
CONTACT INFORMATION	Oak Ridge National Laboratory, PO Box 2008 MS 6085, Oak Ridge, Tennessee USA - 37831-6085	<i>E-mail:</i> thakurg@ornl.gov <i>web:</i> sites.google.com/site/gautamthakur <i>LinkedIn:</i> linkedin.com/in/gsthakur <i>Cell:</i> +1 352 222 1388
PROFESSIONAL AND RESEARCH CAREER	2015-, Research Scientist , The Geographic Information Science & Technology Group, Oak Ridge National Laboratory, UT-Battelle, LLC, Oak Ridge, Tennessee, USA 2013-2015, Postdoctoral Research Associate , The Computational Data Analytic Research Group, Oak Ridge National Laboratory, UT-Battelle, LLC, Oak Ridge, Tennessee, USA 2007-2012, Research Assistant , University of Florida, Gainesville, Florida USA 2012, Lab Research Associate , Disney Research, ETH, Zürich, Switzerland 2011, Research Intern , Deutsche Telekom Research Laboratories, Berlin, Germany 2010, Research Intern , Deutsche Telekom Research Laboratories, Berlin, Germany 2004-2006, Member Technical Staff , HCL Technologies Limited, Noida, India	
RESEARCH DOMAIN	Population dynamics, urban morphology, network science, transportation simulation and modeling	
EDUCATION	2006-2012, Doctor of Philosophy (Ph.D.) . <i>The Department of Computer and Information Science and Engineering, University of Florida, Gainesville, Florida USA.</i> <ul style="list-style-type: none"> • <i>Dissertation Title:</i> Data-driven Mobility Modeling in Large-scale Networks • <i>Adviser:</i> Prof. Ahmed Helmy. <i>Co-adviser:</i> Prof. Pan Hui. • <i>Committee:</i> Prof. Sartaj Sahni, Prof. My T. Thai, Prof. Alin Dobra, Yuguang Fang • <i>Area of Study:</i> Population dynamics, physical analytics, traffic engineering, data-driven spatio-temporal modeling and simulation, data mining, graph analytic, and visualization. 1998-2004, Master of Computer Applications (M.C.A.) . <i>International Institute of Professional Studies, Devi Ahilya University, India.</i> <ul style="list-style-type: none"> • <i>With Honors</i> in Computer Applications. • <i>Area of Study:</i> Computer networks and database management systems. 	
HONORS AND AWARDS	<ul style="list-style-type: none"> • IEEE Communication Society InternetTC Best Paper 2013 award (Awarded in 2015) • ACM SigSpatial top three best papers (Vision), 2015 • Research selected for the exa-scale GPU Hackathon, 2015 • Research selected for 2nd round of Innovations in American Government Awards • Invited to speak at NSF DriveSense workshop, Norfolk, VA, 2014 • ORNL Director awarded certificate for exceptional service to ORNL postdoctoral association, 2014 • Research Chair, Oak Ridge Postdoctoral Association, ORNL, 2014 • Best paper award at ACM SIGSPATIAL, 2013 	

- ORNL Director awarded certificate of appreciation for postdoctoral symposium committee chair, 2014
- Recipient of prestigious ERCIM Alain Bensoussan Fellowship - The European Research Consortium for Informatics and Mathematics, Nov' 2012. (success rate: 5%)
- Best Employee Award "BRAVO" for Excellence in Work, HCL Technologies, 2005

TECHNICAL SKILLS

Computer Programming:

- Java, Spring.io, C, C++, PHP, UNIX shell scripting (including POSIX.2), GNU Make/Ant, SQL, Matlab, R, Maven.

Tools and Applications:

- Weka, RapidMiner, D3, Gephi, Cytoscape, Pajek, Graphviz, Social API (Facebook, Twitter, Google), Google Maps, Hadoop, Hive, HSQL, SVN, and Clearcase.

Operating Systems and Databases:

- Microsoft Windows family, Apple OS X, Android, Linux, AIX, Solaris, and other UNIX variants, MySQL, Oracle 11g, Active Directory

Productivity Applications:

- \LaTeX (\LaTeX , \BIBTeX), Vim, Eclipse

RESEARCH GRANTS

- R4. 2015, Co-Principal Investigator, *Real-time Urban Activity Monitoring Using Pervasive Sensor Network*, Lab directed research and development under Science and Informatics for Energy and Urban Infrastructure.
- R3. 2014, Principal Investigator, *UrbanSmart: Design and Development of Adaptive Urban Dynamics from Emergent Phenomenon discovered through the Mapping of Heterogeneous Data-Sources*, Data grant by Orange under D4D challenge
- R2. 2013-2016, Investigator, *MobiBench: Benchmarking Mobility Models for Simulation and Design of Future Networks* (P.I. Ahmed Helmy). Awarded Amount: \$377,466.00
- R1. 2013, Principal Investigator, *Epidemic Model for Data Propagation*, Data grant by Orange under D4D challenge

NEWS MEDIA COVERAGE

- M1. U.S. researchers are beta testing software to help teachers personalize lessons for greater student success, Plante Moran, 2014

PATENTS

Pan Hui and Gautam S. Thakur. A Framework for the Systematic Study of Vehicular Mobility and the Analysis of City Dynamics using Public Web Cameras. *European Union Patent (Filed - Ref. EP EP2590151)*. 2013.

TECHNOLOGY LICENSING

Gautam S. Thakur. EdREC: Design and Development of Adaptive Platform for Scaling-up Flipped Mastery Learning. *Department of Energy, Copyright Document Number 90000015*

INVENTIONS

Gautam S. Thakur, Mallikarjun Shankar, and Jack C. Schryver. Curated High-Resolution Data sets for Modeling of a Healthcare System. *Department of Energy, Invention Disclosure 201403331, DOE S-124,951,*. 2014.

BOOK CHAPTERS

Gautam S. Thakur. Community Detection in Biological Networks. *Applied Statistics for Network Biology: Methods in Systems Biology (p. 478) John Wiley & Sons*. 2011.

JOURNAL PUBLICATIONS

- J6. Robert Stewart , Marie Urban, Samantha Duchscherer, Jason Kaufman, April Morton, Gautam S. Thakur, Jesse Piburn, Jessica Moehl.A Bayesian machine learning model

for estimating building occupancy from open source data. *Springer Natural Hazards*, 2016

- J5. Gautam S. Thakur, Pan Hui, and Ahmed Helmy. The Structure and Traffic Flow Anatomy of the Planet-Scale Urban Vehicular Mobility. *Springer Special Issue on Networking Science*, 2013
- J4. Gautam S. Thakur, Udayan Kumar, Wei-Jen Hsu, and Ahmed Helmy. Gauging Human Mobility Characteristics and its Impact on Mobile Routing Performance. *International Journal of Sensor Networks*. 2011.
- J3. Udayan Kumar, Gautam S. Thakur, and Ahmed Helmy. Proximity-based Trust-advisor using Encounters for Mobile Societies. *Mobile Computing and Communications Review Journal*. Vol.14, 2011.
- J2. Udayan Kumar, Gautam S. Thakur, and Ahmed Helmy. Proximity based Trust Advisor using Encounters for Mobile Societies: Analysis of Four Filters. *Journal on Wireless Communications and Mobile Computing*. 2011.
- J1. Gautam S. Thakur, R. Tiwari, M.T. Thai, S.-S. Chen, and A.W.M. Dress. Detection of Local Community Structures in Complex dynamic Networks with Random Walks. *IEEE/IET Journal on System Biology*. 2009.

CONFERENCE PUBLICATIONS

- C24. Gautam S. Thakur, Budhendra L Bhaduri, Jesse O Piburn, Kelly M Sims, Robert N Stewart, Marie L Urban. Gathering Geo-spatial Intelligence from Crowd and Open Sourced Data. In: *American Association of Geographers' Annual Meeting*. 2016
- C23. Gautam S. Thakur The Efficacy of Applying Open and Crowd Source Data in Urban Dynamics Research. In: *Conference on Data Analysis*. 2016
- C22. Gautam S. Thakur, B.H. Park Ozgur Ozmen, and Jack Schryver, Mallikarjun Shankar, and Gil Weigand Synthetic Data Generation for High-Fidelity HPC Healthcare Simulation: Beneficiary-Provider Network Example. In: *Spring Simulation Multi-Conference*. 2015
- C21. Gautam S. Thakur, Pan Hui, Ahmed Helmy. Evidence of Long Range Dependence and Self-similarity in Urban Traffic Systems. In: *ACM SIGSPATIAL '15: Proceedings of the 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*. 2015
- C20. Gautam S. Thakur, Budhendra L Bhaduri, Jesse O Piburn, Kelly M Sims, Robert N Stewart, Marie L Urban. PlanetSense: A Real-time Streaming and Spatio-temporal Analytics Platform for Gathering Geo-spatial Intelligence from Open Source Data. In: *ACM SIGSPATIAL '15: Proceedings of the 22nd ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*. 2015 [*ACM SIGSPATIAL Best top three Papers*]
- C19. Robert Stewart, Jesse Piburn, E Webber, Marie Urban, April Morton, Gautam Thakur, Budhendra Bhaduri. Can social media play a role in developing building occupancy curves for small area estimation?. In: *Proc. 13th International Conference in GeoComputation*. 2015
- C18. Kelly M. Sims, Eric. M. Weber, Budhendra. L. Bhaduri, Gautam S. Thakur, David. R. Resseguie. Application of Social Media Data to High Resolution Mapping of a Special Event Population. In: *Proc. 13th International Conference in GeoComputation*. 2015

- C17. Seung-Hwan Lim, [Gautam S. Thakur](#), James Horey. Analyzing reliability of virtual machine instances with dynamic pricing in the public cloud. In: *High-Performance Grid and Cloud Computing Workshop (with IPDPS)*. 2014
- C16. Mohammed M Olama, [Gautam S. Thakur](#), Allen W McNair, Sreenivas R Sukumar. Predicting student success using analytics in course learning management systems. In: *SPIE Sensing Technology Applications*. 2014
- C15. [Gautam S. Thakur](#), Mohammed M Olama, Allen W McNair, Sreenivas R Sukumar, Scott Studham. Towards Adaptive Educational Assessments: Predicting Student Performance using Temporal Stability and Data Analytics in Learning Management Systems. In: *Data Mining for Educational Assessment and Feedback (KDD ASSESS 2014)*. 2014
- C14. Jan-Mou Li, Andreas Malikopoulos, [Gautam S. Thakur](#), and Raju Vatsavai. Analytics For Distracted Driver Behavior Modeling in Dilemma Zone. In: *Transportation Research Board 93rd Annual Meeting, Washington, D.C., DC, USA, 20140112, 20140116*. 2014
- C13. Damien Fay, [Gautam S. Thakur](#), Pan Hui, and Ahmed Helmy. Knowledge Discovery and Causality in Urban City Traffic: A study using Planet Scale Vehicular Imagery Data. In: *The Sixth ACM SIGSPATIAL International Workshop on Computational Transportation Science*. 2013. [*ACM SIGSPATIAL Best Paper award*]
- C12. [Gautam S. Thakur](#), Pan Hui, and Ahmed Helmy. Data-driven study of urban infrastructure to enable city-wide ubiquitous computing. In: *Proceedings of the 2nd International Workshop on Big Data, Streams and Heterogeneous Source Mining: Algorithms, Systems, Programming Models and Applications, BigMine. ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*. 2013.
- C11. [Gautam S. Thakur](#), Pan Hui, and Ahmed Helmy. On the Existence of Self-similarity in Planet-scale Vehicular Networks. In: *The 9th IEEE International Wireless Communications and Mobile Computing Conference*. 2013.
- C10. [Gautam S. Thakur](#), Pan Hui, and Ahmed Helmy. Modeling and Characterization of Vehicular Density at Scale. In: *The 16th IEEE International Global Internet Symposium*. 2013.
- C9. [Gautam S. Thakur](#) and Ahmed Helmy. COBRA: A Framework for the Analysis of Realistic Mobility Models. In: *The 16th IEEE International Global Internet Symposium*. 2013. [*IEEE Comsoc ITC Best Paper award of the year*]
- C8. [Gautam S. Thakur](#), Pan Hui, and Ahmed Helmy. A Framework for Realistic Vehicular Network Modeling using Planet-scale Public Webcams. In: *ACM International Workshop on Hot Topics in Planet-Scale Measurement(Mobisys - HotPlanet)*. 2012.
- C7. [Gautam S. Thakur](#), Pan Hui, and Ahmed Helmy. Modeling and Characterization of Urban Streets' Vehicular Mobility using Web Cameras. In: *IEEE International Conference on Computer Communications workshop on Network Science for Communication Networks (Infocom - NetSciCom)*. 2012.
- C6. [Gautam S. Thakur](#), Pan Hui, and Ahmed Helmy. Spatial and Temporal Analysis of Planet Scale Vehicular Imagery Data. In: *IEEE International conference on Data Mining workshop on Spatial and Spatio-Temporal Data Mining (ICDM - SSTDM)*. 2011.
- C5. [Gautam S. Thakur](#), Udayan Kumar, Ahmed Helmy, and Wei-Jen Hsu. On the Efficacy of Mobility Modeling for DTN Evaluation: Analysis of Encounter Statistics and

Spatio-Temporal Preferences. In: *IEEE International Wireless Communications and Mobile Computing Conference (IWCMC)*. 2011.

- C4. Gautam S. Thakur, Ahmed Helmy, and Wei-Jen Hsu. Similarity analysis and modeling in mobile societies: The missing link. In: *ACM MobiCom Workshop on Challenged Networks (CHANTS)*. 2010.
- C3. Gautam S. Thakur, Mukul Sharma, and Ahmed Helmy. SHIELD: Social sensing and Help In Emergency using mobiLe Devices. In: *IEEE Global Telecommunications Conference (GLOBECOM)*. 2010.
- C2. Udayan Kumar, Gautam S. Thakur, and Ahmed Helmy. PROTECT: proximity-based trust-advisor using encounters for mobile societies. In: *IEEE International Wireless Communications and Mobile Computing Conference (IWCMC)*. 2010.
- C1. Gautam S. Thakur. CINORA: Cell Based Identification of Node Replication Attack in Wireless Sensor Networks. In: *IEEE International Conference on Communications Systems (ICCS)*. 2008.

TECHNICAL
REPORTS

- T1. Jan-Mou Li, Andreas Malikopoulos, Gautam S. Thakur, Raju Vatsavai. Analytics For Distracted Driver Behavior Modeling in Dilemma Zone. In: *Human Factors and Statistical Modeling Lab, 2014 TRB Data Contest*. 2013.

PAPERS UNDER
REVIEW OR
SUBMISSION

- P3. Gautam S. Thakur, Pan Hui, and Ahmed Helmy. *On Studying Urban Infrastructure to Enable City-wide Ubiquitous Computing*. (Physical Review, 2015)
- P2. Gautam S. Thakur, Damien Fay, Pan Hui, and Ahmed Helmy. *Knowledge Discovery and Causality in Urban City Traffic: A study using Planet Scale Vehicular Imagery Data*. (IEEE Transactions on Intelligent Transportation Systems, 2015)
- P1. Gautam S. Thakur, and Ahmed Helmy. *A Framework for the Data-driven Design, Development, and Analysis of Realistic Mobility Models*. (IEEE WoWMoM, 2015)

TEACHING
EXPERIENCE

2008-2012, **University of Florida**, Gainesville, Florida USA

- CEN 3031: Software Engineering
 - Fall 2012, Spring 2012, Fall 2011, Spring 2010, Fall 2010, Spring 2009.
 - Supervised discussion sections for 5 hours per week, where undergraduate students learn to incorporate essential software engineering processes in projects.
 - Drafted document templates based on IEEE recommended practice for software development life cycle, supplementary course material, including a course web site at <http://www.cise.ufl.edu/class/cen3031fa11>
 - Advocated the use of Collaboration and Learning Environment (**Sakai**) for enhanced teaching and research experience.
 - Volunteered lectures while instructor on travel.
- CNT 5106C: Computer Networks
 - Fall 2012, Fall 2009.
 - Accomplished managing large class (130 students).
 - Augmented academic honesty with the use of anti-plagiarism tools (TurnItIn).
 - Volunteered lectures while instructor on travel.
- CIS 6930MN: Mobile Networking Laboratory
 - Spring 2008.
 - Designed unbiased scenarios and experiments for outdoor encounter-based networking and wireless measurement activities.

- Wrote energy efficient scripts for bluetooth and wifi access point scanning on handheld devices (Nokia 810).
- Volunteered lectures while instructor on travel.

2003, **IBM Academic Initiative**

- Linux System Administration and Programming.
 - Designed course syllabus, homework incorporating essentials of linux system administration and programming.
 - Facilitated lab experiments to augment theoretical teaching.
 - Achieved graduate level teaching appointment.

PROFESSIONAL SERVICES

Conference Committees and Services

- Reviewer, IEEE Transactions on Vehicular Technology
- Chair, ACM SigSpatial IWCTS, 2016
- TPC member ACM SigSpatial, 2016
- Chair, session ACM SigSpatial, 2016
- Research Chair, Oak Ridge Postdoctoral Association, 2013-2014
- TPC member IEEE ICCCN, 2014
- Session Chair HealthGIS, ACM SIGSPATIAL, 2013
- Publication Chair, ACM Hot Topics in Planet-scale Measurement (HotPlanet), 2013
- Technical Program Committee (TPC) member for ACM Hot Topics in Planet-scale Measurement (HotPlanet), 2012.
- Reviewer for IEEE Transactions of Mobile Computing, IEEE Transactions on Vehicular Technology (TVT), SECON 2013.
- External reviewer for Elsevier Ad Hoc Networks Journal, IEEE Transaction on Mobile Computing, ACM MobiCom Workshop on Challenged Networks (CHANTS), IEEE Sensor, Mesh and Ad Hoc Communications and Networks

Graduate Mentoring

- Supervised two master degree students during their individual study course.

Member

- Institute for Electrical and Electronics Engineers (IEEE), 2006 - present