

## Education Background

### Ph.D. in Geosciences

State University of New York at Stony Brook, NY, USA 2016

### Advanced Graduate Certificate in Geospatial Science

State University of New York at Stony Brook, NY, USA 2015

### M.S. in Cartography and Geographic Information System

Graduate University of Chinese Academy of Sciences, China 2010

### B.S. in Information and Computation Sciences

South China University of Technology, China 2007

## Research Experience

Postdoctoral Scholar, Northern Arizona University 2017-present

Postdoctoral Researcher, University of California, Los Angeles 2016-2017

Graduate Research Assistant, State University of New York at Stony Brook 2011-2016

- Collected thermal infrared, Raman and XRD spectra of mineral and rock samples
- Applied Cubic polynomial fit to quantitative analysis mineral abundance on Martian surface using orbital thermal infrared images
- Applied Partial Least Squares (PLS) methods to derived the mineral abundance from thermal infrared spectra of fine grain mineral mixture
- Characterized Martian surface mineralogy with Thermal Emission Imaging System (THEMIS), Thermal Emission Spectrometer (TES), Compact Reconnaissance Imaging Spectrometers for Mars (CRISM) and Visible and Infrared Mineralogical Mapping Spectrometer on Mars express (OMEGA)

Graduate Research Assistant, Graduate University of Chinese Academy of Sciences 2007-2010

- Applied support vector machine and neural network algorithms to unmix the pixels of Moderate Resolution Imaging Spectroradiometer (MODIS) images and detect the clouds
- Classified land use and derived surface temperature with Landsat Thematic Mapper (TM) images, studied the relationship between urban heat island effect and city development in recent 20 years of Guangzhou City using Landsat images
- Developed a geographic information system to analysis and display historical data of foreign trade in Guangzhou City with C#, .net and Supermap

## Honors & Awards

NASA Earth and Space Science Fellowship	2011-2014
Outstanding Student Scholarship in Chinese Academy of Sciences	2008, 2009
The third prize in Graduate Academic Forum of Guangzhou Institute of Geochemistry	2009
Excellent Thesis in South China University of Technology	2007
Excellent Student Scholarship in South China University of Technology	2004-2006
The second prize of China Undergraduate Mathematical Contest in Modeling	2005

### **Expertise and skills**

Academic background: remote sensing, planetary science, statistics, GIS, computer sciences, geology, and mathematics

Research experience: laboratory sample measurement, remote sensing images processing, statistical analysis of spectroscopy spectra, machine learning, GIS development.

Laboratory Equipment: Scintag Powder X-ray Diffractometer, Nicolet 6700 FTIR Spectrometer, Nicolet iN10MX Micro-Imaging FTIR Spectrometer, WITec alpha300R Micro-Imaging Raman Spectrometer

Programming/Software: Envi, IDL, Matlab, C/C++/C#, Python, ESRI ArcGIS, ISIS, Visual Studio, SQL Server, ERDAS, Mathematic, SAS

### **Professional Service**

NASA Proposal Review Panel Member: Mars Data Analysis Program, Earth & Space Science Fellowship.

### **Invited Talks**

Los Alamos National Laboratory, Aug 2016

University of New Mexico, Sep 2016

### **Publications**

Manuscript in preparation

**Pan, C.**, A.D. Rogers. Olivine-rich basalt outcrops in the subsurface of western Noachis Terra, Mars and geological implications.

**Pan, C.**, An Yin. Where is the hemispheric dichotomy boundary below the Tharsis rise on Mars?

1. **Pan, C.**, A.D. Rogers (2017). Occurrence and scale of compositional heterogeneity in Martian dune fields: Toward understanding the effects of aeolian sorting on Martian sediment compositions. *ICARUS*: 282(15), 56-69, doi:10.1016/j.icarus.2016.09.021.
2. **Pan, C.**, A.D. Rogers and M.T. Thorpe (2015). Quantitative Compositional Analysis of Sedimentary Materials Using Thermal Emission Spectroscopy: 2. Application to Compacted Fine-grained Mineral Mixtures and Assessment of Applicability of Partial Least Squares (PLS) Methods. *Journal of Geophysical Research: Planets*, 120(11), 1984-2001, doi:10.1002/2015JE004881.
3. **Pan, C.**, A. D. Rogers and J. R. Michalski (2015). Thermal and near-infrared analyses of central peaks of Martian impact craters: Evidence for a heterogeneous Martian crust, *Journal of Geophysical Research-Planets*, 120(4), 662-688, doi:10.1002/2014je004676.
4. Thorpe, M.T., A.D. Rogers, T. Bristow, and **C. Pan** (2015), Quantitative Compositional Analysis of Sedimentary Materials Using Thermal Emission Spectroscopy: 1. Application to Sedimentary Rocks. *Journal of Geophysical Research: Planets*, 120(11), 1956-1983, doi:10.1002/2015JE004863.
5. Skok, J. R., J. F. Mustard, L. L. Tornabene, **C. Pan**, A. D. Rogers, and S. L. Murchie (2012), A spectroscopic analysis of Martian crater central peaks: Formation of the ancient crust, *Journal of Geophysical Research: Planets* 117(E11), E00J18, doi:10.1029/2012JE004148.