

# Eun-Hye [Enki] Yoo

University at Buffalo  
The State University of New York  
Department of Geography  
Buffalo, N.Y. 14222

Tel: (805) 259-7541  
Fax: (972) 883-6297  
Email: [eunhye@buffalo.edu](mailto:eunhye@buffalo.edu)  
www page: <http://www.geog.buffalo.edu/>

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## ACADEMIC APPOINTMENTS

University at Buffalo      **Assistant Professor, Department of Geography, 2007**  
The State University of  
New York

## EDUCATION

University of California,      **Ph.D., Geography, 2001 to 2006**  
Santa Barbara      Dissertation: *A geostatistical framework for downscaling spatial data*, Faculty  
Advisor: Phaedon C. Kyriakidis.

Seoul National University      **Ph.D. Candidate, Geography, 1999 to 2001**  
Seoul, Korea      Completed coursework.

Seoul National University      **M.A., Geography, 1997 to 1999**  
Seoul, Korea      Thesis: *Spatial statistical analysis in a GIS environment: Correlation case  
study of air pollution and respiratory diseases*. Faculty Advisor: Ki-Ho Park.

Seoul National University      **B.A., Geography, 1993 to 1997**  
Seoul, Korea

## RESEARCH INTERESTS

GIScience, geostatistics, spatial statistics, geocomputation, spatial analysis and modeling, public health and environmental modeling, spatial hedonic modeling.

## HONORS AND AWARDS

First place, Student Paper Competition, Spatial Analysis and Modeling Specialty Group of the Association of American Geographers, April, 2005.

Jack and Laura Dangermond Graduate Fellowship, Department of Geography, UCSB, 2004/2005.

Graduate Opportunity Fellowship, Department of Geography, UCSB, 2002.

Merit based scholarship, Department of Geography, Seoul National University, 1995.

Merit based scholarship, Han-Won Scholarship Association, Korea, 1994.

## PUBLICATIONS

### Peer Reviewed Journal Articles

P.C. Kyriakidis and E.-H. Yoo, 2005, *Geostatistical prediction and simulation of point values from areal data*, *Geographical Analysis*, vol. 37(2), 124-151.

**E.-H. Yoo** and P.C. Kyriakidis, 2006, *Area-to-point Kriging with inequality-type data*, *Journal of Geographical Systems*, vol. 8(4), 357-390.

#### Manuscripts in progress

**E.-H. Yoo** and P.C. Kyriakidis, 2007, Area-to-point predictions under boundary conditions, *Geographical Analysis* (conditionally accepted).

**E.-H. Yoo** and P.C. Kyriakidis, 2007, Area-to-point Kriging in Spatial Hedonic Price Models, *Environment and Planning A* (under review).

D.A. Griffith and **E.-H. Yoo**, 2007, Extreme eigenvalues of spatial adjacency matrices, *Numerical linear algebra with applications*.

**E.-H. Yoo**, P.C. Kyriakidis, and W. Tobler, 2006, A geostatistical framework for reconstructing population density surfaces (target submission December, 2007, *International Journal of Geographical Information Science*).

**E.-H. Yoo**, 2007, Spatial modeling of housing prices using Factorial Kriging (target submission December, 2007, *Urban Studies*).

#### RESEARCH EXPERIENCE

##### Research Associate (postdoctoral fellow), University of Texas at Dallas

Sep. 2006 to Jul. 2007

*On the eigenvalue distribution of adjacency matrices for planar and near planar graphs.*

Funding source: National Science Foundation, P.I. Prof. Griffith. Research on the statistical distribution of adjacency matrix spectra for planar graphs; developing accurate approximation methods of eigenvalues via readily available eigenvalue properties: extremes, rank orderings, and sums of powers.

##### Research Assistant, University of California, Santa Barbara

Aug. 2004 to Jun. 2006

*A geostatistical framework for downscaling spatial data.*

Funding source: National Science Foundation, P.I. Prof. Kyriakidis. Research on a novel geostatistical framework for spatial data integration, advocating a geostatistical approach for area-to-point spatial interpolation and simulation, and implementing related algorithms in the form of a Matlab toolbox.

Project web site: <http://www.geog.ucsb.edu/~yoo/nsfgdsc/>

Aug. 2003 to Jul. 2004

*A system's approach to the visualization of spatial uncertainty.*

Funding source: National Science Foundation, P.I. Prof. Kyriakidis. Development of a framework for the visualization of uncertainty in spatial data, using spatial statistics (stochastic simulation) and numerical algorithms from computer vision.

Project web site: <http://www.geog.ucsb.edu/~yoo/nsfviz/>

Jul. 2002 to Aug. 2002

*Application of Kriging and simulation to spatial scales and distribution of hydrocarbon seeps near Coal Oil Point, CA.*

Funding source: Mineral Management Service, P.I. Prof. Washburn. Geostatistical data analysis and modeling using Matlab, GSLIB, and ArcGIS.

Jan. 2002 to Mar. 2002

*Sub-county population and household projections for South California sub-*

*regions, cities and unincorporated areas to 2025.*

Funding source: Southern California Association of Government, P.I. Prof. Sweeney. Quantitative data analyses and spatial data manipulation in a GIS environment.

Sep. 2001 to Dec. 2001

*Urban Change-Integrated Modeling Environment (UCIME).*

Funding source: National Science Foundation, P.Is. Prof. Clarke and Couclelis. Research on the development of an integrated modeling environment for the cross-disciplinary study of a wide range of questions pertaining to urban change. Creation of analytical maps and development of a program to manipulate micro-data using Avenue (Arcview script).

### **Research Assistant, Seoul National University**

Apr. 2000 to Sep. 2000

*A study on crime mapping and analysis using GIS.*

Funding source: LG-EDS, P.I. Prof. Park. A pilot study to develop a spatial analysis toolbox and a prototype of crime data warehouse design.

Jun. 1999 to Nov. 1999

*The development of Internet and GIS Technology for a disease surveillance system.*

Funding source: Ministry of Health and Welfare, P.I. Prof. Park. The development of analytical mapping and space-time analysis toolbox for a web-based infectious disease surveillance system.

Mar. 1997 to Jan. 2000

*The development of National GIS Technology: The User Interface Modules.*

Funding source: the Government of Republic of Korea, P.I. Prof. Park. A national project aiming to promote national competitiveness and productivity by establishing a geographical information infrastructure and assisting GIS-related technical development.

Dec. 1997 to Oct. 1998

*Research into the use of GIS for evaluating diseases caused by air pollution.*

Funding source: Korean Ministry of Health and Welfare, P.I. Prof. Park. A project aiming to explore the relationship between risk of diseases and environmental exposure in a GIS environment.

### **CONSULTING EXPERIENCE**

Jul. 2006 and Jul. 2005

Teaching assistant and project consultant, *Spatial Perspectives on Analysis for Curriculum Enhancement (SPACE)*, training university and college instructors to design and implement innovative curriculum that will enhance undergraduate students to integrate and analyze spatially reference data with GIS, analytical cartography, and spatial statistics, Center for Spatially Integrated Social Science (CSISS), UCSB.

Jul. 2006 to Aug. 2006 and  
Jun. 2005 to Jul. 2005

Teaching assistant and project consultant, *GIS and Population Science*, Training Ph.D candidates and researchers in social science to use of spatial methods in population research, Center for Spatially Integrated Social Science (CSISS), UCSB.

Jan. 2000 to Feb. 2000      Project consultant, Advanced mapping and analysis of crime incidence using Arcview. S1 corporation (SAMSUNG), Korea.

## TEACHING EXPERIENCE

### Course taught

Fall 2007      **University at Buffalo**  
Geography 503, Spatial topics in Spatial Data Analysis

### Invited Lecturer

Mar. 2001 to Jun. 2001      **Kyung-Hee University**  
Geography AJ005, Geographical Data Analysis (undergraduate)  
Geography AJ119, Quantitative Geography (graduate)

1997 to 1999      **Advanced Institute of Information Technology**  
GIS specialist course, Spatial Analysis and GIS Algorithm

### Teaching Assistant

2002 to 2004      **University of California, Santa Barbara**  
Geography 274, Introduction to Spatial Data Analysis  
Geography 210C, Analytical Methods in Geography  
Geography 210B, Environmental Data Analysis  
Geography 3A, Physical Geography

1997 to 2000      **Seoul National University**  
Geography 208.524, Seminar in Geographic Information Systems  
Geography 208.507, Quantitative Geography  
Geography 208.317, Geographic Information Systems  
Geography 208.222, Quantitative Methods in Regional Analysis

## PRESENTATIONS

**Conference presentations based on peer-reviewed abstracts**      **E.-H. Yoo** and P.C. Kyriakidis, Area-to-point coKriging in Spatial Hedonic Price Models, 103<sup>rd</sup> Annual meeting of the Association of American Geographers (sponsored by the Spatial Analysis and Modeling specialty group), San Francisco, CA, USA, April 17-21, 2007.

**E.-H. Yoo**, *Spatial modeling of housing prices using Factorial Kriging*, 53rd Annual North American meetings of the Regional Science Association International, Toronto, Canada, November 16-18, 2006.

**E.-H. Yoo**, H.-S. Shin, and H.-G. Son, *Spatial prediction of housing prices in Seoul using a geostatistical approach*, The Korean Geographical Society, Seoul, Korea, June 8-9, 2006.

**E.-H. Yoo**, P.C. Kyriakidis, and W. Tobler, *Reconstructing population density surfaces from areal data*, 102<sup>th</sup> Annual meeting of the Association of

American Geographers (sponsored by the Spatial Analysis and Modeling specialty group), Chicago, IL, USA, March 7-11, 2006.

**E.-H. Yoo** and P.C. Kyriakidis, *Area-to-point Kriging with inequality-type data*, 8<sup>th</sup> International Conference on Geocomputation, Ann Arbor, Michigan, USA, August 1-3, 2005.

**E.-H. Yoo**, *Area-to-point Kriging prediction under boundary conditions*, 101<sup>th</sup> Annual meeting of the Association of American Geographers Student Paper Competition (sponsored by the Spatial Analysis and Modeling specialty group), Denver, CO, USA, April 6-9, 2005.

P.C. Kyriakidis and **E.-H. Yoo**, *Geostatistical prediction/simulation of point values from areal data*, 7th International Conference on Geocomputation, Southampton, UK, September, 8-10, 2003.

Washburn, L., P.C. Kyriakidis, **E.-H. Yoo**, and J. Clark, *Spatial scales and distribution of hydrocarbon seeps near Coal Oil Point, CA*, Annual meeting of the American Association of Petroleum Geologists, Salt Lake City, UT, May 2003.

**E.-H. Yoo** and K.-H. Park, *Spatial pattern analysis of urban crime*, 98<sup>th</sup> Annual meeting of the Association of American Geographers, Los Angeles, CA, USA, March 12-23, 2002.

**E.-H. Yoo**, *Spatial statistical analysis in a GIS environment*, Geographic Information System Association of Korea, Ewha Women's University, Seoul, Korea, November, 1998.

**E.-H. Yoo** and K.-H. Park, *The way of linking S-plus and Arcview*, 8<sup>th</sup> ESRI's GIS Workshop, Seoul, Korea, September, 1998.

#### **Oral presentations in colloquia**

**E.-H. Yoo**, *A geostatistical framework for downscaling spatial data*, colloquium, Department of Geography, UCSB, USA, February, 2006.

**E.-H. Yoo**, *Reconstructing population density surfaces from areal data*, Quantitative Methods in Social Sciences (QMSS) colloquium, UCSB, USA, November, 2005.

**E.-H. Yoo**, *The change of support problem in spatial data interpolation*, colloquium, Department of Geography, UCSB, USA, November, 2002.

#### **SKILLS SUMMARY**

##### **Computational skills**

Geographic Information Systems: ArcGIS, Arcview, Idrisi,  
 Statistical Packages: Matlab, S-plus, R, SPSS, Gauss, GSLIB  
 Optimization Packages: Lindo, Matlab  
 Operating Systems: UNIX, Windows, LINUX  
 Programming languages: Tcl/Tk, Java, Avenue, S, R, Visual Basic 6, Fortran

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**Foreign languages**      Korean; Japanese

### **PROFESSIONAL SERVICE**

**Journal Reviewer**      Geographical Analysis  
Medical Geography as a Science of Interdisciplinary Knowledge Synthesis  
under Conditions of Uncertainty

**Book Reviewer**      Springer (Statistics)

**Professional Society**      Regional Science Association International

**Membership**      The Association of American Geographers

The Korean Geographical Society

### **OTHER EXPERIENCES**

Participation in the 24<sup>th</sup> ESRI International User conference, UC San Diego (Aug 2004).

Volunteer in the 29<sup>th</sup> International Geographical Congress (Aug 2000).

Participation in the 20<sup>th</sup> ESRI International User conference, *Geography, Our Global Network*, UC San Diego (Jun 2000).

Volunteer in the Santa Barbara Audubon Society's Snowy Plover Docent Program (Mar to Oct 2003).

High school teaching certification in Korea (Feb 1997).