

## Tao Wang

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### SKILLS SUMMARY

- **GIS SKILLS – 10 years** with
  - Interpreting and digitizing satellite imageries, editing spatial and attribute;
  - Developing geospatial database management system and WebGIS applications by using both commercial and open source software development kits, such as creating and managing geospatial efficient data index and data table, using SQL statement to manage geospatial data table and manipulate geospatial data and coding connections between applications and geospatial database;
  - Georeferencing and geocoding, converting CAD, GPS data into GIS data format(GPX, DWG, DWF, DXF, SHP, KML, KMZ, IMG) and vice versa;
  - Using GIS applications including ArcGIS 8.1/8.3/9.0/9.3 ( ArcMap, ArcToolbox, Spatial Analyst, Network Analyst), FME Desktop 2011, ERDAS 7/9.0 and Quantum GIS 1.8.
- **SOFTWARE PROGRAMMING – 16 years** with
  - Open Source Software Development Kit( Geographical Data Abstraction Library, OpenLayers, GeoExtJS);
  - ArcGIS Software Developer Kit
  - Java2 EE, Spring 3.0, Struts2, Hibernate 4.1; C++;
  - MS SQL Server 2000/2005; PostgreSQL 7.4/9.2( PostGIS 2.0); Oracle 9i;
- **DATA ANALYSIS, RESEARCH AND SCIENTIFIC WRITING – 10 years** with
  - Data analysis and research in geospatial information;
  - Scientific writing Ph.D. thesis, 10 publications on peer-reviewed geospatial information journals and possessing 7 software copyrights.

### EDUCATION

- **Ph.D. in Cartography and GIS**  
Graduate University of Chinese Academy of Sciences, 2002 – 2008  
Thesis: *X3D-based Object-Relational geospatial data model for GIS-based knowledge discovery and data visualization.*
- **Diploma in Computer Science and Application**  
Tianjin University of Commerce 1993 – 1995

**GIS TECHNICAL AND ACADEMIC EXPERIENCE**

- Research Assistant, Jul. 2008 – Dec. 2012  
 Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi, China  
 Created the geospatial database based on PostgreSQL9.2/PostGIS 2.0, converted urban planning CAD data into GIS layers and vice versa using FME Desktop 2011, QGIS1.8 and ArcGIS 9.3, and developed a WebGIS based business system using Java2 EE, Spring 3.0, Hibernate 4.1, OpenLayers 2.11, ExtJS 4.1, and Apache Struts2, for the Department of Urban Planning in a county of arid region; developed a file format converting tool of GIS data using GDAL, C++; built map services using MapServer 6.0;
- Chief IT Officer Jul. 2008 – May. 2012  
 Real Estate Trading and Registering Center of Urumqi, Urumqi, Xinjiang, China  
 Created technical schema to join GIS data and to attribute data of real estates; made decisions how to manipulate geospatial database, chose GIS technical framework, and organized a team to develop GIS-based business services system using ArcGIS 9.3, ArcServer SDE and Oracle 9i; analyzed spatial distributive pattern of the price of real estate corresponding to its spatial attributes.
- Ph.D. Candidate Sep. 2002 – Jul. 2008  
 Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi, China  
 May 2005 – Jul. 2008  
 Created geospatial database for a river basin landscape based on PostgreSQL 7.4/PostGIS; converted raster and vector data, and DEM data into 3D terrain scene using Creator and Vega Prime, developed 3D GIS-based systems using Microsoft Visual C++ 6.0, ArcGIS 9.0, and Vega Prime 2.1;

Jul. 2004 – May. 2005  
 Interpreted and digitalized satellite imageries (QuickBird) using ArcGIS 8.3 and ERDAS 7, compiled GIS data, and imported into geospatial database of **land use and land cover change** services based on ArcSDE and MS SQL Server 2005 for a National Funding Project of China.

Sep. 2002 – Jul. 2004  
 Interpreted and digitalized satellite imageries (Landsat-7, QuickBird) using ArcGIS 8.1 and ERDAS 7, compiled GIS data, and imported into geospatial database of ecosystem services based on ArcSDE and MS SQL Server 2000 for the local region for the China National Funding Project. Processed vector and raster data and performed spatial analysis for various ecosystem services including coding web-based GIS applications, constructing geospatial queries, combining and summarizing various fields, and joining non-spatial data with existing raster and vector data. Documented process steps and updated metadata. Collected GIS data and created geospatial database for an update to the Xinjiang Arid Resources Eco-database Plan.

## ACHIEVEMENTS

- Publications (10)
  - Yanrui Chen, **Tao Wang**, Xi Chen and Xu Bai. 2009. The quantitative evaluation for the performance room of X3D. World Congress on Computer Science and Information Engineering , 4:591-595.(ISTP, EI)
  - Yanrui Chen, **Tao Wang**, Xi Chen and Xu Bai. 2008. Research on Navigation Method in 3D Geographic Information System for Water Conservancy Projects of Large Basin. IITA Conference on Geoscience and Remote Sensing, 2:521-524. (ISTP, EI)
  - **Tao Wang**, Xi Chen *et al.* 2008. A new X3D-based object-relation data model to facilitate geospatial data mining and knowledge discovery. IEEE International Conference on System, Man & Cyber, Singapore ,3642-3646. (ISTP, EI)
  - **Tao Wang**, Jun Lei, Zuliang Duan. 2012. A study on utilizing open source GIS techniques PostGIS and Ruby on Rails in Registry and Licensing System for Urban Planning of Small Counties in Arid Region. Journal of Xinjiang University (Natural Science Edition) . (in Chinese with English abstract, in press).
  - Xiaojun Yin, Kefa Zhou, Anming Bao, **Tao Wang**, *et al.* 2007. Eco-environmental water demand in Hami, Xinjiang based on Remote Sensing. Land Arid Geography, 32:102-106. (in Chinese with English abstract)
  - **Tao Wang**, Xi Chen, Geping Luo, et al. 2006 .3D Sub-assembled WebGIS Platform Based on X3D/XML:An Architecture Research of Geo-spatial Data Sharing and Handling Integrated Platform(Geo-SD SHIP) [J]Journal of Image and Graphics.,11(03):410-418. (in Chinese with English abstract)
  - Zhaozhi Lu, Jianhua Tian, Zuorui Shen, Changyan Tian, **Tao Wang**. 2005 . Single sine phonological model of thermal accumulation and its application[J]. Chinese Journal of Ecology, 12(4):1549-1552. (in Chinese with English abstract)
  - Geping Luo, Xiaogang Chen, **Tao Wang**, Xi Chen. 2005 . Preliminary analysis on the visualized simulation of land use and land cover change in typical oases[J]. Arid Land Geography, 1:45-51. (in Chinese with English abstract)
  - **Tao Wang**, Zhaozhi Lu, Xi Chen, Anming Bao. 2005 .Development of intranet-based database management system of Bollworms in Xinjiang by using Delphi[J]. Arid Land Geography, 28(1):72-75. (in Chinese with English abstract)
  - **Tao Wang**, Xi Chen, Weisheng Wang, Anming Bao. 2004 . Design and implementation of web-based database application system of Xinjiang Ecological

Resources and Environment[J].Computer Engineer and Applications, 40(23):200-205.  
(in Chinese with English abstract)

- Software Copyrights (7)

- 2011SR097971 WebGIS-based Information Management and Monitoring System for Interprovincial Xinjiang-Aiding Projects
- 2011SR097850 WebGIS-based Registry and Licensing System for Urban Planning of Small Counties in Arid Region
- 2010SR014084 3D GIS-based Simulating and Planning System for Arid-zone Landscapes
- 2010SR060686 3D GIS-based Urban and Regional Planning System
- 2007SR17755 3D GIS-based Navigating System of Tarim River
- 2004SR04422 Information System of Cotton Pest Control
- 2004SR04421 Predicting and Forecasting Information System for Cotton bollworms Control Based on Phonological Models