

MIGUEL O. ROMÁN III

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EDUCATION

Ph.D. Remote Sensing and Geospatial Analysis

Boston University - Graduate School of Arts and Sciences - GPA 3.80

M.Eng. Systems Engineering, 2005

Cornell University - Graduate School

B.S. Electrical Engineering, 2004

University of Puerto Rico - Mayagüez

RESEARCH AND PROFESSIONAL EXPERIENCES

Doctoral Candidate - MODIS BRDF/Albedo Group - 08/05 - Present

Boston University Center for Remote Sensing, Boston, MA

- To generate assessments of surface albedo variability from landscape to global scales through integration of in-situ and remote sensing data in a geostatistical framework.
- To perform instrument calibration, arrange measurement scenarios, and acquire multiangular and multispectral observations suitable for satellite validation using NASA's suite of airborne science platforms, e.g. the Cloud Absorption Radiometer (CAR), Ames Airborne Tracking Sunphotometer (AATS-14), and the Solar Spectral Flux Radiometer (SSFR).

Visiting Fellow - Climate and Radiation Branch - 05/05 - 09/05 , 05/06 - 09/06

NASA Goddard Space Flight Center, Greenbelt, MD

- Coordinated production of in-depth accuracy and variability assessments for current and future reprocessing of daily surface albedo and anisotropy products. Organized experimental campaigns at several NASA-EOS land validation core sites and coupled field and tower measurement programs (e.g. Ameriflux, LaRC-CAVE and ARM-DOE) with high-resolution imagery for assessments at a variety of scales.
- Retrieved estimates of surface temperature and emissivity from airborne and satellite thermal infrared sensors for an experiment campaign that determined the surface energy response and turbulent fluxes of tropical urban environments.

Project Manager - Office of Higher Education - 02/04 - 08/04

NASA Goddard Space Flight Center, Greenbelt, MD

- Designed case studies on the topic of remote sensing of natural hazards and disasters. Organized training workshops on the procedures used to access, disseminate, and report global active fire data.

Device Test Engineer - Laboratory for High Energy Astrophysics - 8/03 - 12/03

NASA Goddard Space Flight Center, Greenbelt MD

- Developed experimental and numerical characterization of quantum calorimeters under cryogenic conditions (50-100mK). Produced a high-resolution high-throughput model to optimize the detection of faint x-ray sources (0.5-8.9keV).

Remote Sensing Analyst - Hydrological Sciences Branch - 05/03 - 8/03

NASA Goddard Space Flight Center, Greenbelt, MD

- Developed satellite image processing tools and organized comparison studies using fieldwork and weather observation data to parameterize a land-atmosphere model that examined the thermal environments of major cities in the US.

Systems Engineer - eServer Network Hardware Development Laboratory - 1/02 - 12/02

IBM Corporation: Research Division, Poughkeepsie, NY

- Designed, breadboarded, and submitted a patent application on a servocircuit control method and system for use in signal stabilization of dense wavelength division multiplexing fiber-optic transmission systems.

Geospatial Analyst - Gateway to the Earth Initiative - 5/01 - 12/01

United States Geological Survey Mapping Division, Reston, VA

- Designed, coded, and tested a geospatial server that provided a two-fold increase in real-time acquisition of USGS natural resource information. Integrated an object oriented internet mapping server with the ability to outline the emergence of earthquake hazards.

RECENT AWARDS AND HONORS

NASA-GSRP Fellowship (2007-Present); NASA-JFPF Fellowship (2004-2007); NCAR-ASP Traineeship (2007); US Geospatial Intelligence Foundation Award (2005); Xerox Technical Research Award (2005); Cornell University Lazaro Fellowship (2004); NASA-PaSCoR Research Award (2002); IBM Corporation Traineeship at Harvard Business School (2002); USGS STAR Award (2001).

GROUPS AND ASSOCIATIONS

AGU, AMS, ASPRS, IEEE, INCOSE, NAAA, and Tau Beta Pi.

RESEARCH SPECIALTIES AND PROFESSIONAL INTERESTS

Terrestrial Ecosystem Analysis and Modeling, Simulation of Canopy Radiative Transfer, Design and Analysis of Electro-Optical (EO) Systems, Pattern-Recognition Analysis, Systems Engineering, GIS-Based Risk Assessment and Mitigation, Economic Value of Regional Weather and Climate Forecasts, Geostatistical Modeling and Propagation of Uncertainty, GRID Computing, Education/Outreach, and Leadership Development.

TECHNICAL EXPERTISE

Programming Languages: C, C++, Fortran, IDL, Java, Matlab, Perl, and Unix C Shell.

Applications: R/S-Plus, AutoCAD, LabView, RSI ENVI, ERDAS Imagine, Adobe Photoshop, MS-Office, Visio, Access, ArcGIS/View/IMS/SDE/Pad, ORACLE, PCI GEOMATICA, SAS, SPSS, ER-MAPPER, Origin, and eCognition.

Industry Standards: HDF-EOS, OGC, DEM, USGS SDTS, XML, GPS, KML, and GML.

SELECTED PUBLICATIONS

- R. Stone, G. Anderson, E. P. Shettle, E. Andrews, K. Loukachine, E. Dutton, C. Schaaf, and **M. Román**, Radiative impact of boreal smoke in the Arctic: Observed and modeled. Journal of Geophysical Research, 2008. *doi:10.1029/2007JD009657, in press.*
- O. Coddington, S. Schmidt, P. Pilewskie, W. J. Gore, R. W. Bergstrom, **M. Román**, J. Redemann, P. B. Russell, J. Liu, and C. B. Schaaf, Measurements of Areal Resolved Surface Spectral Albedo, a Sensitivity Analysis, and Validation of MODIS Land Albedo Product during MILAGRO. Journal of Geophysical Research, 2008, *in press.*
- J. Liu, C. Schaaf, A. Strahler, and **M. Román**, Validation of MODIS Albedo Retrieval Algorithm: Dependence of Albedo on Solar Zenith Angle. Journal of Geophysical Research, 2008. (*submitted*)
- K. D. Knobelspiesse, Brian Cairns, C. B. Schaaf, B. Schmid, and **M. Román**, Surface BRDF estimation from an aircraft compared to MODIS and ground estimates at the Southern Great Plains site. Remote Sensing of Environment, 2008. (*submitted*)
- **M. Román** and A. Strahler, Land observation from geosynchronous earth orbit (LOGEO): Mission concept and preliminary engineering analysis. Acta Astronautica, 61:101-114, 2007.
- S. Wallace, M. Gamache, and **M. Román**, Last of the Amazon, National Geographic, p.40-71, January, 2007.