LIORA SAHAR

Geospatial Expert
Northrop Grumman Corporation, Public Health Division, Information Systems

PT Lecturer
Center for Geographic Information Systems, Georgia Institute of Technology

1938 winterbourne ct
Dunwoody, GA
(678) 520-5788
E-mail: liora_sahar@ngc.com,
liora.sahar@coa.gatech.edu

EDUCATION

2004 -2009 Ph.D "Using Remote Sensing and GIS Technology for Automated Building Extraction **"** in Design Computing, Georgia Institute of Technology. Major field – GIS, minor - Databases.
1995-1997 M.Sc , "Semiautomatic extraction of buildings from large-scale aerial images" Geodetic Engineering, Israel Institute of Technology.
1991-1995 B.Sc – Bachelor of Science in Geodetic engineering (Cum Laude), Israel Institute of Technology

EXPERIENCE & PROFESIONAL SKILLS

- **GIS and Remote Sensing –** Proficient in commercial packages such as ESRI, ERDAS-IMAGINE and ENVI. Developed applications using proprietary as well as open source GIS libraries. Consult projects, proposals and lead geospatial activities as well as R&D efforts.
    - Familiar with the different packages, toolkits and model builders.
    - Consulting as SME on behalf of Northrop Grumman, internally within the organization and to customers, including the Center for Disease Control (CDC)
    - Applying and implementing advanced image processing techniques to automate the building extraction procedure from aerial and satellite imagery.
    - LIDAR point cloud processing.
    - HyperSpectral image processing using Leica-IMAGINE and ENVI application.
    - Python scripts for advanced spatial processing interfacing with arcGIS.
    - Java applications development for spatial analysis.
    - Extensive experience working with census data, including demographic analysis and effective mapping
    - Support proposal writing efforts for compliance with GIS requirements
    - Support GIS related research in the Public health domain, including spatial analysis, integration of GIS and mobile technology, ABM (Agent Based Modeling), RS, Geocoding, Environmental vulnerability analysis
    - Initiated and leading the GIS COP (Community of Practice) for the Public Health Division in Northrop Grumman.

- Teaching Remote Sensing and GIS classes – University courses offering as well as industry workshops.

- **Software Development –** Extensive experience developing in multiple Object Oriented languages on various platforms, including UNIX and PC.
  - Developed on UNIX and PC platforms in C++, C, Embedded SQL, Fortran77, Python, Java, Java script.
  - Design and development of GIS-based web applications
  - Responsible for the full life cycle from requirement gathering, design, Functional specification, development, QA, installation and maintenance.
  - Libraries/Packages: SGI STL, Sybase DB-Library, GDAL, OGR, Numeric, Sybase Open Client, open layers, IMAGINE toolkit

TEACHING EXPERIENCE

"Introduction to Remote Sensing" (CP6531 – graduate level), Georgia Institute of Technology. Co- Instructor,. Spring semester, 2008, 2009, 2010 (as a Ph.D Candidate), 2011 (PT Lecturer).

"Introduction to GIS" (CP4510 – undergraduate class), Georgia Institute of Technology. Instructor, as a Ph.D student and Ph.D candidate. Fall semester, 2006, 2007 & 2008.

Teaching Assistant, 1994-1997, Israel Institute of Technology. Courses: GIS, Adjustment computation, Surveying 1G, Computer mapping, Computer aided problems in mapping, Lab instructor for Surveying (undergraduate class)

"Introduction to GIS" – internal workshop, Northrop Grumman, 2009-2010

EMPLOYMENT HISTORY

July 2009 to present, Northrop Grumman
Position: GIS Expert / Senior Geospatial Analyst

- Provides GIS consulting services to CDC departments
- Support GIS initiatives within Northrop Grumman, both R&D and project related tasks
- Support proposal writing efforts for compliance with GIS requirements
- Implement open source as well as commercial solutions as applicable to project tasks
- Initiated and leading the GIS COP (Community of Practice) for the Public Health Division in Northrop Grumman.
- Serves as the "Professional Liaison subcommittee chair" within the CDC, GeoSWG (Geography and Geospatial Science Working Group).

August 2004 to July 2009, GA-Tech
Position: Ph.D Candidate, Graduate Research Assistant and Instructor

- Research in the fields of GIS and Databases within the "Center for GIS" in Georgia Institute of Technology.
- Applying and implementing advanced image processing techniques to automate the building extraction procedure from aerial and satellite imagery.
- LIDAR image processing knowledge.

- Extensive use of ESRI ARC products and ERDAS-IMAGINE.
- HyperSpectral image processing using ERDAS-IMAGINE and ENVI application.
- Python scripts for advanced spatial processing interfacing with arcGIS.
- Java applications development for spatial analysis.
- Instructor of "Introduction to GIS" (CP4510) for undergraduates in Georgia Tech, Fall semester, 2006, 2007 & 2008.
- CO-Instructor of "Pattern Recognition Using Remotely Sensed Photography" (CP6531) for graduate students in Georgia Tech, Spring semester, 2008 and 2009.
- 2005 – Participated in a field mission trip to Greece, sponsored by the MAE (Mid America Earthquake) research center.

March, 2000 to August 2004, TTI-Telecom
Position: Software Engineer

- Java script applications.
- C, C++ applications on Sun Solaris for Telecommunication applications
  - Embedded SQL (Sybase DB server)
  - Client/Server processes (sockets, multithreaded processes)
  - Primary users/customers AT&T local, AT&T core, AT&T Wireless and NESAC, BellSouth and others.
- Responsible for a full lifecycle projects – Requirement analysis, design, development, implementation, testing and maintenance. Developing Operating System Support (OSS's) in the assurance arena for the Major Telcos (AT&T, Sprint PCS, Bellsouth etc).

1997 to 2000, IDF, Israel
Position: Research and Development Engineer
Assistant Manager/Manager of Production Department

- UNIX (Sun, Digital) environment, ERDAS IMAGINE and Socet-set for image processing.
- PC Photoshop, Microsoft Office, Arcview for managing geographic information.
- Worked and developed on UNIX and PC environments
- Managed several teams involved in different projects
- Job positions focused mainly on the fields of Photogrammetry, Remote Sensing and GIS.

1995 to 1997, Technion, Israel
Position: Assistant Lecturer/Teaching Assistant

- Developed a semi-automatic system for "mapping buildings from aerial images". The system was developed on a Linux platform in "C".
- The research was the subject of several articles in professional magazines and journals and was presented at several international conventions.
- Taught and assisted undergraduate courses in different fields of geodesy such as:
  GIS, Adjustment computation, Surveying 1G, Computer mapping, Computer aided problems in mapping

PUBLICATIONS

Sahar, L., Muthukumar, S., French, S. P. (2010) Using Aerial Imagery and GIS in Automated Building Footprint Extraction and Shape Recognition for Earthquake Risk Assessment of Urban Inventories (2010), IEEE Transactions on Geoscience and Remote Sensing 48(9). pp 3511-3520

Sahar, L. (2006) "GIS and DB" – GIS section within "Fundamentals of Database Systems", Elmasri&Navathe, edition 5, 2006.

Sahar, L. and Krupnik, A. (1999). Semiautomatic extraction of building outlines from large-scale aerial images. *Photogrammetric Engineering and Remote Sensing*, 65(4):459-465.

CONFERENCE ABSTRACTS & PROCEEDINGS

Sahar , L., Baloch Mansoor (2011). Environmental vulnerability assessment tool development for water pollution. URISA GIS in Public Health Conference, June 27-30, 2011, Atlanta, Georgia. *Accepted. Proceedings article in preparation*

Sahar, L., Subrahmanyam, M (2010). Developing Components of a Building Inventory for Seismic Risk Modeling. Geospatial Conference, GA URISA, University of Georgia.

Sahar, L., Yissa, G.I, Son, R. (2010) Employing Mobile Data Collection to Support Public Health. 2010 Geospatial Conference, GA URISA, University of Georgia.

Sahar, L. (2008) "Using Remote-Sensing and GIS Technology for Automated Building Extraction". GIS in teaching and research conference, Atlanta, GA.

Shamkant B. Navathe and **Sahar Liora** (2006). "Modeling and Integration of Active Spatial Data for Future GIS-based Applications", In "Active Conceptual Modeling of Learning Workshop" May 10-12, 2006 SSC San Diego.

Sahar, Liora,. Muthukumar, Subrahmanyam., French, Steven P. (2006). Using High-Resolution Aerial Photography and Neural Networks to Inventory Properties at Risk of Earthquakes. In *Proceedings, MAPPS/ASPRS Annual 2006*, San Antonio, TX, Nov 6-10, 2006.

Sahar, L., Subrahmanyam, M (2005). "Using High-resolution aerial photography and Neural networks for inventory production of people and properties at risk of earth-quakes", Abstract In *Proceedings* ASPRS Mid-South Region Fall Conference *"A Closer Look at Natural Resource Applications"* November 10, 2005

Krupnik, A., Topel, L. and **Sahar, L**. (1997). A 3-D approach for semiautomatic extraction of man-made objects from large-scale aerial images. In *Integrating Photogrammetric Techniques with Scene Analysis and Machine Vision III*, D. M. McKeown Jr., C. J. McGlone and O. Jamet (eds), SPIE Proceedings, Vol 3072.

Sahar, L. and A. Krupnik (1997). Semiautomatic extraction of buildings from large-scale aerial images. In *Proceedings, ACSM/ASPRS Annual Convention*, Vol. 3, pp. 205-214, Seattle, WA

Sahar, L. and Krupnik, A. (1997). A Semiautomatic approach for 3-D reconstruction of building outlines. In *Proceedings, ISPRS Workshop on Theoretical and practical aspects of surface reconstruction and 3-D object extraction*, Vol. 32, pp. 127-133, Haifa, Israel.

AWARDS

1995 - "Army Grinstein" award for outstanding scholar achievement
1996 - "Certified Surveyors of Israel Agency" Award for outstanding scholar achievement
2007 – "The Thomas Mettille Student Achievement Award" presented by Georgia URISA

2005 – Participated in a field mission trip to Greece, sponsored by the MAE (Mid America Earthquake) research center.

PROFESSIONAL TRAINING

1996 Teaching workshop – Israel Institute of Technology.
2000 C++ – Sela Group in Israel
2000 Introduction to Telecommunications – seminar
2002 CORBA programming C++ Edition (ORBIX 2000) - IONA
2007 Introduction to IMAGINE Toolkit – Leica Geosystems
2009 Effective and Interesting open source GIS tools – workshop, GA URISA
2010 Project Management Workshop – Northrop Grumman Corporation
2010 Spatial Analysis – ESRI (offered by the Center for Disease Control and Prevention)
2011 Fundamentals of Public Health – Northrop Grumman

PROFESSIONAL AFFILIATIONS and SERVICE

ASPRS – member
URISA - member
Geography and GIS Science Work group (GeoSWG), Center for Disease Control – member, elected Professional Liaison for 2011
GIS Professional – certificate provided by the GIS certification Institute

LANGUAGES

Hebrew – Native
English – Expert user