

SACHA M. O. SIANI

PHD STUDENT • MSC REMOTE SENSING • BSC ENVIRONMENTAL AND SANITARY ENGINEERING

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Sacha Siani is a PhD student in the Department of Geography at Indiana University, Bloomington. His research focuses on understanding social-ecological systems linking in-depth local-scale field research with geospatial analysis of regional-scale landscape change. Siani holds a Master's degree in Remote Sensing from the National Institute for Space Research (INPE), Brazil (2016), and a Bachelor's degree in Environmental and Sanitary Engineering from the University of Taubaté, Brazil (2012).

EDUCATION

<i>Aug. 2018 – Present</i>	<i>Bloomington, IN, USA</i>
PhD in Geography , Indiana University	
<i>Mar. 2014 – Aug. 2016</i>	<i>São José dos Campos, SP, Brazil</i>
MSc in Remote Sensing , National Institute for Space Research – INPE	
<i>Jul. 2013 – Not completed</i>	<i>Taubaté, SP, Brazil</i>
MBA in Project Management , Getulio Vargas Foundation – FGV	
<i>Mar. 2008 – Nov. 2012</i>	<i>Taubaté, SP, Brazil</i>
BSc in Environmental and Sanitary Engineering , University of Taubaté – UNITAU	

SKILLS

Languages	Portuguese (native), English (fluent), Spanish (basic)
Programming	R, GoogleEarthEngine (JavaScript), Python, MatLab, LaTeX
Softwares	QGis, ArcGis, TerraView, E-Cognition, Envi, Erdas, Weka, Adobe Illustrator, Adobe InDesign

RESEARCH EXPERIENCE

<i>Jan. 2019 – Present</i>	<i>Bloomington, IN, USA</i>
Researcher , Indiana University	
Project: AGENTS - Amazonian Governance to Enable Transformations to Sustainability	
PIs: Eduardo Brondizio, Krister Andersson, Fabio de Castro, Célia Futemma, Maria Tengö & Carl Salk	
<ul style="list-style-type: none">This project contributes approaches and analytical tools to catalyze recognition of existing, but often scattered "pieces of solutions" to protect and govern biodiversity and landscapes.	
<i>Aug. 2016 – Aug. 2018</i>	<i>São José dos Campos, SP, Brazil</i>
Research Assistant , Norwegian School of Economics – NHH	
Project: Tropical Deforestation and Economic Development	
PIs: Dr. Torfinn Harding (NHH) and Dr. Liana O. Anderson (CEMADEM / INPE)	
<ul style="list-style-type: none">Aims to understand the effects of environmental policies and economic development on tropical deforestation in the Brazilian Amazon;Empirical approaches based on spatial data analysis and econometrics;Tidied a big geographic database and performed statistical analysis using R;	

- Used the Google Earth Engine platform to process time series of remote sensing data;
- Studied the effects of environmental policies such as increased law enforcement and protected areas on outcomes such as deforestation and forest fires;
- Analyzed the actor-specific forest cover dynamics;
- Participated in a field trip to the Brazilian Amazon.

Mar. 2014 – Aug. 2016

São José dos Campos, SP, Brazil

Master Student, National Institute for Space Research – INPE

Project: Socioenvironmental indicators for monitoring the Mananciais do Rio Paraíba do Sul Protected Area with Sustainable Use

Advisors: Dr. Silvana Amaral and Dr. Antônio Miguel V. Monteiro

- Developed a spatially explicit indicator system to assist the socioeconomic and environmental diagnostics and monitoring of a specific protected area with sustainable use;
- Created a novel conceptual framework for developing indicators systems for monitoring and the territorial planning of protected areas;
- Performed a land cover classification based on Landsat images and a Geographic-Object-Based Image Analysis approach using E-Cognition software;
- Applied spatial and statistical analysis using QGIS and R.

Jan. 2012 – Dec. 2012

Taubaté, SP, Brazil

Undergraduate Student, Department of Engineering, University of Taubaté – UNITAU

Project: Technical studies to support the creation of the Vale do Itaim Municipal Park in Taubaté-SP

Advisor: Dr. Ademir Fernando Morelli

- Characterized the socioeconomic and cultural aspects of the municipality of Taubaté using census data and historical documents;
- Applied descriptive data analysis and graphical representation.

Sep. 2009 – Dec. 2009

Ubatuba, SP, Brazil

Research Assistant, Atmosfera Enterprises

Project: Socioenvironmental diagnostic of the Saco da Ribeira district in Ubatuba-SP

PI: Dr. Patrícia Ortiz Monteiro

- Surveyed the sewage disposal, water supply and garbage collection, to diagnose a neighborhood where a marina would later be built;
- Participated in a field survey that involved the application of questionnaires.

TEACHING EXPERIENCE

Course	#Students	Level	Year
<i>Instructor</i>			
Mapping our world , Department of Geography at Indiana University	50-100	U	2020
<i>Teaching Assistant</i>			
Mapping our world , Department of Geography at Indiana University	50-100	U	2018-2019
<i>Guest Instructor</i>			
Geoprocessing , University of Taubaté	20	U	2016-2017
Introduction to R applied to spatial data analysis , National Institute for Space Research	15	G	2017

PUBLICATIONS

Journal Articles

- Au, T. S., Maxwell, J., Robeson, S., Li, Jinbao., **Siani, S. M. O.**, Novick, K., Dannenberg, M., Phillips, R., Li, T., Chen, Z., Lenoir, J. Younger trees are more sensitive to drought but young angiosperms recover more quickly. UNDER REVIEW in Nature. *
- Brondizio, E. S., Andersson, K., de Castro, F., Fitemma, C., Salk, C., Tengö, M., Londres, M., Tourne, D. C., Gonzalez, T. S., Molina-Garzón, A., Russo Lopes, G., & **Siani, S. M. O.** (2021). Making place-based sustainability initiatives visible in the Brazilian Amazon. *Current Opinion in Environmental Sustainability*, 49, 66–78. doi: 10.1016/j.cosust.2021.03.007
- Monteiro, I. D. F. C. M., Monteiro, P. O. M. O., Chamon, E. M. Q. O. C., & **Siani, S. M. O. S.** (2021). Desenhos e representações sociais acerca da educação ambiental. *InterMeio: Revista do Programa de Pós-Graduação em Educação-UFMS*, 27(53).
- Edmonds, D. A.; Caldwell, R. L.; Brondizio, E. S.; **Siani, S. M. O.**, 2020. Coastal flooding will disproportionately impact people on river deltas. *Nature Communications*, 11, 4741(2020). doi: 10.1038/s41467-020-18531-4
- Fernández-Llamazares, Á., Terraube, J., Gavin, M. C., Pyhälä, A., **Siani, S. M. O.**, Cabeza, M., & Brondizio, E. S., 2020. Reframing the wilderness concept can bolster collaborative conservation. *Trends in Ecology & Evolution*, 35(9), 750-753. doi: 10.1016/j.tree.2020.06.005
- Omachi, C.Y., **Siani, S.M.O.**, Chagas, F., Mascagni, M., Cordeiro, M., Garcia, G., Thompson, C.C., Siegle, E., Thompson, F.L., 2018. Atlantic Forest loss caused by the world's largest tailing dam collapse (Fundão Dam, Mariana, Brazil). *Remote Sens. Appl. Soc. Environ.* doi:10.1016/j.rsase.2018.08.003
- Siani, S.M.O.**, Amaral, S., Monteiro, A.M.V., 2017. iSAM – Um sistema de indicadores para o monitoramento da Área de Proteção Ambiental Mananciais do Rio Paraíba do Sul. *Rev. do Dep. Geogr.* 33, 63. doi:10.11606/rdg.v33i0.119663

Conference Proceedings

- Siani, S. M. O.**, Pessôa, A. C. M., Bento, B. P., Harding, T., & Anderson, L. O. (2019). Avaliação da Efetividade das Áreas de Proteção Ambiental em Reduzir o Desmatamento na Amazônia Brasileira, in: XIX Brazilian Symposium on Remote Sensing, Galoa, Santos.
- França, D.G.M., Anderson, L.O., Rocha, L., **Siani, S.M.O.**, Maia, M.R. da S.A., 2017. Random forest classification applied to sand pit detection in Cruzeiro do Sul, Acre, Brazilian Amazon, in: XVIII Brazilian Symposium on Remote Sensing. Galoa, Santos, pp. 8000–8007.
- Moura, Y., Galvão, L., Anderson, L., **Siani, S.**, Aragão, L., 2017. Use of Green–Red Normalized Difference (GRND) index to evaluate large–scale canopy phenology in tropical forests, in: EGU General Assembly 2017. Vienna, p. 10162.
- Pessôa, A.C.M., **Siani, S.M.O.**, Harding, T., Anderson, L.O., 2017. The role of Protected Areas on active fires occurrence: an exploratory study in Acre state, Brazilian Amazon, in: XVIII Brazilian Symposium on Remote Sensing. Galoa, Santos, pp. 7382–7382.
- Pletsch, M.A.J.S., Körting, T.S., Escada, M.I.S., **Siani, S.M.O.**, 2017. Data mining applied to temporal dynamics of deforestation pattern: a study case in Southern Amazon forest, Brazil, in: XVIII Brazilian Symposium on Remote Sensing – SBSR. Santos, pp. 6959–6966.
- * **Siani, S.M.O.**, Pessôa, A.C.M., Harding, T., Anderson, L.O., 2017. Spatial analysis of enforcement for reducing deforestation in the Brazilian Amazon: an exploratory study in Pará state, in: XVIII Brazilian Symposium on Remote Sensing – SBSR. Galoa, Santos, pp. 7451–7458.
- França, D.G.M., **Siani, S.M.O.**, Moraes, E.C. De, 2015. Análise da correção atmosférica por FLAASH sobre cenas OLI Landsat–8, in: XVII Brazilian Symposium on Remote Sensing – SBSR. João Pessoa, pp. 6526–6533.
- Siani, S.M.O.**, Campos, J., França, D.G.M., Amaral, S., Monteiro, A.M.V., Körting, T.S., 2015a. Land–cover classification of an intra–urban environment using high–resolution images and geographic object–based image analysis: the case of APA Mananciais do Rio Paraíba do Sul, in: Simpósio Brasileiro de Sensoriamento Remoto – SBSR. Instituto Nacional de Pesquisas Espaciais – INPE, João Pessoa, pp. 997–1004.
- Siani, S.M.O.**, Escada, M.I.S., Amaral, S., Monteiro, A.M.V., 2015b. A dinâmica dos padrões de cobertura urbana na Área de Proteção Ambiental Mananciais do Rio Paraíba do Sul, in: Simpósio

Brasileiro de Sensoriamento Remoto – SBSR. Instituto Nacional de Pesquisas Espaciais – INPE, João Pessoa, p. 8.

Siani, S.M.O., Amaral, S., Monteiro, A.M.V., 2014. A Sustentabilidade e seu Arranjo Espacial no Município de Ubatuba, Litoral Norte de São Paulo: a construção de um indicador de desenvolvimento sustentável, in: Encontro Nacional de Estudos Populacionais. ABEP, São Pedro, SP, Brasil, p. 15.

Siani, S.M.O., Monteiro, P.O., 2010. Diagnóstico Socioambiental do Bairro do Saco da Ribeira, Ubatuba–SP, in: XV Encontro de Iniciação Científica Da Universidade de Taubaté. Taubaté.

Master Thesis

Siani, S.M.O. iSAM – Um sistema de indicadores para o monitoramento da Área de Proteção Ambiental Mananciais do Rio Paraíba do Sul. Thesis (Master in Remote Sensing). National Institute for Space Research – INPE, 2016, p. 191.

MEDIA COVERAGE OF RESEARCH

“Iniciativas locais são o melhor caminho para uma Amazônia sustentável”, **Portal Amazônia**, 2021.

“Coastal flooding will disproportionately impact people on river deltas”, **Nature Asia**, 2020.

“Indigenous best Amazon stewards, but only when property rights assured: Study”, **Mongabay**, 2020.

“Estudo sobre a APA Mananciais do Rio Paraíba do Sul recebe premiação”, **ICMBio em foco**, 2015.

FIELD RESEARCH EXPERIENCE

March/2022	Amazon: Abaetetuba and Belém, Pará, Brazil. AGENTS project, Sustainable Food Systems Science Project, and PhD dissertation project.
Dec/2019	Amazon: Santarém and Belterra, Pará, Brazil. AGENTS project and PhD dissertation project.
Jun-Jul/2019	Amazon: Belém, Acará, Abaetetuba, Tomé-Açu and Paragominas, Pará, Brazil. AGENTS project and PhD dissertation project.
Jul-Aug/2017	Amazon: Santarém, Belterra, Mojuí dos Campos e Rurópolis, Pará, Brazil. Tropical Deforestation and Economic Development research project.
May/2017	Brasília, Brazil. Tropical Deforestation and Economic Development research project.
Aug/2015	Paraíba River valley, São Paulo, Brazil. Master thesis project.

ADDITIONAL EXPERIENCE

Aug. 2016 – Nov. 2016

São Paulo, SP, Brazil

GIS and remote sensing analyst, Siaa Consulting

- Evaluated the extent of the biggest environmental disaster in Brazil, the disruption of the mining tailing dam in Mariana–MG;
- Mapped the loss of forest cover caused by mudslides.

May 2011 – Dec. 2012

Pindamonhangaba, SP, Brazil

Environmental Engineering Intern, Tenaris Confab Industrial

- Multinational company in the steel industry;
- Collaborated to improve and maintain the Environmental Management System based on the ISO 14001:2004 standard;
- Performed environmental education activities with employees;
- Acquired organizational and interpersonal skills.

Jan. 2012 – Nov. 2012

Ubatuba, SP, Brazil

Environmental and Sanitary Engineering Intern, Gondwana Institute

- The project involved actions of sanitation, education and health in the traditional fishing community of Almada in Ubatuba–SP;
- Trained the local community and supported the community planning for the tourism season.

Aug. 2011 – Sep. 2011

Bananal, SP, Brazil

Environmental Engineering Intern, Forest Service of the State of São Paulo

- Aimed to create a socioeconomic diagnosis for the management plan of Nature Reserve of Bananal;
- Organized and analyzed census data on socioeconomics.

AWARDS, FELLOWSHIPS AND HONORS

2021-2022	Research Assistant fellowship , Center for the Analysis of Social-Ecological Landscapes (CASEL) at Indiana University. Bloomington, USA.
2020-2021	Research fellowship , Ostrom Workshop in Political Science at Indiana University. Bloomington, USA.
2020	Departmental Graduate Student Award , Department of Geography at Indiana University. Bloomington, USA.
2019 – 2020	Associate Instructor award for the 2019-2020 academic year , Department of Geography at Indiana University. Bloomington, USA.
2019	Departmental Graduate Student Award , Department of Geography at Indiana University. Bloomington, USA.
2019	2019 Tinker Field Research Grant , Center for Latin American and Caribbean Studies at Indiana University. Bloomington, USA.
2019	2019 Summer Research Fellowship , Department of Geography at Indiana University. Bloomington, USA.
2018 – 2019	Associate Instructor award for the 2018-2019 academic year , Department of Geography at Indiana University. Bloomington, USA.
2015	* Best paper award , XVII Brazilian Symposium on Remote Sensing – SBSR. João Pessoa, Brazil.
2014 – 2016	Graduate Scholarship Program , National Council for Scientific and Technological Development (CNPq). Brazil.

EXTRACURRICULAR ACTIVITY

Instrumental Variables workshop , Mixtape Sessions	6h Apr. 2022
PhD Summer School on Econometrics for Studies on Natural Resources and Development , Norwegian School of Economics – NHH	18h May 2017
PhD Summer School on Econometrics for Studies on Natural Resources and Development , Norwegian School of Economics – NHH	45h Sep. 2016
Training for the Rural Environmental Registry (CAR) , Brazilian Forest Service	16h Aug. 2015
Introduction to Matlab , National Institute for Space Research – INPE	20h May 2015

Erdas Imagine Fundamentals I & II , Santiago & Cintra Consulting	<i>40h Sep. 2014</i>
ArcGIS I: Introduction to GIS & ArcGIS II: Essential Workflows , Imagem/ESRI	<i>40h May 2013</i>
Environmental Licensing , Senac São Paulo	<i>40h May 2011</i>