Suporn Pongnumkul, Ph.D.

Senior Researcher at *National Electronics and Computer Technology Center (NECTEC)*, Thailand
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LinkedIn Profile : https://www.linkedin.com/in/suporn-pongnumkul/

Education:

University of Washington Seattle, WA, USA   September 2005 - September 2011
- **Ph.D.** in *Computer Science and Engineering* (*Human-Computer Interaction*)
    Thesis : "Facilitating interactive video browsing through content-aware task-centric interfaces"
    Advisors : Michael F. Cohen, Jue Wang
- **Master of Science** in *Computer Science and Engineering*

Carnegie Mellon University Pittsburgh, PA, USA   August 2001 – May 2005
- **Bachelor of Science** in *Computer Science,* a double major in *Mathematics* (Discrete Mathematics and Logic Concentration), and a minor in *Robotics*, GPA: 4.0
    Senior Thesis : "Automatic Digicromatography: Colorizing the Images of the Russian Empire"
    Advisor : Alexei A. Efros

Professional Experience:

National Electronics and Computer Technology Center (NECTEC) Thailand
Researcher   December 2011 - present
- Researched Blockchain platforms, applications, potentials and limitations, and apply them to real use cases
- Researched and developed new approaches for traffic data visualization, processing and usages
- Researched and developed an information analysis and visualization system for agricultural data
- Developed new approaches to utilize smartphones to facilitate healthcare services

MangaMagazine.net Seattle, WA, USA (A start up which later became **Inkblazers.com** and **Ookbee Comics**)
Web Developer   April - December 2010
- Developed a web-based platform for crowdsourced comics publishing (www.mangamazine.net), which becomes the foundation that supports the production of Ookbee Comics (and previously Inkblazer.com)

Adobe Systems
Intern (San Francisco, CA, USA)   Summer 2010
- Researched and developed new approaches for interactions with video tutorials

Intern (Seattle, WA, USA)   Winter 2010
- Researched and developed new approaches for interactions with video timeline slider

Intern (Seattle, WA, USA)   Summer 2008
- Implemented applications for XMP (eXtensible Metadata Platform) in Adobe Air

University of Washington Seattle, WA, USA
Research Assistant   Spring 2008 – Autumn 2009
- Explored alternative approaches to interacting with videos

Research Assistant   Winter 2006 – Winter 2008
- Assembled, tested, and maintained 3D scanning equipment for the VA's research project.

Teaching Assistant for Computer Science classes   Autumn 2005 - Spring 2009
- Led weekly quiz sessions, designed and graded homework assignments and exams

Microsoft Seattle, WA, USA
Intern: Software Development Engineer in Test (SDET)   Summer 2005
- Implemented fuzz testing software for MSN Messenger servers in C#

<u>**Carnegie Mellon University**</u> Pittsburgh, PA, USA

REU (Research Experience for Undergraduates)   Summer 2004
- Experimentally evaluated a number of algorithms for list-update problems.

Pebbles Project Student Programmer   Summer 2003
- Developed a C++ program to retrieve the operating status of a home stereo from images of its front panel.

Academic Peer Tutor   Fall 2004 – Spring 2005
- Tutored fellow students in Math and CS courses in several weekly one-on-one sessions

Teaching Experience:

<u>**International College (IC), Mahidol University**</u> Thailand
- **Instructor** of *Human-Computer Interaction* (ICCS440)   September - December 2017
- **Instructor** of *Human-Computer Interaction* (ICCS312, ICCS440)   April - July 2016
- **Instructor** of *Human-Computer Interaction* (ICCS312)   September - December 2014

<u>**Sirindhorn International Institute of Technology (SIIT), Thammasat University**</u> Thailand
- **Lab Instructor** of *Introduction to Computer and Programming* (ITS100)   November 2013 - February 2014

<u>**Information and Communication Technology (ICT), Mahidol University**</u> Thailand
- **Instructor** of *Software Quality Assurance and Testing* (ITCS473)   August - November 2013
  (Co-instructed with Dr. Pongsin Poosankam)

Fellowships and Awards:

1. Runner-up, Computing Research Association Outstanding Undergraduate Award, 2005
2. Dean's List of School of Computer Science (CMU), Fall 2001 – Spring 2005
3. The Royal Thai Government scholarship, 2000 – 2011
4. Runner-up, Science Project Competition, Central Region of Thailand, 1998

Journal Publication:

1. Chih-Jau Wang, Pimwadee Chaovalit, and **Suporn Pongnumkul**. "A Breastfeed-Promoting Mobile App Intervention: Usability and Usefulness Study." JMIR Mhealth Uhealth 2018 (2018).

2. Kittipong Hiriotappa, Suttipong Thajchayapong, Pimwadee Chaovalit, and **Suporn Pongnumkul.** "A Streaming Algorithm for Online Estimation of Temporal and Spatial Extent of Delays." *Journal of Advanced Transportation 2017* (2017).

3. **Suporn Pongnumkul**, Pimwadee Chaovalit, and Navaporn Surasvadi. "Applications of Smartphone-Based Sensors in Agriculture: A Systematic Review of Research." *Journal of Sensors 2015* (2015).

4. Siriporn Monyarit, Wirichada Pan-ngum, Saranath Lawpoolsri, Surapon Yimsamran, **Suporn Pongnumkul**, Jaranit Kaewkungwal, and Pratap Singhasivanon. "Advantages of using voiced questionnaire and image capture application for data collection from a minority group in rural areas along the Thailand–Myanmar border." *Journal of Innovation in Health Informatics* 21, no. 4 (2014): 179-188.

5. Kevin Litwack, Oleg Pikhurko, and **Suporn Pongnumkul**. "How to Play Dundee." *Ars Combinatoria* 115 (2014): 63-88.

6. Glenn K. Klute, Jocelyn S. Berge, Wayne Biggs, **Suporn Pongnumkul**, Zoran Popovic, and Brian Curless. "Vacuum-assisted socket suspension compared with pin suspension for lower extremity amputees: effect on fit, activity, and limb volume." Archives of physical medicine and rehabilitation 92, no. 10 (2011): 1570-1575.

Conference Publication:

1. **Suporn Pongnumkul**, Chaiyaphum Siripanpornchana, and Suttipong Thajchayapong. "Performance Analysis of Private Blockchain Platforms in Varying Workloads" In *Workshop on Privacy, Security, Trust & Blockchain Technologies*, *26th International Conference on Computer Communications and Networks (ICCCN)*, Vancouver, Canada, 2017.

2. Pimwadee Chaovalit, **Suporn Pongnumkul**. "Moommae: A Location-Aware Mobile Information System for Breastfeeding Mothers in Thailand." In *10th International Conference on Ubi-media Computing*, Pattaya, Thailand, 2017.

3. Kirty Shivshwan, Chih-Jau Wang, and **Suporn Pongnumkul**. "Exploring the Design and Evaluation of an Educational Game for Deaf and Hard-of-Hearing Students in Thailand." *Proceedings of the international Convention on Rehabilitation Engineering & Assistive Technology*. Singapore Therapeutic, Assistive & Rehabilitative Technologies (START) Centre, 2016.

4. Arcchaporn Choukuljaratsiri, Pimwadee Chaovalit, and **Suporn Pongnumkul**. "Plant cover detection from visible satellite imagery." In *2015 International Computer Science and Engineering Conference (ICSEC)*, pp. 1-6. IEEE, 2015.

5. Chayakrit Charoensiriwath, Navaporn Surasvadi, **Suporn Pongnumkul**, and Thunyasit Pholprasit. "Applying QR code and mobile application to improve service process in Thai hospital." In *Computer Science and Software Engineering (JCSSE), 2015 12th International Joint Conference on*, pp. 114-119. IEEE, 2015.

6. Nagul Cooharojananone, Siriratana Napapruekchat, Tassanee Puttirutwong, and **Suporn Pongnumkul**. "A study of factors influencing intention to use traffic information applications on smartphones in Bangkok, Thailand." In *Information Society (i-Society), 2014 International Conference on*, pp. 51-56. IEEE, 2014.

7. Pimwadee Chaovalit, **Suporn Pongnumkul**, Thunyasit Pholprasit, and Passakon Prathombutr. "Evaluating the accuracy of Bangkok travel time profiles on arterial and highway road sections." In *13th ITS Asia Pacific Forum*. 2014.

8. **Suporn Pongnumkul**, Thanakij Pechprasarn, Narin Kunaseth, and Kornchawal Chaipah. "Improving arrival time prediction of Thailand's passenger trains using historical travel times." In *Computer Science and Software Engineering (JCSSE), 2014 11th International Joint Conference on*, pp. 307-312. IEEE, 2014.

9. **Suporn Pongnumkul**, Suttipong Thajchayapong. "Understanding Traffic Patterns Through 4D Visualization of Dense Vehicle Trajectory." In *20th ITS World Congress*. 2013.

10. **Suporn Pongnumkul**, Nattaporn Kamsiriphiman, Juthathip Poolsawas, and Wipawee Amornwat. "CongestionGrid: A temporal visualization of road segment congestion level data." In *Communications and Information Technologies (ISCIT), 2013 13th International Symposium on*, pp. 589-591. IEEE, 2013.

11. Thunyasit Pholprasit, **Suporn Pongnumkul**, Chalermpol Saiprasert, Sarinthon Mangkorn-ngam, and Lalida Jaritsup. "LiveBusTrack: High-frequency location update information system for shuttle/bus riders." In *Communications and Information Technologies (ISCIT), 2013 13th International Symposium on,* pp. 565-569. IEEE, 2013.

12. Thanakij Pechprasarn, and **Suporn Pongnumkul**. "Estimation of respiratory rate from smartphone's acceleration data." In *Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON), 2013 10th International Conference on*, pp. 1-5. IEEE, 2013.

13. **Suporn Pongnumkul**, Mira Dontcheva, Wilmot Li, Jue Wang, Lubomir Bourdev, Shai Avidan, and Michael F. Cohen. "Pause-and-play: automatically linking screencast video tutorials with applications." In *Proceedings of the 24th annual ACM symposium on User interface software and technology*, pp. 135-144. ACM, 2011.

14. **Suporn Pongnumkul**, Jue Wang, Gonzalo Ramos, and Michael Cohen. "Content-aware dynamic timeline for

video browsing." In *Proceedings of the 23nd annual ACM symposium on User interface software and technology*, pp. 139-142. ACM, 2010.

15. **Suporn Pongnumkul**, Jue Wang, and Michael Cohen. "Creating map-based storyboards for browsing tour videos." In *Proceedings of the 21st annual ACM symposium on User interface software and technology*, pp. 13-22. ACM, 2008.

Media Coverage:

1. เทรนด์ e-Payment ช่วยให้รู้จักตัวตนลูกค้าง่ายขึ้น (March, 12 2017 on Digital Age Magazine)
   http://www.digitalagemag.com/เทรนด์-e-payment-ช่วยให้รู้จักตัวตนลูกค้าง่ายขึ้น/
2. "บล็อกเชน" ใกล้ตัวกว่าที่คิด ถอดรหัสเทรนด์เทคโนโลยี (Febrauary 11, 2017 on Prachachat)
   http://www.prachachat.net/news_detail.php?newsid=1486630232
3. เปิดตัว "SafeMate" แอพพลิเคชั่นลดอุบัติเหตุบนท้องถนน (December 7, 2014 by Isra News)
   http://www.isranews.org/isranews-short-news/item/34949-selfmate.html

Patents:

1. Lubomira A. Dontcheva, **Suporn Pongnumkul**, Wilmot Wei-Mau Li, Shmuel Avidan, and Lubomir Bourdev. "Methods and apparatus for tutorial video enhancement." U.S. Patent 8,909,024, issued December 9, 2014.
2. สุพร พงษ์นุ่มกุล. "ระบบและวิธีการนำเข้าข้อมูลพิกัดตำแหน่งของยานพาหนะ" อนุสิทธิบัตร เลขที่ 11900 ได้รับการอนุมัติ วันที่ 02/09/2559

Journal and Conference Peer Reviewing:

1. Neural Computing and Applications : 2016
2. International Journal of Sensor Networks : 2016
3. ACM Human Factors in Computing Systems (CHI) : 2012-2015, 2018
4. ACM User Interface Software & Technology (UIST) : 2012-2014

Conference Program Committee:

1. 19th International Conference on Asia-Pacific Digital Libraries (ICADL 2017)

Thesis Proposal and/or Defense Committee:

1. Miss Papatsara Arsa, proposal for M.A. in Library and Information Science, Chulalongkorn University (2015)
2. Mr. Nana Suryana, M.Sc. in Biomedical and Health Informatics, Mahidol University (2015)
3. Mr. Sok Samnang, M.Sc. in Biomedical and Health Informatics, Mahidol University (2014)
4. Mr. Chularas Natpratan, M.Sc. in Computer Science and Information Technology, Chulalongkorn University (2014)
5. Mr. Narin Kunaseth, proposal for M.Sc. in Computer Engineering, Khon Kaen University (2014)
6. Miss Tanapan Tananta, M.A. in Library and Information Science, Chulalongkorn University (2014)
7. Miss Siriporn Monyarit, M.Sc. in Biomedical and Health Informatics, Mahidol University (2014)

Former Bachelors Students:

1. Miss Kirty Shivshwan, International College, Mahidol University (2015)
2. Miss Chih-Jau Wang, International College, Mahidol University (2015)
3. Miss Meena Samoenaamchai, International College, Mahidol University (2015)
4. Miss Siriratana Napapruekchat (Co-advised with Dr. Nagul Cooharojananone), Computer Science and Information Technology, Chulalongkorn University (2014)
5. Miss Tassanee Puttirutwong (Co-advised with Dr. Nagul Cooharojananone), Computer Science and Information Technology, Chulalongkorn University (2014)

Volunteer Services:

International Tsunami Museum, Khao Lak, Thailand   August 2006, September 2008
- Translated information from English to Thai for the <u>International Tsunami Museum</u>
- Narrated Jai, the elephant, in the video for the museum

University of Washington Seattle, WA, USA   Autumn 2005 - Spring 2011
Computer Science and Engineering Department
- Graduate Student Mentor (2006 – 2010)
- Graduate Women Lunch Coordinator (2006 – 2007)
- Prospective Visit Days Committee (2006 – 2009)
- Department annual party coordinator (2009)
- Historian—department event photographer and videographer (2009)

Carnegie Mellon University Pittsburgh, PA, USA   Fall 2001 – Spring 2005
Thai Student Association   Treasurer (Fall 2002 – Spring 2003) and Member
- Managed the budget of the student association, and organized a fundraising event.
- Editor-in-Chief of Thai Student Association's Yearbook 2004

Chesapeake Habitat for Humanity Baltimore, MD, USA   March 2004
Volunteer Program
- Built houses for low-income families with fellow college students during spring breaks.

The Mirror Art Group, Chiangrai, Thailand   July 2001
Volunteer Teacher Program
- Taught Thai and English, and entertained minor hill tribe children.