

Matthew C. Whitehead, GISP

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PERSONAL STATEMENT

As highly motivated and hardworking scientist and developer, I have nearly 10 years of experience in the domains of environmental science, computer and data science, and geographic information science in technology. My career goals are to apply my technical and domain specific skillsets in interdisciplinary research to solve complex urban problems with a specific interest in applied urban informatics.

EXPERIENCE

Oak Ridge National Laboratory

Geospatial Developer,

Geographic Information Science and Technology (GIST) Group, Computational Sciences & Engineering Division

November 2014 - present

Ongoing experience includes:

- GIST research and development activities including high resolution population distribution and dynamics; climate change science including climate extremes and integrated impact analysis; emergency and disaster management; critical infrastructure modeling and simulation. These projects are under directive of the U. S. Departments of Energy, Department of Homeland Security, Department of Defense, Department of Transportation, National Geospatial Intelligence Agency (NGA) and a number of other sponsors;
- Team leader for production of an asset database of education facilities in the US on behalf of NGA
- Database developer and administrator for ORNL's work for the Homeland Security Infrastructure Program (HSIP)

Oak Ridge National Laboratory

Research Associate

Geographic Information Science and Technology (GIST) Group, Computational Sciences & Engineering Division

November 2009 – November 2014

- Worked as a Higher Education Research Experience (HERE) student, Post Bachelors Research Associate, and Post Masters Research Associate in both the Population Dynamics team and Critical Infrastructure team. Research and development experience includes but is not limited to population distribution and dynamics, site suitability modeling, climate change impact analysis, automated mapping using remote sensing, and critical infrastructure data creation.

Town of Highlands, North Carolina

GIS Intern

August – December 2007

- Researched local watershed dynamics to find the location of perennial streams. Utilized GPS to map and ground truth Manifold delineated streams; classified streams as perennial or ephemeral; compiled data into a GIS map and formally reported the interpreted findings to Highlands' officials to help change the existing perennial stream ordinances

Highlands (North Carolina) Biological Station

Research Intern

August – December 2007

- Performed quantitative and qualitative assessments of hemlock tree fall sites and the surrounding old growth forest using digital photography, GPS, and forest layer analysis; formally reported tree gap analysis regarding future forest growth resulting from the damage of the hemlock woolly adelgid.

EDUCATION

North Carolina State University

Master of Geospatial Information Science and Technology

GPA: 4.00

August 2009 – December 2011

Oak Ridge Institute for Science and Education

Higher Education Research Experience (HERE) Research Fellowship

June 2009 – November 2009

The University of North Carolina at Chapel Hill
B.A., Environmental Studies: Ecology and Biodiversity
Minor, Geography, Geographic Information Systems

Major/Minor GPA: 3.14

August 2005 - May 2009

North Carolina Institute for the Environment
Highlands (NC) Biological Station Field Site

August - December 2007

RESEARCH/PUBLICATIONS

"Spatially enabling open source data with remote sensing techniques to produce on entity spatial datasets"; American Association of Geographers 2016 Annual Meeting, San Francisco, CA; Research presented April 2016

"Automated and Accurate Critical Infrastructure Mapping Using Derived Building Footprints and Parcel Level Geocoding"; American Association of Geographers 2015 Annual Meeting, Chicago, IL; Research presented April 2015

"Combining Parcel Level Geocoding with LiDAR Data to Produce an On-Entity Spatial Database"; American Association of Geographers 2013 Annual Meeting, Los Angeles, CA; Research presented April 2013

"New York City Sea Level Rise Vulnerability Assessment"; American Association of Geographers 2012 Annual Meeting, New York, NY; Research presented February 2012

"Dynamic Population Modeling Using 'Smart Buildings'"; American Association of Geographers 2011 Annual Meeting, Seattle, WA; Research presented April 2011

"Seasonal Population Distribution Modeling of National Parks"; American Association of Geographers 2010 Annual Meeting, Washington, DC; Research presented April 2010

"Perennial Stream Identification and Mapping in the Big Creek Watershed"; Institute for the Environment Highlands Field Site (NC); Annual Research Reports, December 2007

"Canopy Dynamics and Understory Regeneration at Tree Fall Sites: Effects of Hemlock Loss in the Henry Wright Preserve"; Institute for the Environment Highlands Field Site (NC); Annual Research Reports, December 2007

RELEVANT COURSEWORK

Environment & Society · Environmental Problem Solving · Mountain Environments · Biodiversity & Conservation · Mountain Biodiversity · Landscape Analysis · Weather & Climate · Environmental Ethics · Geographic Information Systems · Modeling Environmental Systems · Field Methods of Physical Geography · Energy & Material · Principles of Modeling Climate · Principles of GIS · Application Issues in GIS · Computer Cartography · Advanced GIS Applications · GIS in Water Quality and Hydrologic Modeling · Geospatial Programming · Geospatial Modeling · Strategic Management Foundations · Effective Science Writing

TECHNICAL SKILLS

ArcGIS Desktop · ArcGIS for Server · ArcGIS Online · ArcGIS Pro · ArcSDE · ArcObjects · Manifold · MatLab · Mathematica · R · C# · Python · VBA · Javascript · HTML · CSS · ActionScript · Various IDE's and Content Management Systems · Adobe Photoshop · Adobe Illustrator · PostgreSQL · MySQL · SQL Server · Microsoft Office Applications

AWARDS AND RECOGNITIONS

Eagle Scout · Dean's List · ORNL Significant Event Award · Geographic Information Systems Professional (GISP) Certificate