

CURRICULUM VITAE

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Education

- 2007 Postdoctorate. Department of Geography, San Diego State University, United States. (<http://geography.sdsu.edu>)
- 2004 Ph.D. Management, University of Barcelona, Barcelona, Spain.
Dissertation: Design of homogeneous territorial units: A Methodological Proposal and Applications (*Cum Laude*).
Department of Econometrics, Statistics and Spanish Economy.
- 2000 MSc. Management and Economics, Pompeu Fabra University, Barcelona, Spain.
- 1998 B.A. Business Administration, National University of Colombia, Colombia.
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Academic Appointments

- 2007- Full-time Professor, Department of Economics, EAFIT University, Medellín, Colombia.
- 2005-07 Postdoctoral researcher. Department of Geography, San Diego State University, United States. (<http://geography.sdsu.edu>)
- 2004 Research Scholar. Department of Geography. University of California at Santa Barbara, United States. (<http://www.geog.ucsb.edu>)
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Experience in Research Institutions

- 2007- Director, Research in Spatial Economics (RISE-group), Department of Economics, EAFIT University, Colombia. (<http://rise-group.org/>).
- 2005- Member, Regional Analysis Laboratory (REGAL), Department of Geography, San Diego State University, United States. (<http://regionalanalysislab.org/>).
- 2004- Member, Geographic Systems Analysis Lab (GSAL), Department of Geography, University of California, Santa Barbara. United States. (<http://www.geog.ucsb.edu/~forest/RLC/Visitors.html>).
- 2000- Member, AQR Research Group (Regional Quantitative Analysis). Department of Econometrics, Statistics and Spanish Economy. University of Barcelona. And research unit in the Scientific Park of Barcelona (PCB), Barcelona, Spain. (<http://www.pcb.ub.es/aqr>)

Committee Member

Scientific Committee:

2008-09 First Conference of the Regional Science Association of the Americas: RSAmericas. 12-13 February 2009 Cartagena (Colombia).

2008-09 III World Conference of the Spatial Econometrics Association. 8-10 July 2009 Barcelona (Spain).

Technical Committee:

2008-09 XIV Latin Ibero-American Congress on Operations Research (CLAIO 2008). 9-12 September 2008 Cartagena (Colombia).

Research Interests

Operations Research: Spatially constrained clustering. Network-based industry clusters identification. Location modeling.

Spatial Analysis: Methods for spatio-temporal data analysis. Methods for the minimization of aggregation bias (ecological fallacy, modifiable areal unit problem). Open source software for spatial analysis.

Micro and Macro Econometrics: Multivariate analysis, Prediction models.

Bibliometrics in regional science.

Courses Taught

Statistics (EAFIT University).

Research Methods (EAFIT University).

Mathematical Economics (EAFIT University).

T.A. Econometría (University of Barcelona).

T.A. Probability (Pompeu Fabra University).

Professional Appointments

1997-99 Director of Production Planning. Super de Alimentos. S.A. Manizales, Colombia.

Fellowships and Honors

2005 Premio extraordinario de doctorado 2003-2004 (Best dissertation award 2003-2004). University of Barcelona, Barcelona, Spain.

- 2001-04 Beca predoctoral per a la formació de personal investigador (research fellowship). Generalitat de Catalunya, Ph.D. Program, Barcelona, Spain.
- 2000 Beca de formació en la recerca i la docència (research fellowship). University of Barcelona, Ph.D. Program, Barcelona, Spain.
- 1999-00 Teaching Assistant Fellow. Pompeu Fabra University, MSc. Program, Barcelona, Spain.
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Publications

Refereed Journal Articles

Spatial analysis and Operations research

- 2009 Duque, J. C., Gómez, D.A. Identifying Industry Clusters in Colombia Based on Graph Theory. *Ensayos Sobre Política Económica*, 27(59), forthcoming.
- 2007 Duque, J. C., Ramos, R., and Surinach, J. Supervised regionalization methods: A survey. *International Regional Science Review*, 30:195–220.
- 2006 Duque, J. C., Artís, M., and Ramos, R. The ecological fallacy in a time series context: Evidence from Spanish regional unemployment rates. *Journal of Geographical Systems*, 8:391–410.

Micro and Macro econometrics

- 2007 Clar, M., Duque, J. C., and Moreno, R. Forecasting business and consumer surveys indicators. A time series models competition. *Applied Economics*, 39(20):2565–2580.
- 2006 Duque, J. C., Ramos, R., and Surinach, J. Wages and productivity: The role of labour market institutions in OECD countries. *Empirica*, 33:231–243.
- 2005 Duque, J. C., Ramos, R., and Surinach, J. What have we learnt from the changeover to the euro? Lessons for accession countries from Catalonian firms. *Eastern European Economics*, 43(1):34–59.

Bibliometrics

- 2008 Royuela, V., Duque, J. C., and Surinach, J. Regional and urban science in France: Rankings of authors and institutions & publication patterns during the nineties. *Région et Développement*, 28:207–232.
- 2007 Surinach, J., Duque, J. C., and Royuela, V. Patrones de publicación internacional (ssci) de los autores afiliados a universidades españolas, en el ámbito económico-empresarial (1994-2004). *Estudios de Economía Aplicada*, 25(1):1–29.
- 2006 Royuela, V., Ramos, R., and Duque, J. C. La producción científica en el ámbito de la economía y empresa en España: Rankings de las universidades españolas en términos de producción, productividad, calidad e impacto en el período 1994-2003. *Estudios de Economía Aplicada*, 24(2):105–126.
- 2006 Royuela, V., Duque, J. C., and Surinach, J. Regional science in Germany during the nineties - Are German publication patterns different? *Raumforschung und Raumordnung*, 64(2):77–92.

- 2005 Ramos, R., Royuela, V., and Duque, J. C. Regional science research in the Nordic countries in the light of some chosen international journals. *European Journal of Spatial Development*, 15:1–21.
- 2005 Ramos, R., Royuela, V., and Duque, J. C. Regional and urban research in Italy during the nineties: Evidence from publications in nine top international journals. *Italian Journal of Regional Science (Scienze Regionali)*, 4(3):117–143.
- 2005 Surinach, J., Duque, J. C., Ramos, R., and Royuela, V. La investigación regional en España. Rankings de países, instituciones y autores en ciencia regional y urbana para el período 1991-2000. *Investigaciones Regionales*, 5:169–193.
- 2003 Surinach, J., Duque, J. C., Ramos, R., and Royuela, V. Publication patterns in regional and urban analysis. Have topics, techniques and applications changed during the nineties? *Regional Studies*, 37(4):351–363.
- 2002 Surinach, J., Duque, J. C., Ramos, R., and Royuela, V. La investigación regional en España. Un análisis bibliométrico. *Investigaciones Regionales*, 1:107–137.

Book Chapters

- 2008 Duque, J. C. and Rey, S. J. A Network Based Approach Towards Industry Clustering. In Blien, U. and Maier, G., editors, *The economics of regional clusters: Networks, technology and policy (New Horizons in Regional Science Series)*. Edward Elgar Publishing Ltd (1 Jun 2008), ISBN-10: 1847205151, ISBN-13: 978-1847205155.
- 2006 Duque, J. C. and Royuela, V. La investigación como motor de desarrollo. In Calderón, G. and Castaño, G. A, editors, *Investigación en Administración en América Latina: Evolución y resultados*. Universidad Nacional de Colombia, Manizales. ISBN: 958-8041-24-3.
- 2002 Surinach, J., Duque, J. C., Ramos, R., and Royuela, V. Topics, techniques and applications in urban and regional science in the nineties: A bibliometric analysis for selected international journals. In Márquez, J. M. M., editor, *Cambios regionales en la Unión Europea y nuevos retos territoriales*. Instituto de Estudios Fiscales, Madrid. ISBN: 84-8008-104-X.

Papers Under Review

Spatial analysis and Operations research

- 2008 Duque, J. C., Rey, S. J., and Anselin, L. The max-p-region problem.
- 2008 Duque, J. C., Church, R. L., and Middleton, R. S. The p-region problem.

Bibliometrics

- 2007 Duque, J. C., Ramos, R., and Royuela, V. Research networks and scientific production in economics: The recent Spanish experience.

Technical Reports

Spatial analysis and Operations research

- 2005 Rey, S. J., Duque, J. C., Smirnov, O., Kim, Y. S., and Stephens, P. Identifying value added

industry clusters in San Diego County. Technical report, Regional Analysis Laboratory Technical Report: REGAL 050615.

- 2005 Rey, S. J., Duque, J. C., Smirnov, O., Kim, Y. S., and Stephens, P. Geocoding the Connectory. Technical report, Regional Analysis Laboratory Technical Report: REGAL 050627.

Micro and Macro econometrics

- 2003 European Forecasting Network. Report on the euro-area outlook. Spring 2003. Technical report, European Commission, EFN project.
- 2003 André, M. E., Artís, M., Duque, J. C., Murillo, J., Ramos, R., Romaní, J., and Surinach, J. Estudi sobre l'impacte econòmic del turisme a la ciutat de Barcelona. Technical report, Ajuntament de Barcelona.
- 2003 Artís, M., Clar, M., Clavería, O., Duque, J. C., Moreno, R., Pons, E., and Surinach, J. Forecasting models currently applied to indicators computed on the basis of surveys results. Technical report, European Commission: ECFIN2002A3-01.
- 2002 Surinach, J., Duque, J. C., López, J., Mora, T., and Ramos, R. Convergence of labour costs and productivity in Europe: Evidence and policy issues. Technical report, European Commission, EFN project.
- 2002 European Forecasting Network. Report on the euro-area outlook. Autumn 2002. Technical report, European Commission, EFN project.
- 2002 European Forecasting Network. Report on the euro-area outlook. Spring 2002. Technical report, European Commission, EFN project.
- 2002 Artís, M., Surinach, J., Pon, E., Ollero, J. L., and Duque, J. C. Les economies locals a la província de Barcelona: Evolució a la dècada dels noranta. Technical report, Diputació de Barcelona.
- 2002 Artís, M., Surinach, J., Royuela, V., Reyes, M., and Duque, J. C. La qualitat de vida en l'àmbit local. El cas de la província de Barcelona. Base de dades. Technical report, Diputació de Barcelona.
- 2001 Artís, M., Surinach, J., Duque, J. C., Guillem, M., Ollero, J. L., and Ramos, R. L'adaptació de les empreses catalanes a l'euro. Technical report, Generalitat de Catalunya.
- 2001 Artís, M., Surinach, J., Duque, J. C., Guillem, M., Ollero, J. L., and Ramos, R. Enquesta sobre el grau d'introducció de l'euro a les empreses catalanes 2001. Technical report, Departament d'Economia i Finances, CIDEM-Departament d'Indústria, Comer i Turisme, Generalitat de Catalunya.
- 2000 Artís, M., Surinach, J., Duque, J. C., Guille, M., Llorente, F., Ollero, J. L., and Ramos, R. Enquesta sobre el grau d'introducció de l'euro a les empreses catalanes 2000. Technical report, Papers de Treball Departament d'Economia i Finances. Generalitat de Catalunya.

Bibliometrics

- 2005 Surinach, J., Duque, J. C., Ramos, R., and Royuela, V. El impacto de las publicaciones

Conference Participation and Presentations

- 2009 Duque, J. C., Anselin, L., and Rey, S. J. The Max-p-region Problem. In *First Conference of the Regional Science Association of the Americas: RSAmericas, Cartagena, Colombia*. February.
- 2009 Duque, J. C., Velásquez, H., Franco, J.L., and Betancourt, A. computationally efficient formulation for the Aldstadt and Getis AMOEBA algorithm. In *First Conference of the Regional Science Association of the Americas: RSAmericas, Cartagena, Colombia*. February.
- 2009 Duque, J. C., and Gómez, D.A. Identifying Industry Clusters in Colombia Based on Graph Theory. In *First Conference of the Regional Science Association of the Americas: RSAmericas, Cartagena, Colombia*. February.
- 2008 Duque, J. C., Rey, S. J., and Schmidt, C. R. INCLUSIO: New ways to explore interindustry relationships. In *55th North American Meetings of the Regional Science Association International, New York, USA*. November.
- 2008 Duque, J. C., Church, R. L., and Middleton, R. S. The p-regions problem. In *XIV Latin-Ibero American Congress on Operations Research (CLAIO 2008), Cartagena, Colombia*. September.
- 2006 Smirnov, O. A., Duque, J. C., and Rey, S. J. Regional Capabilities and the Structure of the Californian Economy. In *North American Meeting of the Regional Science Association International, Toronto, Canada*. November.
- 2006 Rey, S. J., Anselin, L., Duque, J. C., and Li, X. Max p-region Based Estimation of Disease Rates. In *North American Meeting of the Regional Science Association International, Toronto, Canada*. November.
- 2006 Duque, J. C., and Ye, X. Identifying Temporal Lag in Analytical Regionalization Procedures. In *North American Meeting of the Regional Science Association International, Toronto, Canada*. November.
- 2006 Smirnov, O., Duque, J. C., and Rey, S. J. Regional Capabilities and the Structure of California Economy. In *Western Economic Association International, San Diego, CA*. June-July.
- 2006 Smirnov, O., Duque, J. C., and Rey, S. J. Spatial Analysis of Industrial Clusters in California. In *Western Economic Association International, San Diego, CA*. June-July.
- 2006 Duque, J. C., and Middleton, R. S. Geography and gerrymandering. A location science approach. In *Association of American Geographers annual meeting, Chicago, IL*. March.
- 2006 Duque, J. C., Church, R. L., and Middleton, R. S. Exact models for the regionalisation problem. In *Western Regional Science Association anual meeting, Santa Fe, NM*. February.

- 2005 Rey, S. J., Duque, J. C., and Anselin, L. Clustering components in the Python Spatial Analysis Library (PySAL). In *North American Meeting of the Regional Science Association International, Las Vegas, NV*. November.
- 2005 Duque, J. C. and Rey, S. J. Network based approaches towards industrial clustering. In *North American Meeting of the Regional Science Association International, Las Vegas, NV*. November.
- 2005 Rey, S. J., Duque, J. C., Smirnov, O., Kim, Y. S., and Stephens, P. Regional analysis in support of economic development. In *North American Meeting of the Regional Science Association International, Las Vegas, NV*. November.
- 2005 Duque, J. C. and Royuela, V. La investigación como motor de desarrollo. In *Congreso Iberoamericano de Investigación en Administración, Manizales, Colombia*. May.
- 2004 Duque, J. C. and Church, R. L. A new heuristic model for designing analytical regions. In *North American Meeting of the Regional Science Association International, Seattle, WA*. November.
- 2004 Duque, J. C. and Ramos, R. Spanish unemployment: Normative versus analytical regionalization procedures. In *North American Meeting of the Regional Science Association International, Seattle, WA*. November.
- 2004 Duque, J. C. and Ramos, R. Design of homogenous territorial units: A methodological proposal. In *Congress of the European Regional Science Association, Porto, Portugal*. August.
- 2004 Duque, J. C. and Ramos, R. Spanish unemployment: Normative versus analytical regionalization procedures. In *Congress of the European Regional Science Association, Porto, Portugal*. August.
- 2004 Duque, J. C., Ramos, R., and Surinach, J. Diseño de unidades territoriales representativas del fenómeno a estudiar: Una propuesta metodológica. In *Encuentro de Economía Aplicada, Vigo, Spain*. June.
- 2004 Duque, J. C., Ramos, R., and Surinach, J. Spanish unemployment: Normative versus analytical regionalization procedures. In *Encuentro de Economía Aplicada, Vigo, Spain*. June.
- 2004 Surinach, J., Duque, J. C., Ramos, R., and Royuela, V. La investigación regional en España. Rankings de países, instituciones y autores en ciencia regional y urbana para el período 1991-2000. In *Reunión de Estudios Regionales, Barcelona, Spain*. November.
- 2004 Duque, J. C., Ramos, R., and Surinach, J. Spanish unemployment: Normative versus analytical regionalization procedures. In *Reunión de Estudios Regionales, Barcelona, Spain*. November.
- 2003 Duque, J. C., Ramos, R., and Surinach, J. Diseño de unidades territoriales representativas del fenómeno a estudiar: Una propuesta metodológica. In *Reunión de Estudios Regionales, Santander, Spain*. November.
- 2001 Royuela, V., Surinach, J., Duque, J. C., and Ramos, R. Topics, techniques and applications in urban and regional science in the nineties: A bibliometric analysis for selected

- international journals. In *Reuni3n de Estudios Regionales, Madrid, Spain*. November.
- 2001 Ramos, R., Duque, J. C., and Surinach, J. Las empresas catalanas frente al euro: Localizaci3n, tama1o empresarial y proceso de adaptaci3n a la nueva moneda. In *Reuni3n de Estudios Regionales, Madrid, Spain*. November.
- 2001 Duque, J. C., Ollero, J. L., Pons, E., and Surinach, J. El crecimiento econ3mico en la provincia de Barcelona: Un an3lisis de las diferencias a nivel territorial. In *Reuni3n de Estudios Regionales, Madrid, Spain*. November.
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Invited Lectures

- 2009 Duque, J. C. Max-p region problem In *Seminar of the Reference Network for Research in Applied Economics, Espai de Recerca en Economia, Facultat d'Economia i Empres. Universitat de Barcelona, Espaa*.
- 2009 Duque, J. C. Models d'agregaci3n espacial In *Seminar of the Reference Network for Research in Applied Economics, Espai de Recerca en Economia, Facultat d'Economia i Empres. Universitat de Barcelona, Espaa*.
- 2009 Duque, J. C. Eines inform3tiques per a l'exploraci3n de dades geogr3fiques In *Seminar of the Reference Network for Research in Applied Economics, Espai de Recerca en Economia, Facultat d'Economia i Empres. Universitat de Barcelona, Espaa*.
- 2009 Duque, J. C, and G3mez, D.A. Identificaci3n de Clusters Industriales en Colombia usando la Metodolog3a Duque, Rey (2008). In *Seminario de Econom3a. Banco de la Rep3blica, Medell3n, Colombia*.
- 2008 Duque, J. C. T3picos en an3lisis econ3mico de datos espaciales: El caso del Problema de la Unidad Espacial Modificable (PUEM). In *Banco de la Rep3blica, Medell3n, Colombia*.
- 2008 Duque, J. C. Software para la investigaci3n. In *Universidad Nacional de Colombia, Manizales, Colombia*.
- 2008 Duque, J. C. How to use a version control system (SVN) in collaborative projects. In *Research Institute of Applied Economics (IREA), Barcelona, Spain*.
- 2008 Duque, J. C. A new GIS-based methodology to analyze transitional economic patterns. In *Research Institute of Applied Economics (IREA), Barcelona, Spain*.
- 2008 Duque, J. C. Identification of network-based industry clusters using I-O tables. In *Regional Quantitative Analysis Research Group (AQR-IREA)., Barcelona, Spain*.
- 2005 Duque, J. C. Contiguity constrained clustering. In *Quantitative Methods in Geography Research. San Diego State University, San Diego, CA*.
- 2004 Duque, J. C. Analytical regionalization models: A methodological proposal and empirical links to the MAUP. In *Syllabus for Spatial Analysis. University of Wisconsin at Madison, Madison, WI*.
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Graduate Thesis Committee Member

Doctoral In Progress:

Bernábe Loranca María Beatriz. *Diseño y Desarrollo de un Modelo para la Determinación de Zonificación Óptima*. Universidad Nacional Autónoma de México (UNAM). México.

Journal Referee

International Regional Science Review.

Journal of Geographical Systems.

Socio-economic Planning Sciences.

Investigaciones Regionales.

Investigaciones Económicas.

Journal of Geographical Information Science.

Ensayos Sobre Política Económica.

Revista de la Escuela de Ingeniería de Antioquia.

Revista Ecos de Economía.

Revista Economía, Gestión y Desarrollo.

Participation in Research Contracts

- 2008 Estudio de las características individuales que determinan las tasas de abandono en la Universitat de Barcelona. Universitat de Barcelona: DOCT - 08C22. Co-Principal Investigator: Jordi Surinach.
- 2008 Estudi dels determinants de les taxes d'abandonament a la Universitat de Barcelona. Un estudi agregat. Universitat de Barcelona: DOCT - 08C21. Co-Principal Investigator: Manuel Artís Ortuño.
- 2008 Resultados del aprendizaje e intenciones de abandono/permanencia: Un modelo de análisis para la universidad española. Programa de Estudios y Análisis EA2007-0184. Ministerio de Educación (España). Co-Principal Investigator: Jordi Surinach.
- 2005-06 Regional socioeconomic modeling in support of economic development networks. Defense Logistics Agency: N66001-03-D-0042. Co-Principal Investigator: Sergio J. Rey.
- 2005 El impacto de las publicaciones científicas españolas en economía y empresa: Un análisis bibliométrico. Subdirección general de estudios y análisis. Secretaría de estado de educación y universidades MECD: EA2005-0142. Co-Principal Investigator: Jordi Surinach.
- 2000-04 European Forecasting Network. European Commission: 400317CCEE. Co-Principal Investigator: Jordi Surinach.

- 2002-03 Forecasting models currently applied to indicators computed on the basis of surveys results ECFIN 2002/A3-01. European Commission: 400356EUCO. Co-Principal Investigator: Jordi Surinach.
- 2001-02 Estudi sobre l'impacte econòmic del turisme a la ciutat de Barcelona. Ajuntament de Barcelona: 302072AJBA. Co-Principal Investigator: Manuel Artís.
- 1999-01 Elaboració d'una enquesta per conèixer el grau d'implantació de l'euro al llarg del període transitori que compren els anys 1999, 2000 i 2001 i identificar els problemes de la seva introducció en les empreses. Departament d'economia, finances i planificació de la Generalitat de Catalunya: 3601DECF. Co-Principal Investigator: Manuel Artís.
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Professional Services

- 2007 Contractor. Support San Diego East County Economic Development Council's work for the U.S. Defense Logistic Agency project research and Development for industrial capabilities in logistics, maintenance and manufacturing technologies. Funded by San Diego East County Economic Development Council.
- 2006-2008 Consultant. Intra-Urban Health Assessed by Remote Sensing and GIS. Funded by the U.S. National Institute of Child Health and Human Development. Principal Investigator: John R. Weeks.
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Software Development

- 2009- **ClusterPy: Software for analytically defining regions based your key variables.**
Developers:
Juan C. Duque and RiSE-group.
Description: Analytical regionalization is a scientific way to decide how to group of a large number of geographic areas or points into a smaller number of regions based on similarities in one or more variables (ie. income, ethnicity, or environmental condition) that the researcher believes are important for the topic at hand. Conventional conceptions of how areas should be grouped into regions may either not be relevant to the the information one is trying to illustrate (ie. using political regions to map air pollution) or may actually be designed in ways to bias aggregated results.
- 2007- **PLS-Py SAIA: PLS-Py System for dropout intentions analysis.**
Developers: Juan C. Duque and Lola C. Duque.
Description: PLS-Py SAIA is a software under development which is intended to provide a complete analysis to support decision makers in the formulation of policies to reduce dropout intentions in Spanish universities. This project is founded by the Ministry of Education and Culture of Spain.
- 2005- **STARS: Space-Time Analysis of Regional Systems.**
Developers: Regional Analysis Laboratory (REGAL)
Description: STARS is an open source package designed for the analysis of areal data measured over time. STARS brings together a number of recently developed methods of

space-time analysis into a user-friendly graphical environment offering an array of dynamically linked graphical views. It is intended to be used as an exploratory data analysis tool. STARS can also be used from the command line to support more flexible and specialized types of analyses by advanced users. Written entirely in Python, STARS is crossplatform and easy to install (and expand).

2006- **INCLUSIO: Industry Clusters based on Input Output tables.**

Developers: Sergio J. Rey, Juan C. Duque, Charles Schmidt and Xuening Li

Description: INCLUSIO is an open source software that includes new methods to identify industrial clusters within a regional economy and integrates those methods together with spatial analysis techniques and interactive web based visualisation. This work is collaborative with the East County Economic Development Council who have developed the Connectory.

Computing Skills

Languages: Python, GAUSS, R.

Optimization: CPLEX, Lingo.

Statistical: EViews, SPSS, Minitab, Stata.

Application: LATEX, Gvim, Microsoft Office, ArcGIS, Geoda, SpaceStat, Stars.

Operating Systems: UNIX, Windows.

Others: FreeMind, Graphviz, Concurrent Versions System (CVS).

References

Dr. Sergio J. Rey

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Department of Geography

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Personal Information

Date of Birth: July 31, 1976.

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June 8, 2009