Thushara Ranatunga, PhD

Tel: 513-675-3919
E-mail: Thushara.Ranatunga@hccs.edu

AREAS OF INTEREST

- GIS and Remote Sensing
- Environmental Geospatial Data Analysis, Modeling, and Visualization
- Physical/Environmental Geography
- Climate/Land Use Land Cover Changes

EDUCATION

PhD – Physical/Environmental Geography, 2014
University of Cincinnati, Ohio

Masters - GIS and Remote Sensing **(Thesis)**, 2008
University of Cincinnati, Ohio

B.Sc. (Honors) - Agriculture (Sp. in Agric. Engineering), 2005
University of Peradeniya, Sri Lanka

PROFESSIONAL EXPERIENCES

Houston-Galveston Area Council, Houston, Texas

- Principal Data Analyst (Jan 2020 to Present)
- Senior Environmental Modeler (Jan 2015 to Dec 2019)
- Environmental Modeler (June 2012 to Dec 2014)
  - Geospatial data analysis, modeling, and visualization (2D and 3D)
  - Land Use Land Cover data development and change detection analysis
  - Satellite and Airborne Remote sensing data analysis and modeling
  - Surface-water hydrology and water quality modeling
  - Environmental change impact analysis

Houston Community College, Houston, Texas

- Adjunct Professor (Sep 2017 to Present)
  - GIS, GPS and Cartography
  - Raster GIS and Remote Sensing

University of Houston-Downtown, Houston, Texas

- Adjunct Professor (Sep 2018 to Present)
  - GIS for Petroleum Land Professionals

United States Environmental Protection Agency (USEPA), National Risk Management Research Laboratory (NRMRL), Cincinnati, Ohio

- Research Associate (Sep 2009 to Jan 2011)
- Research Assistant (Sep 2008 to Aug 2009)
  - Geospatial database development and analysis of Ground Water Aquifer Storage Recovery (ASR) wells in the United States
  - Modeling of watershed hydrology and water quality for wide range of environmental settings
  - Climate, Land Use/Land Cover, Population change impact assessment on water resources
  - Total water management analysis and forecasting of Las Vegas, Nevada

- GIS Spatial Analysis and classification of precipitation and elevation relationships of the United States

Space Informatics Center, University of Cincinnati, Ohio

- Research Assistant (April 2011 to Sep 2011)
  - Project title: GIS based spatial analysis to identify the relationships between drainage density and its controlling variables of the United States

University of Cincinnati, Department of Geography, Cincinnati, Ohio

- Teaching Assistant (Sep 2011 to May 2012)
- Teaching Assistant (Jan 2007 to Aug 2008)

Teaching lecture/lab classes on;

- Principles of Remote Sensing
- Intermediate Remote Sensing
- Advanced Remote Sensing
- Introduction to GIS
- Advanced GIS
- Physical / Environmental Geography
- Earth from Space
- Natural Hazards
- People and Environment

Rajarata University of Sri Lanka, Department of Agricultural Systems, Sri Lanka

- Lecturer (April 2006 to Dec 2007)
  - Food Process Engineering
  - Farm Machinery

University of Peradeniya, Department of Agricultural Engineering / Soil Science, Sri Lanka

- Instructor (Mar 2005 to Mar 2006)
  - Watershed management
  - Soil Physics
  - Waste management
  - Irrigation Principles & Practices

PROFESSIONAL TRAININGS

Advanced Spectral Analysis and Image Processing
- Harris Geospatial Solutions, Boulder, Colorado (2017)

Soil and Water Assessment Tool (SWAT)
- Advanced application and data processing in watershed hydrology and water quality modeling. At the Texas A&M University, College Station, Texas. (2012)

Python for GIS developers
- Teach Me GIS, Houston, Texas. (2012)

Spatial Explicit Load Enrichment Calculation Tool (SELECT) and Load Duration Curve (LDC) training.
- At the Texas A&M University, College Station, Texas. (2012)

Water Quality Modeling Basics and Beyond.
- U.S. Environmental Protection Agency (2015)

PUBLICATIONS

PEER REVIEWED:

Ranatunga, T., Tong, S.T.Y., Yang, J. 2016. An Approach to Sensitivity Analysis in Hydrologic Modeling. Hydrological Science Journal. Available Online. DOI: 10.1080/02626667.2016.1174335.

Ranatunga, T., Tong, S.T.Y., Sun, Yu., Yang, J. 2014. A Total Water Management Analysis of the Las Vegas Wash Watershed, Nevada. Physical Geography, 35 (3): 220 – 244.

Susanna T.Y. Tong, Yu Sun, **Thushara Ranatunga**, Jie He, Y. Jeffrey Yang. 2012. Predicting Plausible Impacts of Sets of Climate and Land Use Change Scenarios on Water Resources. Applied Geography 32 (2): 477-489.

CONFERENCE PRESENTATIONS:

Ranatunga, T. Sambidi, P. 2020. Linking Environmental Resources and Transportation Planning for Sustainable Development. State of the Bay Symposium. Galveston Bay Estuary Program. Galveston, TX

Ranatunga, T. 2018. Regional Urban Forestry Geospatial Application. Houston Area GIS User Group, Houston, TX.

Ranatunga, T. 2017. Development of Satellite Based Regional Land Cover Dataset. Houston Area GIS User Group, Houston, TX.

Ranatunga, T. 2016. Land Use and Land Cover based Modeling of Potential *E. coli* Loadings in Watersheds. ESRI GIS Water Conference, Austin, TX.

Ranatunga, T. 2016. A Pathogenic Bacteria Source Loadings Estimation Tool. 10th State of the Bay Symposium, Galveston Bay Estuary Program, Galveston, TX.

Ranatunga, T., Messen, D**.** 2014**.** Modeling and Mapping Regional Land Use/Land Cover change in South Central Texas. American Geophysical Union, San Francisco, CA.

Ranatunga, T., Messen, D. 2014. A Geospatial Approach to Estimate E. Coli Loadings into Waterways. Houston Area GIS User Group, Houston, TX.

Ranatunga, T., Messen, D. 2013. Regional Land Cover Change Detection – Using a technique to Modify Historical NLCD and NOAA-CCAP datasets. Houston Area GIS User Group, Houston, TX.

Ranatunga, T., Tong, S.T.Y. 2013. Simulation of Total Water Balance using Watershed Hydrological Modeling. Association of American Geographers Annual Meeting, Los Angeles, CA.

Ranatunga, T., Tong, S.T.Y., Yang, J. 2011. Assessment of the Impacts of Climate Change on Stream Discharge and Water Quality in an Arid, Urbanized Watershed. American Geophysical Union Fall meeting, San Francisco, CA.

Stepinski Tomasz F., **Ranatunga, Thushara**, Jasiewicz, Jaroslaw. 2011. Identifying Spatially Inhomogeneous Relationships Between Drainage Density and Its Controlling Variables. American Geophysical Union Fall meeting, San Francisco, CA.

Ranatunga, T., Tong, S.T.Y., Yang, J. 2011. Modeling the Impacts of Climate Change on Stream Discharge and Water Quality in Las Vegas Wash, Nevada. Association of American Geographers Annual Meeting, Seattle, WA.

Ranatunga, T., Tong, S.T.Y., Yang, J. 2010. Basin Scale Hydrologic Modeling to Assess the Impacts of Climate Change on River Flow: A case study of the Little Miami River, Ohio. Association of American Geographers Annual Meeting, Washington DC.

Ranatunga, T., Tong, S.T.Y., Yang, J. 2010. Basin Scale Hydrologic Modeling in Simulating the Impacts of Climate Change on River Flow. Graduate School Poster Forum, University of Cincinnati, Ohio.

Thushara Ranatunga, Watershed Modeling and Climate Change. University of Cincinnati Science and Engineering Expo. 2010

Ranatunga, T., Hinkel, K.M. 2008. Beyond The Forest: Quantitative Analysis of Canopy Diameter and DBH Relation using GIS and Remote Sensing Techniques in the Midwest. Association of American Geographers Annual Meeting, Boston, MA.

He, Jie, **Ranatunga T.**, Tong, S.T.Y., Yang, J. 2008. Assessment of the Impacts of Climate Change on Water Infrastructure: A Case Study of Ohio. Association of American Geographers Annual Meeting, Boston, MA.

SCHOLARSHIPS AND AWARDS

Gold Medal: The Houston Area GIS User Meeting, 2013 (for Analytical Design and Content)

- Presentation: Regional Land Cover Change Detection – Using a technique to Modify Historical NLCD and NOAA-CCAP datasets

Silver Medal: The Houston Area GIS User Meeting, 2014 and 2017 (for Analytical Design and Content)

Bronze Medal: The Houston Area GIS User Meeting, 2014 (for Cartographic Design and Content)

- Presentation: A Geospatial Approach to Estimate E. Coli Loadings into waterways

The Best of Show: The best presentation prize of the Graduate Student Poster Forum 2010, Graduate School, University of Cincinnati, Ohio

- Title "Basin Scale Hydrologic Modeling in Simulating the Impacts of Climate Change on River Flow"

University Graduate Scholarship receiver (2007 to 2012). Graduate School, University of Cincinnati

Fulbright Travel Grant ($3500) – 2006 – US-Sri Lanka Fulbright Commission

PROFESSIONAL AFFILIATION

American Geophysical Union (AGU)
International Association of Hydrological Sciences (IAHS)
Association of American Geographers (AAG)
American Society of Photogrammetry and Remote Sensing (ASPRS)

PROFESSIONAL SERVICES

Technical Advisor - Geographic Data Committee, Aerial Technical Advisory Committee, Houston Area GIS User Group

Reviewer
- International Journal of Environmental Science and Technology
- International Journal of Geospatial and Environmental Research
- Applied Geography
- International Journal of Energy and Water Resources
- Hydrological Science Journal