Hien To

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Education

University of Southern California
PhD Candidate in Computer Science. Expected to graduate in May 2017.
Advisor: Professor Cyrus Shahabi

Hanoi University of Science and Technology
B.E., Computer Science, 2010.

Dissertation

"Task Assignment with Rigorous Privacy Protection in Spatial Crowdsourcing"
Using Differential Privacy in Task Assignment phase of Spatial Crowdsourcing to hide the location of workers with low cost and low overhead without compromising performance.

Journal Articles

Hien To, Sasan Tavakkol, Seon Ho Kim, Minh Nguyen, Cyrus Shahabi. On Acquisition and Analysis of Visual Data for Crowdsourcing Disaster Response. (under review)

Dung D. Vu, **Hien To**, Won-Yong Shin, Cyrus Shahabi. Improved GeoSocial-Bound: An Efficient Algorithm for Estimating Social POI Boundaries Using Spatio–Textual Information. (under review)

Hien To, Liyue Fan, Gabriel Ghinita, Cyrus Shahabi. Differentially Private Location Protection for Worker Datasets in Spatial Crowdsourcing. *The 2016 IEEE Transactions on Mobile Computing (TMC 2016)*

Hien To, Leyla Kazemi, Cyrus Shahabi. A Server-Assigned Crowdsourcing Framework. *ACM Transactions on Spatial Algorithms and Systems (TSAS 2015)*. Acceptance rate 11%.

Conference Articles

Hien To, Kien Nguyen, Cyrus Shahabi. Differentially Private Publication of Location Entropy. *The 24th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*. Acceptance rate 18%.

Ying Lu, **Hien To**, Abdullah Alfarrarjeh, Seon Ho Kim, Yifang Yin, Roger Zimmermann and CyrusShahabi. GeoUGV: User-Generated Mobile Video Dataset with Fine Granularity Spatial Metadata. *ACM Multimedia Systems 2016 Conference (MMSys 2016).*

Hien To, Hyerim Park,Seon Ho Kim, Cyrus Shahabi. Incorporating Geo-Tagged Mobile Videos Into Context-Aware Augmented Reality Applications. *The 2016 IEEE International Conference on Multimedia Big Data (IEEE BigMM 2016).*

Hien To, Liyue Fan, Luan Tran, Cyrus Shahabi. Real-Time Task Assignment in Hyper-Local Spatial Crowdsourcing under Budget Constraints. *The 2016 IEEE International Conference on Pervasive Computing and Communications (PerCom 2016).* Acceptance rate 15%.

Hien To, Seon Ho Kim, Cyrus Shahabi. Effectively Crowdsourcing the Acquisition and Analysis of Visual Data for Disaster Response. *The 2015 IEEE International Conference on Big Data (IEEE Big Data 2015).* Acceptance rate 18%.

Hien To, Gabriel Ghinita, Cyrus Shahabi. A Framework for Protecting Worker Location Privacy in Spatial Crowdsourcing. *In proceedings of the 40th International Conference on Very Large Data Bases (VLDB 2014).* Acceptance rate 20%.

Hien To, Kuorong Chiang, Cyrus Shahabi. Entropy-based Histograms for Selectivity Estimation. *ACM International Conference on Information and Knowledge Management (CIKM 2013).* Acceptance rate 17%.

Hung Dang, **Hien To** and Tuan Nguyen. Maximum Complex Task Assignment: Enabling Crowdsourcing Spatial Complex Task. *The 15th International Conference on Information Integration and Web-based Applications & Services (iiWAS2013).* Acceptance rate 30%.

Workshop
Articles

Sasan Tavakkol, **Hien To**, Seon Ho Kim, Minh Nguyen, Cyrus Shahabi. An Entropy-based Framework for Efficient Post-disaster Decision Making based on Crowdsourced Data. (under review)

Minh Nguyen, Sanjay Purushotham, **Hien To**, Cyrus Shahabi. m-TSNE: A Framework for Visualizing High-Dimensional Multivariate Time Series. (under review)

Hien To, Ruben Geraldes, Cyrus Shahabi, Seon Ho Kim, Helmut Prendinger. An Empirical Study of Workers' Behavior in Spatial Crowdsourcing. *Third International ACM SIGMOD Workshop on Managing and Mining Enriched Geo-Spatial Data (GeoRich 2016).*

Dung Vu, **Hien To**, Cyrus Shahabi, Won-Yong Shin. SocialGeoFence: Detection of Social POI Boundaries Using Spatio-Textual Information. *Third International ACM SIGMOD Workshop on Managing and Mining Enriched Geo-Spatial Data (GeoRich 2016).*

Hien To, Mohammad Asghari, Dingxiong Deng, and Cyrus Shahabi. SCAWG: A Toolbox for Generating Synthetic Workload for Spatial Crowdsourcing. *In Proceeding of International Workshop on Benchmarks for Ubiquitous Crowdsourcing: Metrics, Methodologies, and Datasets (CROWDBENCH 2016).*

Hien To, Liyue Fan, Cyrus Shahabi. Differentially Private H-Tree. *2nd Workshop on Privacy in Geographic Information Collection and Analysis (GeoPrivacy 2015).* In conjunction with ACM SIGSPATIAL 2015.

Afsin Akdogan, **Hien To**, Seon Ho Kim, and Cyrus Shahabi. A Benchmark to Evaluate Mobile Video Upload to Cloud Infrastructures. *In Proceedings of the fifth workshop on Big data benchmarks, Performance optimization, and Emerging hardware (BPOE 2014).*

Demo Papers

Hien To, Gabriel Ghinita, Cyrus Shahabi. PrivGeoCrowd: A Toolbox for Studying Private Spatial Crowdsourcing. *In Proceedings of 32st International Conference on Data Engineering (ICDE 2015).*

Posters

Hien To, Ruben Geraldes, Cyrus Shahabi, Seon Ho Kim, Helmut Prendinger. An Empirical Study of Workers' Behavior in Spatial Crowdsourcing. *GeoRich Workshop 2016.* June 26, 2016.

Hien To, Hyerim Park, Seon Ho Kim, and Cyrus Shahabi. Selecting User-Generated Videos for Augmented Reality Applications. *IMSC Retreat.* June 1, 2016.

Hien To, Seon Ho Kim, and Cyrus Shahabi. Crowdsourcing the Acquisition and Analysis of Mobile Videos for Disaster Response. *IMSC Retreat.* June 1, 2016.

Hien To, Seon Ho Kim, and Cyrus Shahabi. A Crowdsourcing Tool for Analyzing User-Generated Videos. *IMSC Retreat.* June 1, 2016.

Hien To, Seon Ho Kim, and Cyrus Shahabi. A Benchmark to Evaluate Mobile Video Upload to Cloud Infrastructures. *IMSC Retreat.* April 2, 2015.

Hien To, Liyue Fan, Luan Tran, Cyrus Shahabi. Real-time Spatial Task Assignment for Weather Crowdsourcing. *IMSC Retreat.* April 2, 2015.

Hien To, Giorgos Constantinou, Cyrus Shahabi. A Generic Framework for Spatial Crowdsourcing. *Qualcomm Innovation Fellowship.* Mar 22, 2015.

Hien To, Phu Nguyen, Cyrus Shahabi, Soroosh Sorooshian. iRain: A Spatial Crowdsourcing App for Real-time Rainfall Observation. *USC's Environmental Sustainability Research Network*. May 2014.

Hien To, Gabriel Ghinita, Cyrus Shahabi. A Framework for Protecting Worker Location Privacy in Spatial Crowdsourcing. *IMSC Retreat*. March 2014.

Hien To, Jeong-min Lee, EungJin Lee, Seon Ho Kim. iCampus Mobile. *IMSC Retreat*. April 2012.

Hien To, Kuorong Chiang, Cyrus Shahabi. Entropy-based Histograms. *VEF Annual Conference*. January 2013.

Professional Services

Technical Program Committee, IEEE CASPer 2017, CROWDBENCH 2016

Reviewer of IEEE TKDE 2016, IEEE TDSC 2016, IPL 2015

External Reviewer of: VLDB 2016, ICDCS 2016, TKDE 2016, 2015, SIGMOD 2015, ICDE 2015, CIKM 2014, etc.

Student volunteer @ CIKM'13, DASFAA'15, IEEE Big Data'15 Conferences.

Employment

University of Southern California

Research Assistant — *2011 - Present*

Multimedia Data Management: Developing a novel media management platform, namely MediaQ, for collecting, organizing, sharing, searching, and trading user-generated mobile pictures and videos using advanced geospatial and video analytics technologies. Link: http://mediaq.usc.edu/.

Teradata Corporation, Query Optimization Group

Research Intern — *Summer 2014*

Developed genetic algorithms for large join query optimization in shared-nothing architecture. The proposed technique reduced the estimated cost a few times while the overhead is minimal.

Teradata Corporation, Query Optimization Group

Research Intern — *Summer 2012*

Developed one/multidimensional histograms to improve accuracy of database statistics. The two proposed histograms are the best for equality and range queries, respectively.

VNG Corporation

R&D Back-End Engineer — *Jun 2010 - Jul 2011*

Developed distributed key-value storage that serves as a backend for 2 million+ active game online users and 6 million+ active social network users. The system assures high availability with the following features: persistent storage, memory caching, high scalability, and fault-tolerance.

Developed instant social search engine that serves 6 millions+ active users. The system enables users to search/explore their network, such as their friends, friends of friends, nearby friends, school friends, and friends with common interests.

Hanoi University of Science and Technology, HPC Center
Research Intern   *May 2009 - Jun 2010*
Developed datagrid-based interscholastic system for document plagiarism detection using LDA technique.

Teaching Experience

University of Southern California
CSCI 587 - Geospatial Information Management   *Fall 2014*
CSCI 101 - Fundamentals of Computer Programming   *Fall 2013*
CSCI 587 - Geospatial Information Management   *Fall 2012*

Invited Talks

Qualcomm Innovation Fellowship. Talk on *A Generic Framework for Spatial Crowdsourcing*. Mar 22 2015.

USC 6th Annual Graduate Research Symposium. Talk on *Protecting Worker Location Privacy in Spatial Crowdsourcing*. April 1, 2014.

University of Southern California for CSCI 587: Geospatial Information Management. Guest lecture on *Privacy in Spatial Crowdsourcing*. Nov 12, 2014.

Awards

IEEE Big Data 2015 Student Travel Award	*Oct 2015*
Prof. Ram Kumar Travel Fellowships for ICDE'15	*Apr 2015*
USC GSG Travel Grant for ICDE'15	*Mar 2015*
Finalist, Qualcomm Innovation Fellowship 2015	*Mar 2015*
Microsoft Azure Research Grant	*May 2014*
Travel Grant for CIKM'13 Conference	*Nov 2013*
Vietnam Education Foundation Fellowship	*Aug 2011*
Certificate of Merit for Excellent Graduation Grade	*Jul 2010*
Ministry of Education and Training Scholarship	*2005 - 2010*

Technical Skills

Programming Languages: Java, C/C++ STL, Python, Android, iOS, Ruby, PHP, JSP, HTML, CSS, JavaScript

Databases: Hadoop, Spark, PostgreSQL, MySQL, MSSQL, Oracle, Redis, Mongo, Neo4j, BerkeleyDB, DB2

Technologies: Distributed Systems, Web Services, NoSQL, Amazon EC2, Microsoft Azure, Lucene, Solr, ElasticSearch, Struts, Hibernate, IBM InfoSphere, Google-Facebook-Twitter APIs

Others

Lead a team of 3 students to developed a weather crowdsourcing app, named iRain (iOS & Android)   *2014-Current*

Work in a team of 10+ students to developed a MediaQ app, named MediaQ (iOS & Android)   *2013-Current*

Work in a team of 5 students to developed a bill sharing app, BillShare (iOS & Android)   *May. 2014*

Publish Android app named MiddleboxTester to detect cellular networks' policies   *Dec. 2014*

Hobbies: Surfing, swimming, hiking, biking, travel to remote places, e.g., national parks

Conquer Fansipan, the highest mountain in Indochina   *Mar. 2011*

Teradata Cares Boys and Girls Clubs, El Segundo, CA   *2012, 2014*