Curriculum Vitae

Rudiger Gens
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Education

University of Alaska Fairbanks, USA
Master of Business Administration 2014

- General Management

University of Hannover, Germany
Ph.D. in Engineering 1998

- Research at the International Institute for Geo-Information Science and Earth Observation (ITC), Enschede, the Netherlands.
- Dissertation: "Quality assessment of SAR interferometric data".

M.Sc. in Surveying and Mapping 1994

- Areas of specialization: Photogrammetry, Geodesy.

Professional Experience

Alaska Satellite Facility (ASF), Geophysical Institute, University of Alaska Fairbanks
Engineering specialist 2021 – Present

- Manage ASF related metadata activities.
- Execute and manage special projects.
- Conduct remote sensing research and develop research software.

Remote sensing scientist 2003 – 2021

- Conducted remote sensing research.
- Wrote proposals for competitive funding.
- Taught courses and workshops.
- Supported users with data, software and application issues.

Acting Technical Services Office (TSO) lead engineer 2003

- Managed and supervised ten employees with very diverse tasks (software development, DEM project work, and data quality).
- Continued tools development.

Radarsat Geophysical Processing System (RGPS) scientist 2002 – 2005

- Coordinated RGPS related work with the RGPS scientist at Jet Propulsion Laboratory (JPL).
- Supervised RGPS operators at ASF.

Advanced Product Development (APD) lead engineer 2001 – 2003

- Supervised six employees.
- Improved the robustness of the ASF InSAR software tools.
- Wrote comprehensive software documentation.

Software engineer 2000 – 2001

- Developed scientific software for InSAR processing.
- Wrote comprehensive documentation.
- Analyzed data quality issues to improve InSAR processing results.
- Represented Science Center in the ASF Technical Working Group.

Delft Institute for Earth-Oriented Space Research (DEOS), Delft, the Netherlands

Post-doctoral research fellow 1999 – 2000

- Conducted research for enhancements of a phase unwrapping algorithm using minimum cost flow methods (part of SAR interferometric processing).

Research Experience

Alaska Satellite Facility (ASF), Geophysical Institute, University of Alaska Fairbanks

Assessing Tide Water Glacial Ice Availability for Harbor Seals in Glacier Bay National Park and Preserve, Alaska – Co-PI — 2012 – 2015

- Funded by the National Park Service (NPS).
- Carry out airborne data acquisition; help with developing and refining processing flow; carry out statistical analysis; collaborate on result dissemination.

Delaware State University: Enhancing Geographic Information System Education and Delivery through Collaboration: Curricula Design, Faculty, Staff, and Student Training and Development, and Extension Services – Co-PI — 2010 – 2014

- Funded by the US Department of Agriculture (USDA).
- Mentor for faculty, graduate students and undergraduate interns.

Monitoring and Modeling Spatio-Temporal Variability in Evapotranspiration in the Alaskan Arctic and Sub-Arctic Regions using Remote Sensing and In-Situ Data – Co-PI — 2010 – 2013

- Funded by the NASA EPSCoR.
- Mentor of PhD student; structured and managed large volumes of field data; assisted with

data quality analysis.

Spatial and Temporal Influences of Thermokarst Failures on Surface Processes in Arctic Landscapes – Co-PI 2008 – 2010

- Funded by the National Science Foundation (NSF).
- Research on ways to discern changes in shallow permafrost by analyzing variations in backscatter behavior of associated surface material.

Application of Remote Sensing to Fish Habitat Management, Alaska – Co-PI 2008 – 2012

- Funded by the Bureau of Land Management (BLM).
- Research on changes in aquatic habitats (connectivity of river and lakes systems) using SAR data.

Using Remote Sensing and Machine Learning to Map Earthquake Induced Liquefaction Areas – PI 2008 – 2009

- Recommended for partial funding by the US Geological Survey (USGS).
- Research on earthquake induced liquefaction and subsidence mapping using multi-sensor data.

ICESat project – Co-PI 2003 – 2006

- Funded by National Geospatial Agency (NGA).
- Supported the data quality assessment.

Earth Systems Science Education for the 21st century (ESSE21) – Co-PI 2003 – 2007

- Funded by National Aeronautics and Space Administration (NASA) through University Space Research Alliance (USRA).
- Developed remote sensing case studies and post-secondary curricula material.

Alaska DEM project – Co-PI 2000 – 2002

- Funded by NASA.
- Designed production system and assessed data quality.

Delft Institute for Earth-Oriented Space Research (DEOS), Delft, the Netherlands

Determination and Prediction of the three-dimensional movement of the Earth's surface – Post-doctoral fellow 1999 – 2000

- Funded by Delft Interfacultary Research Center.
- Investigated high-resolution imagery of topographic and surface changes.

International Institute for Geo-Information Science and Earth Observation (ITC), Enschede, the Netherlands

European Scientific Research Network "Synergy of remotely sensed data" – Ph.D. researcher 1994 – 1998

- Funded by the Commission of the European Communities' Human Capital and Mobility Programme.
- Worked on synergy of remote sensing data from different sources, specializing in radar data.

Data fusion for decision support – PI 1996 – 1998

- Funded by the Western European Union.
- Developed a multimedia tutorial about image and data fusion.

Deformation measurements with SAR – Co-PI 1996 – 1998

- Funded by the Dutch Remote Sensing Board (BCRS).
- Investigated the propagation of errors for deformation measurements in Groningen province (the Netherlands) using differential interferometry.
- Monitored mining induced subsidence in Ningxia province, China, using differential interferometry.

Teaching Experience

Workshops and customized courses

Instructor – "SAR Data and Its Applications". 2008

- Instructor of one half-day workshop, providing an overview of SAR data capabilities.
- Designed and delivered course at
    - American Society for Photogrammetry & Remote Sensing conference, Portland, Oregon

SAR training course at the Instituto Brasileiro de Geografia e Estatï¿½stica, Rio de Janeiro, Brazil. 2007

- Instructor of one-week training course, designed to enable scientists from the mapping agency to conduct mapping project with ALOS data.
- Designed and conducted the course.

Co-instructor – "Making SAR accessible". 2007

- Co-instructor of three half-day workshops, designed to introduce application scientists and professionals to the complementary use of SAR data.
- Designed and delivered the course at
    - American Society for Photogrammetry & Remote Sensing conference, Tampa, Florida
    - International Symposium on Remote Sensing of Environment, San Jose, Costa Rica
    - Alaska Surveying and Mapping Conference, Fairbanks, Alaska

Department of Geology and Geophysics, University of Alaska Fairbanks

Instructor – GEOS 695: "SAR and InSAR: Principles and Applications." 2005 – 2012

- Principal instructor of two one-week one credit summer courses, designed to empower

students to use SAR and InSAR data for their scientific projects.
- Developed curriculum and lab exercises.

Co-Instructor – GEOS 639: "InSAR and its Applications" 2007

- Co-instructor, developed curriculum and lab exercises of this semester long course.

Co-Instructor – GEOS 693: "Geophysical Applications of Spaceborne SAR Interferometry." 2001, 2003

- Collaborated on curriculum and exam development, gave lectures, prepared and graded tests, and developed weekly lab exercises of this semester long course.

Guest Lecturer – (under)graduate classes on remote sensing and GIS 2003 – Present

- Presented introductions to SAR and InSAR, and lectures on special topics such as data fusion, map projections and height systems in GEOS 378, GEOS 422, GEOS 595 and UAS GEOL 193.

Alaska Satellite Facility (ASF), Geophysical Institute, University of Alaska Fairbanks

Seminar coordinator – "ASF technical seminar series." 2002 – 2007

- Initiated and coordinated remote sensing seminar series.
- Presented seminars on a large variety of topics about
  - data formats and characteristics,
  - image processing and data analysis techniques, and
  - applications of remote sensing with special emphasis on synthetic aperture radar.
- Seminar series converted into a one credit course available alternate fall semester.

Alaskan High Schools

Instructor – GIS/GPS training 2003

- Gave training to High School students in Barrow (native community) and Fairbanks, Alaska.

Professional Service

International Journal of Remote Sensing 2008 – 2014

- Associate Editor.

ISPRS working group VII/2 – SAR interferometry 2008 – 2012

- Co-chair.

ISPRS working group VII/2 – Information extraction from SAR data 2004 – 2008

- Chair.

North Slope Borough Science Advisory Committee 2008

- Provided input on remote sensing component of oil spill response questions.

NASA Earth Science Enterprise Education Product review 2005

- Panel reviewer.

Reviewer of research proposals.

- Space Research Organization Netherlands (SRON)
- Natural Environment Research Council (United Kingdom)

Reviewer of refereed journals.

- International Journal of Remote Sensing
- IEEE Transactions of Geoscience and Remote Sensing
- Remote Sensing of Environment
- Photogrammetric Engineering and Remote Sensing
- Canadian Journal of Remote Sensing
- Journal of Marine Geodesy
- Remote Sensing

Graduate Student committees 2002 – Present

- Member of various PhD and MSc student committees.

Languages

- German – native language
- English – speak fluently and read/write with high proficiency
- Dutch – speak, read, and write with basic competence

Memberships

- Senior member of IEEE Geoscience and Remote Sensing Society
- American Geophysical Union
- Dutch Society for Remote Sensing and Geoinformation