

Timothy Morrissey

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Talented Geospatial Software Engineer with over eleven years of proven expertise in the design and development of enterprise applications, in-depth knowledge of all phases of the Software Development Life Cycle, and experience in a wide range of industries including professional consulting, municipal government, natural resources, and financial services

SUMMARY OF QUALIFICATIONS

- Over eleven years of Information Technology experience including extensive experience with Geographic Information Systems, Object Oriented Analysis & Design, and solving geospatial problems through technology driven approaches
- Proficient in numerous programming languages including Python, Java, and web technologies across a range of platforms and implementations
- Adept at all stages of the software development life cycle (SDLC), from requirements and data modeling to development and implementation
- Experienced in the design, acquisition, processing, and storage of large geospatial datasets used in spatial analysis including raster-based satellite imagery, LiDAR elevation and terrain data, as well as vector-based dynamic socio-economic data such as census demographics and infrastructure networks
- Over five years of experience designing and developing geospatial tools, extensions, and applications using Python libraries across various GIS platforms (ArcGIS, GRASS GIS, GDAL/OGR) and VB.NET and ArcObjects for ArcGIS
- Over eight years of professional technical consulting know-how including formal training in client relationship skills, project management, and delivery assurance across diverse industries from ranging from municipal government to financial services

TECHNICAL SKILLS

- **Programming Languages:** Python, Java, JSP, JavaScript / AJAX, HTML, CSS, XML, UNIX Shell, VB.NET/VBA, SQL
- **Geospatial Technologies:** ESRI ArcGIS Suite (ArcMap, ArcCatalog, ArcScene, ArcToolbox) v9.2 – 10.0 including Extensions: 3D Analyst, Spatial Analyst, Network Analyst, Geostatistical Analyst
ArcObjects, GRASS GIS, Quantum GIS, GDAL/OGR, Google Maps API
ERDAS Imagine, ENVI 4.7
- **Databases:** Microsoft SQL Server, Microsoft Access, Oracle, MySQL, ESRI ArcSDE
- **Platforms:** Microsoft Windows, Mac OS X, UNIX, Linux (Ubuntu)
- **Other Applications:** Microsoft Office, Matlab, SPSS, R

PROFESSIONAL EXPERIENCE

Department of Geography, University of North Carolina - Chapel Hill, NC

08/2008 – 01/2011

Research Assistant

- Designed a novel computational algorithm for processing extremely high-density LiDAR elevation data across a large geographic area, facilitating a highly accurate and computationally efficient method for performing raster-based terrain analysis at the statewide scale
- As lead architect, engineered a Python-based geospatial processing engine for modeling potential municipal water supply development through terrain, network, hydrologic, and spatial analysis using multi-scale LiDAR derived elevation (raster) and dynamic socio-economic (vector) datasets across the state
- Developed an extensible, component-driven, Python-based application framework for geospatial analysis that allows for the integration of multiple GIS platforms (ArcGIS and GRASS), as well as the database abstraction, messaging, logging, and other functionalities afforded in the Python programming model
- Managed the requirements, acquisition, processing and maintenance of all data needs, development resources, and deployment concerns for the geospatial engine dealing with modeling potential municipal water supply locations
- Produced tabular, cartographic, and visualization materials, such as 3D animations of potential reservoir inundation, to demonstrate the benefits and impacts of municipal water supply developments

City of Durham, Dept of Public Works, Stormwater Services Division – Durham, NC

01/2007 - 08/2008

GIS Programmer Specialist

- Developed a Python-based geospatial application for continuously processing discrete-return LiDAR data in ASCII format via a spatial indexing scheme at a county-wide spatial scale that facilitated the use of this highly accurate data source for land-use and hydrologic modeling across a multitude of city agencies
- Created an application extension for ArcMap in Visual Basic .NET, providing a suite of end-user tools for

creating ArcGIS Terrain Datasets and terrain-derived hydrographic products from discrete-return LiDAR data

- Evaluated the technical capabilities and accuracy of third party feature recognition software packages used to characterize land cover properties of Quickbird satellite imagery

Behavioral Health Resource Program, UNC School of Social Work - Chapel Hill, NC 09/2008 – 01/2010

Geospatial Analyst/GIS Consultant

- Performed geocoding operations on state mental health providers to spatially reference existing service areas based on provider specialties and characteristics
- Spatially analyzed current mental health service providers against U.S. Census population and demographic datasets to map areas of deficient service coverage
- Created service areas maps for mental health service providers within 30 and 60 minute driving times based on transportation road network analysis
- Produced cartographic representations and maps of service provider spatial and network analysis that served as support material for presentations to the North Carolina State Legislature

Guggenheim Real Estate LLC – Chapel Hill, NC 03/2007 - 05/2007

Geospatial Analyst/GIS Consultant

- Conducted spatial analysis on worldwide population, demographic, natural resource and recreational data through Python-based geo-processing routines and scripts producing a set of input variables to econometric models for real estate analysis
- Developed Python-based scripts for temporally and spatially analyzing thirty year historical records of daily climatic conditions for approximately seventy-five cities worldwide cities, used in real estate analysis

City of Durham, Dept of Public Works, Stormwater Services Division – Durham, NC 09/2006 – 12/2006

GIS Intern

- Analyzed multispectral Quickbird Satellite Images and Digital Orthophotoquads to identify and edit ArcSDE polygon Feature Classes of impervious surface areas per parcel data, using ArcGIS suite.
- Developed geo-processing tools and frameworks for data processing using Python and ArcToolbox
- Programmed tools for geospatial data integrity and quality control using VBA and ArcObjects
- Field collected and processed GPS data points as a data source representing impervious surface areas

Collaborative Consulting – Boston, MA 03/2001 – 05/2006

Senior Technical Consultant

- Specialized in the design and development of Java-based multi-tiered enterprise applications according to the J2EE specification and Model View Controller design pattern for a number of large multinational corporations in the Financial Services, Insurance, and High Technology industries
- Developed front-end client facing web applications using JSP and Javascript, business-logic application layers using Java, and back-end data access components for Oracle and MS SQL Server database storage engines
- Crafted proficiency in all stages of the software development life-cycle, from discovery and requirements gathering, through system design, development, testing and deployment to post-implementation support
- Provided technical insight and research to the development of project proposals, including RFP's and RFI's

Computer Sciences Corporation – Boston, MA 08/1998 – 01/2001

Staff Consultant

- Specialized in the development of web-based e-commerce applications, that involved front-end web application development using JSP and Javascript and middle-tier business logic using Java
- Completed formal training in client relationship management, delivery assurance and project management

EDUCATION

University of North Carolina at Chapel Hill 2006 - 2010

Graduate Certificate in Geographic Information Sciences Chapel Hill, NC

Including over 50 credit hours of graduate course work in Geography, Environmental Science, and Urban Planning

Brandeis University 2001 - 2005

Master's of Software Engineering Waltham, MA

University of Massachusetts at Amherst 1994 - 1998

Bachelor of Business Administration – Operations Management Amherst, MA