

Yaguang Xu

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Employment Experience

Mar. 2002 to present

Spatial Analyst/GIS Developer (Adjunct Faculty, 2006-2011)

Center for Environmental Sciences and Education, Northern Arizona University, USA

- Develop tools for image processing and natural resource management on ArcGIS platform(using ArcObjects, VB/VBA, C/C++ and other developing tools)
- Map structural attributes of forest, woodland and grassland(using ERDAS, ArcGIS, TM, SPOT, radar imagery, airphotos, and ground measurement)
- Build ForestERA geodatabase, and develop interface/tool to maintain and improve its efficiency (using SQLServe, ArcSDE, ArcServe and other developing tools)
- Develop web-server and dynamical web-page for serving spatial data (using ArcIMS, .Net, XML and other developing tools)

May. 2001 to Mar. 2002

GIS Developer

CFI GIS Lab, York University, Canada

- Develop spatial data processing methods(using C/C++ and AML in Arc/Info environment), and code them into commercial software “GeoDas” (with VB and MapObjects)
- Apply GIS/RS techniques and the software (ArcGIS, ERDAS and GeoDas) to geological and environmental analysis
- Build geodatabase for GIS projects in environmental monitoring and natural resource assessment (using ArcGIS, ArcSDE, and Access/Oracle)

Sep. 1996 to Apr. 2001

GIS Lab Instructor/Research Assistant (part time)

York University, Department of Earth and Atmospheric Sciences, Department of Geography, Canada

- Direct undergraduate and graduate student GIS projects
- Trouble shoot for students working on Arc/Info, ArcView and PCI
- Develop spatial analysis methods in ERSI’s GIS environment
- Design and build geodatabases using ArcGIS (Arc/Info) and Access/Oracle
- Map digitization, table edit, data conversion and GPS data collection

1990 to 1996

Spatial Data Analyst

Changchun Institute of Information Integration Technology for Mineral Resource Assessment, China

- Supervising a small team working on spatial analysis for assessment of energy and mineral resources
- Developing technical methods for interpreting and integrating spatial data from multiple sources
- Collect and analyze remote sensing, geochemical, geophysical and geological data

Education

Department of Earth and Atmospheric Sciences, York University, Canada, 2001

PhD in Geographical Information Systems

Topic of dissertation

A fractal filtering technique for processing geophysical and geochemical data in GIS environment for mineral exploration

Department of Geology, Changchun University of Earth Sciences, China

MS in Economic Geology & BA in Geology

Professional Experience Examples

- Built and maintained the ForesERA's database, which is a large geodatabase containing and serving various spatial data for natural resource management and environmental analysis, 2002-present.
- Developed an ArcGIS extension containing a set of new tools that allow regional stakeholders to investigate predicted effects of alternative environmental policies (e. g. different restoration treatments) and predict distribution of invasive species, 2003-2005.
- Developed "advanced exploratory data analysis" technique for mapping large-area forest structures using low-cost high spatial resolution imagery, and derived high accurate canopy cover maps from DOQs covering 10 million acres of forest and woodland across the northern Arizona and western New Mexico, 2002-2006.
- Developed "measurement error analysis of spatial data" technique for mapping vegetation using ground measurements and medium resolution imagery, and mapped tree types, basal area and tree density across the forest and woodland of 10 million acres in the northern Arizona and western New Mexico, 2002-2006.
- Integrated two independent software packages (Cubist and See5) with ArcGIS so that machine-learning techniques could be readily applied to images and maps in ArcGIS environment (using VC and ArcObject), 2002-2003.
- Developed "the fractal filtering" technique in ArcInfo environment with AML, Fortran and C/C++ and put it into the commercial GIS software (GeoDAS) in the Window's environment using VB, MapObjects and the other development tools, 1997-2001.

- Integrated frequency filtering and weights of evidence onto Arc/Info environment for multi-source data processing and decision-making assistance, 1997-1998.
- GPS data collection, local DEM generation, and database configuration for contamination of MTO Baldwin Patrol Yard and surrounding area, and the Environmental Testing Site of York University, 1998.

Publication Examples

1. **Xu, Y.**, J. W. Prather, H. M. Hampton, B. G. Dickson., Jean Polumbo and T. D. Sisk. 2006. Effect of mismatches of scale and location between ground measurements and remote sensing imagery on forest structure mapping. PE&RS, under review.
2. **Xu, Y.**, J. W. Prather, H. M. Hampton, E. N. Aumack, and T. D. Sisk, 2006. Advanced exploratory data analysis for mapping regional canopy cover. PE&RS, V. 72, p. 31-38.
3. Dickson, B. G., J. W. Prather, **Y. Xu**, H. M. Hampton, E. N. Aumack, and T. D. Sisk. 2006. Mapping the occurrence and probability of large fire ignitions in northern Arizona. Landscape Ecology, V. 21, No. 5, p. 747-761.
4. Hampton, H. M., **Y. Xu**, J. W. Prather, E. N. Aumack, B. G. Dickson, and M. M. Mowe, T. D. Sisk, 2003. Spatial Tools for guiding forest restoration and fuel reduction efforts. In: Proc. 2003 ESRI International User's Conference, July 7-11, San Diego, CD-ROM available from ESRI.
5. **Xu, Y.**, and Q. Cheng, 2001. A fractal filtering technique for processing regional geochemical maps for mineral exploration, Journal of Geochemistry: Exploration, Environment and Analysis, V.1, No. 2, p.147-156
6. **Xu, Y.** and Q. Cheng, 2000. Geochemical and geophysical data processing aided by "multifractal-spectrum" filters for GIS-based mineral exploration. Journal of China University of Geosciences, V. 11, No. 2, p.128-130.
7. Cheng, Q., **Y. Xu**, and E. Grunsky, 2000. Integrated spatial and spectrum method for geochemical anomaly separation. Natural Resources Research, V. 9, No. 1, p. 43-56.