Frank C. Chuang

Planetary Science Institute
1700 E Fort Lowell Rd, Suite 106, Tucson, AZ 85719 USA
E-mail: chuang@psi.edu
Phone: (520) 622-6300

Research Interests and Skills

Aeolian, glacial, volcanic, impact cratering and mass-wasting features on planetary surfaces; use of spacecraft remote sensing data in GIS for digital mapping and analyses; use of image processing, spatial analysis and machine learning in GIS for planetary datasets

Professional Experience

2003-present *Senior Research Associate and Licensed Software Specialist*
Planetary Science Institute, Tucson, AZ
2001-2003 *Research Assistant*, U.S. Geological Survey, Menlo Park, CA
1996-1997 *Contract Specialist and Geologist*, U.S. Geological Survey, Menlo Park, CA

Professional Activities

2004-present *Webmaster*, "The Explorer's Guide to Impact Craters", PSI, Tucson, AZ
2005-2010 *Postdoctoral Scientist*, HiRISE Science Team, Univ. of Arizona, Tucson, AZ

Professional Service

External Reviews: Mars Data Analysis Program, Planetary Data Archiving, Restoration and Tools Program (NASA); *Manuscript Reviews:* Icarus, Planetary & Space Science (Elsevier); Journal of Geophysical Research-Planets, Geophysical Research Letters (AGU); Nature Geoscience (Springer Nature); *Chapter Reviews:* Dynamic Mars: Recent and Current Landscape Evolution of the Red Planet (Elsevier, 2018); Encyclopedia of Planetary Landforms (Springer Science + Business, 2015); Martian Geomorphology (Geological Society of London, 2011); Mars: A Cosmic Stepping Stone- Uncovering Humanity's Cosmic Context (Springer, 2008)

Education

M.Sc., Geology, Arizona State University, Tempe, AZ, 2000, Thesis: Large Mass Movements on Callisto; *B.Sc., Geology*, San José State University, San Jose, CA, 1995

Computing Experience

Geographic Information Systems: ArcGIS Desktop 10.x, ArcGIS Pro 3.x; *GIS coursework:* Building Geodatabases (ESRI Classroom), Creating and Analyzing Surfaces using ArcGIS Spatial Analyst (ESRI Classroom); Going Places with Spatial Analysis (ESRI MOOC); Cartography (ESRI MOOC); *Image Processing:* ISIS 3.4.x, ENVI 5.x, GDAL 3.x. *Programming, Scripting and Database:* ArcPy 2.x-3.x (ESRI ArcGIS), SQL (Codecademy online course)

Selected Publications

Domingue, D., J. Weirich, **F. Chuang**, et al., 2024. Topographic and Spectrophotometric Correlations within the Mare Ingenii Swirl Region: Evidence for a Highly Mobile Lunar Regolith. *PSJ*, in press.

Weirich, J.R., D.L. Domingue, **F.C. Chuang**, et al., 2023. The Search for Topographic Correlations Within the Reiner Gamma Swirl. *PSJ 4:212*, doi: 10.3847/PSJ/ace2b8.

Chuang, F.C., M.D. Richardson, J.R. Weirich, A.A. Sickafoose, and D.L. Domingue, 2022. Mapping Lunar Swirls with Machine Learning: The Application of Unsupervised and Supervised Classification Algorithms in Reiner Gamma and Mare Ingenii. *PSJ 3:231*, doi:10.3847/PSJ/ac8f43.