

## **Budhendra Bhaduri**

Group Leader & Scientist

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## **Education and Training**

1998 Purdue University, Earth and Atmospheric Sciences, PhD

1995 Kent State University, Geology, MS

1992 University of Calcutta (India), Geology, MSc

1989 University of Calcutta (India), Geology, BSc

## **Research and Professional Experience**

2001-Present Corporate Research Fellow and Group Leader. Geographic and Information Sciences and Technology, Computational Sciences and Engineering Division, Oak Ridge National Laboratory.

2008-2010 Co-Leader. Emerging Science and Technology for Sustainable Bionergy, a crosscutting Laboratory Directed Research and Development Initiative.

1998-2001 Research Scientist. Geographic and Information Sciences Technology, Computational Sciences and Engineering Division, Oak Ridge National Laboratory.

## **Publications**

1. Engel, B., Chaubey, I., Thomas, M., Saraswat, D., Murphy, P., and Bhaduri, B., 2010. Biofuels and water quality: challenges and opportunities for simulation modeling. *Biofuels* (2010) 1(3), 463–477.
2. Elvidge, C.D., Baugh, K.E., Sutton, P.C., Bhaduri, B., Tuttle, B.T., Ghosh, T., Ziskin, D., Erwin, E.H., 2010. Who's In The Dark: Satellite Based Estimates Of Electrification Rates, *Urban Remote Sensing: Monitoring, Synthesis and Modeling in the Urban Environment*, Ed. Xiaojun Yang, Wiley-Blackwell, Chichester, UK, In Press
3. Archibald, Richard K , Filippi, Anthony M, Bhaduri, Budhendra L., and Bright, Eddie A., 2009. Agricultural mapping using Support Vector Machine-Based Endmember Extraction (SVM-BEE). *Optics Express*, 47(3), p. 771.
4. Patterson, L, Urban, M, Myers, A, Bhaduri, B, Bright, E, and Coleman, P., 2009. The Effects of Quality Control on Decreasing Error Propagation in the LandScan USA Population Distribution Model: A Case Study of Philadelphia County. *Transactions in GIS*, 13(2), 215-228.
5. West, T, Singh, N, Marland, G, and Bhaduri, B., 2009. The Human Carbon Budget: An Estimate of the Spatial Distribution of Metabolic Carbon Consumption and Release in the United States. *Biogeochemistry*, 94(1), 29-41.
6. Bhaduri, B., Shankar, M., Sorokine, A., and Ganguly, A. R., 2009. Spatio-temporal visualization for environmental decision support. In: Raffaele De Amicis, Radovan Stojanovic, Giuseppe Conti (Eds.), *GeoVisual Analytics: Geographical Information Processing and Visual Analytics for Environmental Security*, NATO Science for Peace and Security Series - C: Environmental Security. Springer. (in press)
7. Bhaduri, B. 2008. Population Distribution During the Day. In: Shekhar, S. and Hui Xiong, (Eds). *Encyclopedia of GIS*. 2008. Springer-Verlag. pp 1377
8. Vijayaraj V., Bright E., and Bhaduri, B., 2007. Rapid Damage Assessment from High Resolution Imagery, Proceedings of the IEEE International geosciences and remote sensing symposium (IGARSS) 2008, July 5-8 2008, Boston, USA.
9. Bhaduri, B., Bright E., and Vijayaraj V. 2007. Towards a Geospatial Knowledge Discovery Framework for Disaster Management, Proceedings of the ESA-EUSC 2008: Image Information Mining: pursuing automation of geospatial intelligence for environment and security, Frascati, Italy.

10. Bhaduri B., Bright, E., Coleman, P., and Urban, M. 2007. LandScan USA: a high-resolution geospatial and temporal modeling approach for population distribution and dynamics. *GeoJournal* 69:103-117.
11. Vijayaraj V., Bright E., and Bhaduri, B., 2007. High Resolution Urban Feature Extraction for Global Population Mapping using High Performance Computing, Proceedings of the IEEE International geosciences and remote sensing symposium (IGARSS) 2007, July 23-27 2007, Barcelona, Spain.
12. Cai, Q., G. Rushton, B. Bhaduri, E. Bright, and P. Coleman.2006. "Estimating Small-area Populations by Age and Sex Using Spatial Interpolation and Statistical Inference Methods." *Transactions in GIS*, 10(4): 577–598.
13. Tobin, K., B. Bhaduri, E. Bright, A. Cherydat, T. Karnowski, P. Palathingal, T. Potok., J. Price. 2006. "Automated Feature Generation in Large-Scale Geospatial Libraries for Content-Based Indexing." *Photogrammetric Engineering & Remote Sensing*. Vol. 72.
14. Jerome Dobson, Edward Bright, Phillip Coleman, and Bhaduri, Budhendra. 2003. LandScan: a global population database for estimating population at risk. In *Remotely Sense Cities*, Victor Mesev (Ed.), Taylor & Francis, 378 pp.

### **Synergistic Activities**

1. Joint Faculty Appointment (JFA) with the University of Tennessee, Knoxville
2. Center for Interdisciplinary Research and Graduate Education (CIRE) Faculty Appointment with the University of Tennessee, Knoxville
3. Member, Mapping Science Committee, National Research Council of the National Academy of Sciences
4. Member, Geospatial Sciences Steering Committee of the Department of Energy
5. Member, Committee on Geographic Information Science and Applications (ABJ60), Transportation Research Board (TRB) of the National Academies
6. Member, Strategic Highway Research Program (SHRP 2), Expert Task Group on Acquisition of Roadway Information (Project S04), Transportation Research Board (TRB) of the National Academies
7. Member, Dean's Leadership Council, College of Science, Purdue University

### **Awards and Honors**

1. U.S. Patent: 7,247,024. Bright et al., "Method for Spatially Distributing a Population" July 24, 2007.
2. R&D 100 Award: "LandScan 2004: Global Population Database" November 2006.
3. ORNL Directors Award for Outstanding Individual Accomplishment in Community Service 2005.
4. Esprit de Corps award for Outstanding Accomplishment in Community Service, UT Battelle LLC, 2005.
5. Member, National Academy of Sciences NRC Study Panel on Future Basic and Applied Research Priorities in Geospatial Sciences for the National Geospatial-Intelligence Agency, 2004.
6. Outstanding Mentor Award, Undergraduate Research Program, Office of Science, US DOE, 2002.
7. New Manager of the Year Award, National Management Association, Oak Ridge Chapter, 2002.

### **Collaborators and Co-Editors**

Anthony Fillippi (Texas A&M University); Shashi Shekhar (University of Minnesota); Michael Goodchild and Kostas Goulias (University of California-Santa Barbara); Shaowen Wang (University of Illinois), Luc Anselin (Arizona State University), Tim Nygers (University of Washington), Bruce Ralston, Terry Moore, and Shih-Lung Shaw (University of Tennessee-Knoxville); William Cooke and David Shaw (Mississippi State University); Thomas MacCurdy, Janet Burke and Jiangping Xu (US Environmental Protection Agency); Bernie Engel, Indrajeet Chaubey (Purdue University), Chris Elvidge (National Oceanic and Atmospheric Administration)

### **Graduate and Postdoctoral Advisors**

*PhD Advisor:* Jonathan M. Harbor (Purdue University)

*MS Advisor:* Patricia Maurice and Jonathan M. Harbor (Kent State University)

*MSc Advisor:* Gauri Shankar Ghatak, Presidency College (Calcutta University)