

Vivian Z. Sun

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PROFESSIONAL EXPERIENCE

Jet Propulsion Laboratory, Pasadena, CA

Systems Engineer in 397D (Science Planning) (2018 – present)

Mars 2020 Science Operations System Engineer

- Process design for Strategic, Campaign Planning, and Campaign Implementation operations
- Strategic SO Lead
- CI-SEL Role Lead
- Science Operations support for design and user testing of GDS tools
- Science Operations training:
 - Design and implement procedures and training materials for Science Operations roles and GDS tools used by the Science Team
 - Document Science Operations OIAs
- Planning team for ROASTT science team training exercises
- Manage Science Operations website

Mars 2020 Science Team Member (2017 – present)

- Examined the geology and mineralogy of the Mars 2020 landing site candidates.
- Modeled strategic plans, time feasibility, science return from missions to NE Syrtis and Jezero.

JPL Postdoctoral Scholar, Supervisor: Kathryn Stack Morgan (2017 – 2018)

- Researched concretion distributions in the Murray fm. using MSL datasets and constraining the timing and recurrence of diagenetic events at Gale crater.

Mars Science Laboratory (MSL) Team Member (2012 – present)

- Vera Rubin Ridge Co-Campaign Lead (2017 – 2018)
 - Led the science team to decide the observations needed to address hypotheses about the Vera Rubin Ridge. Acted as a liaison between Rover Planners (RPs) and science team.
- Keeper of the Plan for the Geology (GEO) Theme Group (2015 – present)
 - Worked with a team of 15+ people, including instrument payload uplinks teams, to develop tactical plans in MSLICE and implement science activities desired by the GEO theme group.
- Documentarian (2014-2017)
 - Documented decision process in daily tactical meetings.

Undergraduate Research Assistant, Supervisor: Leslie Tamppari (2011)

- Studied wind directions from dust devil tracks in CTX data in the 65-72N region of Mars.

Brown University, Providence, RI (2012 – 2017)

Graduate Student, Supervisor: Ralph E. Milliken

- Thesis: Clays and Opals on Mars: Implications for Water-Rock Interactions Through Time.

California Institute of Technology, Pasadena, CA

Undergraduate Research Assistant, Supervisor: Judith Cohen (2011)

Undergraduate Research Assistant, Supervisors: Andrew Ingersoll and Shawn Ewald (2010)

Undergraduate Research Assistant, Supervisors: Joseph Kirschvink and Timothy Raub (2009)

EDUCATION

Brown University, Earth, Environmental, and Planetary Sciences **Ph.D.** (2017)

Brown University, Geological Sciences **M.S.** (2014)

California Institute of Technology, Planetary Science **B.S. with honors** (2012)
JPL Planetary Science Summer School, Pasadena, CA (2015)
• Helped develop a mock mission named “THEO: Testing the Habitability of Enceladus’s Ocean”.
• Performed the role of Deputy Systems Engineer and co-lead on the imaging camera.
Impact Cratering Short Course and Field School, Sudbury, Ontario (2013)
USGS Photogrammetric Processing of Planetary Stereo Imagery, Flagstaff, AZ (2013)

FUNDING/GRANTS

2018-2021: Science PI, NASA ROSES 2017 Mars Data Analysis Program (\$358,397)
“Assessing the Formation Environments of Hydrated Silica on Mars” (PI: Kathryn Stack Morgan)
2019-2021: Science PI, NASA ROSES 2018 Planetary Data Archiving, Restoration, and Tools
Program (\$132,023) “Preparing a USGS Geologic Map of the Northeast Syrtis and Jezero Regions of
Mars” (PI: Kathryn Stack Morgan)
2017-2020: Co-I, JPL R&TD, “MAARS: Machine learning-based Analytics for Autonomous Rover
Systems” (PI: Masahiro Ono)
2019-2020: Co-I, JPL Data Science Pilot 2019, “Automatic Image Captioning and Annotation
Capability for the PDS Imaging Node” (PI: Chris Mattman)

PROFESSIONAL SERVICE

Panelist for 3 NASA SSW, NSSF/FINESST Review Panels (2017 – present)
External Reviewer for 4 NASA MDAP, LDAP, SSW Review Panels (2017 – present)
Reviewer (x12) for JGR Planets, Icarus, PSS, MAPS, AAS PSJ (2016 – present)
MSL Blogger (2018 – present)
Co-Mentor for JPL Student Interns (Vicente Ochoa, 2018; Axel Noblet, 2019) (2018 - 2019)
Coordinator for JPL Mars Forum (2017 – 2019)
JPL Reviewer for three Discovery Mission Concepts and one Strategic R&TD (Summer 2018)
Co-Chair, LPSC Oral Session: “Martian Remote Sensing” (2019)
Co-Chair, LPSC Oral Session: “Geologic History from Curiosity Observations at Gale Crater” (2018)

AWARDS AND HONORS

JPL Voyager Award, Mars 2020 ROASTT-2020 (2019)
JPL Voyager Award, Mars Science Laboratory (2019)
JPL Team Award, Mars 2020 ROASTT-2019 (2019)
NASA Group Achievement Award, MSL Extended Mission-1 Science and Operations Team (2017)
Lunar and Planetary Institute Career Development Award (2017)
Brown University Dissertation Fellowship (2017)
American Geophysical Union (AGU) Student Travel Grant Recipient (2016)
SETI Institute Lunar and Planetary Science Conference Travel Grant Recipient (2016)
NASA Group Achievement Award, MSL Prime Mission Science and Operations Team (2013, 2015)
Geological Society of America Northeastern Section Student Travel Grant (2014, 2015)
Brown University First Year Fellowship (2012)
Hugh F. and Andy Lou Colvin SURF Fellow (2010)

PUBLICATIONS

7 First Author Publications in Peer Reviewed Journals, 28 First Author Conference Abstracts
For a complete list, please see: <https://vivianzsun.com/resume/>

TEACHING AND OUTREACH

Tulane University (4/9/2021)
Westridge High School, Pasadena CA (3/21/2021)
San Joaquin Geological Society (5/8/2018)

Teaching Assistant, Brown University, GEOL 1240: Stratigraphy and Sedimentation (2014)
Teaching Assistant, Caltech, Ge 10: Frontiers in Geological and Planetary Sciences (2012)
Teaching Assistant, Caltech, Ay 1: The Evolving Universe (2011)