

# MakhanVirdi

informatics, biogeochemical dynamics

## contact

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## interests

data informatics  
geospatial analysis  
hydrologic modeling  
programming/scripting

## education

- |      |                                       |   |
|------|---------------------------------------|---|
| 2013 | <b>Ph.D.</b> Water Resources Modeling | University of South Florida, Tampa      |
| 2008 | <b>Master</b> of Civil Engineering    | University of South Florida, Tampa      |
| 2004 | <b>Bachelor</b> of Technology         | Indian Institute of Technology, Roorkee |

## experience

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|-----------|---|----------------------|
| 2013–Now  | <b>Oak Ridge National Laboratory (NASA DAAC)</b><br><i>Postdoctoral Researcher</i><br>Develop and maintain informatics tools for accessing, subsetting, visualization of MODIS data generated from NASA's remote sensing satellite platforms  | Oak Ridge, Tennessee |
| 2011      | <b>ERDAS Inc/Intergraph Corp</b><br><i>Geospatial Software Engineer (Intern)</i><br>Developed operators to integrate Intergraph Geomedia's vector capabilities in ERDAS Imagine (C++ using STL and COM objects)   | Atlanta, Georgia     |
| 2007–2011 | <b>U.S. Geological Survey</b><br><i>Hydrological Modeling - Research Assistant</i><br>Modeled the effects of climate extremes on daily groundwater exchanges with the lake over a 10-years period. Included record dry/wet years with major hurricanes, El Niño, La Niña. Conceptually improved LAK and UZF packages of USGS finite-difference groundwater model.   | Tampa, Florida       |
| 2005–2013 | <b>University of South Florida</b><br><i>Research and Teaching Assistant</i><br>Geospatial analyses for assessing impacts of pre/post-mining of phosphate on the lakes & stream flows. Time-series analyses of high-resolution soil moisture data to estimate evapotranspiration, recharge for shallow water tables.  | Tampa, Florida       |
| 2004–2005 | <b>Center for Remote Sensing, IIT Roorkee</b><br><i>Post-Bachelor - Research Associate</i><br>Developed and programmed algorithm to find the shortest/safest route in areas susceptible to landslides, like the mountains of Himalayas and Alps. Modified Dijkstra's algorithm on a cost matrix determined from topography, landslide hazard zonation, landuse etc. | Roorkee, India       |

## publications

### journal articles

- Simulating the effect of climate extremes on groundwater flow through a lakebed  
Makhan Virdi, Terrie Lee, Amy Swancar, Richard Niswonger  
Ground Water Journal 51.2 (2013) pp. 203–218. Wiley-Blackwell, 2013
- GIS-based route planning in landslide-prone areas  
A. K. Saha, M. K. Arora, R. P. Gupta, M. L. Virdi, E. Csaplovics

## **conferences**

### **An Extensible Platform for High-Performance Geospatial Modeling**

John Fisher, Makhan Viridi, Jerry Del Gaudio, Bhagavath Kumar

*ASPRS 2012 Annual Conference Imaging and Geospatial Technologies - Into the Future*, 2012, Sacramento, CA

### **Geospatial Modeling with Instantaneous Visualization and Feedback**

Makhan Viridi, John Fisher, Bhagavath Kumar

*ASPRS 2012 Annual Conference Imaging and Geospatial Technologies - Into the Future*, 2012, Sacramento, CA

### **Simulating Lake-Groundwater Interactions During Decadal Climate Cycles: Accounting For Variable Lake Area In The Watershed**

Makhan Viridi, Terrie Lee

*AGU Fall Meeting Abstracts*, 2009, San Francisco, CA