interpretation. In this paper, we propose an Energy-Efficient Gradient Time Synchronization Protocol (EGTSP) for Wireless Sensor Networks. In contrast to FTSP, a state-of-the-art synchronization protocol for WSNs, EGTSP is a completely localized algorithm that achieves a global time consensus and gradient time property using effective drift compensation and incremental averaging estimation. In contrast with GTSP, a gradient-based fixed-rated time synchronization protocol, our protocol provides adaptive beaconing for applications to optimize energy savings by selecting appropriate message-broadcast periods. The protocol is implemented and evaluated on multi-hop networks that consist of Telosb motes running TinyOS. The experimental results indicate that our protocol achieves a network-wide global notion of time, attains small synchronization errors, and utilizes energy efficiently.*

## ACADEMIC PROJECTS

- Project Name: Time Synchronization for Wireless Sensor Networks  
**Objective** MS Thesis's Research Project  
**Description**  
**Period** January 2008 - October 2010  
**Roles and Responsibility**  
**Tools and Environments** TinyOS, Ubuntu, Gnuplot
- Project Name: Desynchronization as Distributed Resource Allocations and TDMA  
**Objective** Research Project  
**Description**  
**Period** March 2010 - Present  
**Roles and Responsibility**  
**Tools and Environments**
- Project Name: Moving Object Tracking using Support Vector Machine in Binary Sensor Networks  
**Objective** Research Project  
**Description**  
**Period** March 2013 - Present  
**Roles and Responsibility**  
**Tools and Environments**
- Project Name: Distributed Online Ticket Reservation with Display on Google Maps  
**Objective** Graduate Course Project (Distributed Systems)  
**Description**  
**Period** June 2008 - October 2008  
**Roles and Responsibility**  
**Tools and Environments**
- Project Name: Undergrad Admission Systems: Information Systems Architecture  
**Objective** Graduate Course Project (Information Systems Architecture)  
**Description**  
**Period** June 2007 - October 2007  
**Roles and Responsibility**  
**Tools and Environments** MS Words, MS Visio
- Project Name: Adaptive Multi-Rate - Wideband (AMR-WB) speech codec Testing  
**Objective** Undergraduate Senior Project (Electrical Engineering Project)  
**Description**  
**Period** June 2003 - Mar 2004  
**Roles and Responsibility**  
**Tools and Environments** MS Visual C

## PROFESSIONAL PROJECTS

- Project Name: Aeronautical Message Switching Systems (AMSS)  
**Description** AMSS is a core aeronautical data system that switch, store and manipulate data that are sent and received by aeronautical units worldwide so that flights are operated and managed properly and according to ICAO's regulations.  
**Period** January 2008 - January 2010  
**Roles and Responsibilities**  
**Tools and Environments** Redhat Enterprise, Windows Servers, Oracle DBMS,

- Project Name: Aeronautical Message Handling Systems (AMHS) and X.400  
**Description** AMSS is a core aeronautical data system that switch, store and manipulate data that are sent and received by aeronautical units worldwide so that flights are operated and managed properly and according to ICAO's regulations.  
**Period** January 2008 - January 2010  
**Roles and Responsibilities**  
**Tools and Environments** Redhat Enterprise, Windows Servers, Oracle DBMS,
- Project Name: Aeronautical Message Handling Systems (AMHS) and X.400  
**Description** AMSS is a core aeronautical data system that switch, store and manipulate data that are sent and received by aeronautical units worldwide so that flights are operated and managed properly and according to ICAO's regulations.  
**Period** January 2008 - January 2010  
**Roles and Responsibilities**  
**Tools and Environments** Redhat Enterprise, Windows Servers, Oracle DBMS,
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**Period** January 2008 - January 2010  
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**Tools and Environments** Redhat Enterprise, Windows Servers, Oracle DBMS,
- Project Name: Aeronautical Message Handling Systems (AMHS) and X.400  
**Description** AMSS is a core aeronautical data system that switch, store and manipulate data that are sent and received by aeronautical units worldwide so that flights are operated and managed properly and according to ICAO's regulations.  
**Period** January 2008 - January 2010  
**Roles and Responsibilities**  
**Tools and Environments** Redhat Enterprise, Windows Servers, Oracle DBMS,

## GRANTS

- Grant Name: International Conference Attendance Support Grants for Graduate Students  
**Period** July 2010  
**Purpose**  
**Amount** Approximately 1200 USD  
**Granted by** Graduate School, Chulalongkorn University Bangkok, Thailand
- Grant Name: AINTEC (ASIAN INTERNET ENGINEERING CONFERENCE) Conference Attendance Grants  
**Period** November 2010  
**Purpose**  
**Amount** Attendance Fee (Unknown)  
**Granted by** Thailand Research Education Network Association (ThaiREN), Bangkok, Thailand
- Grant Name: AINTEC (ASIAN INTERNET ENGINEERING CONFERENCE) Conference Attendance Grants  
**Period** November 2008  
**Purpose**  
**Amount** Attendance Fee (Unknown)  
**Granted by** Thailand Research Education Network Association (ThaiREN), Bangkok, Thailand

### ACADEMIC ACTIVITIES

- External Reviewer: IEEE International Conference on Computer Communications (INFOCOM 2011)  
Delegated by Asst. Prof. Dr. Chalermek Intanagonwiwat
- External Reviewer: IEEE International Conference on Computer Communications (INFOCOM 2012)  
Delegated by Asst. Prof. Dr. Chalermek Intanagonwiwat

### CERTIFICATES

- Network Design and Implementation I
- Certified Thaicom Users

### SKILLS

#### Programming Languages

- C, C++, NesC, TinyOS, Matlab, Java, Python, SQL

#### Computer Software

- Ubuntu, UNIX, Gnuplot, Latex.

#### Language Proficiency

- English: TOEFL 104 iBT (Test Date: 25 Aug 2013)  
Reading: 28, Listening: 26, Speaking: 22, Writing: 28
- Thai: Native

### VOLUNTEER SERVICES

- Event Name: CANSO Global ATM Summit and 15th Annual General Meeting (AGM)

**Period** 11 June 2011 - 14 June 2011

**Description :**

**Contributions :**

**Benefits :**

### REFERENCES

- Air Chief Marshal Somchai Thean-anant

**Position** Former President of Aeronautical Radio of Thailand

**Address**

**Email**

**Tel.**

- Dr. Chalermek Intanagonwiwat

**Position**

**Address**

**Email** email: intanago@yahoo.com

**Tel.**

- Mr. Pongnarin Anantasirijinda

**Position** Director of Air Traffic Data Systems Engineering Department

**Address** Aeronautical Radio of Thailand, Bangkok, Thailand, 10120

**Email** add@aerothai.co.th

**Tel.** (+66)02-285-9101

- Asst. Prof. Dr. Teerasit Kasetkasem

**Position** Assistant Professor

**Address** Kasetsart University, Bangkok, Thailand, 10900

**Email** fengtsk@ku.ac.th

**Tel.** (+66)02-942-8555 ext 1536

- Dr. Supasate Choochaisri

**Position** Chief Technology Officer

**Address** Software Park Bld. Nonthaburi, Thailand 11120

**Email**

**Tel.** (+66)02-584-6064

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## INTERESTS AND HOBBIES

Jazz and blues guitar, photography, bodybuilding/aerobic exercise, cooking, swimming