

## Roger John Michaelides

### Current Address

227 Ayrshire Farm Ln.  
Apartment 107  
Stanford, CA 94305

rmich@stanford.edu  
(847)-271-3936

### Permanent Address

14730 W Imperial Dr.  
Libertyville, IL 60048

### Education

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<b>PhD</b>	Geophysics <b>Stanford University GPA: 3.889</b>	<i>Stanford University</i>	June 2020 (expected)
<b>B.A.</b>	Physics (concentration in planetary science)	<i>Cornell University</i>	May 2015
<b>B.A.</b>	Science of Earth Systems (concentration in mathematical geosciences) <b>Cornell University GPA: 3.525</b>	<i>Cornell University</i>	May 2015

### Research Positions

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- **NASA Arctic Boreal Vulnerability Experiment (ABOVE)**
  - Science Team Member, August 2016-Present  
Affiliated Projects: *YKD project--Yukon-Kuskokwim Delta: The Impact of Fire on Active Layer Thickness, The Airborne InSAR and PolSAR Permafrost Dynamics Observatory.*
- **Stanford University, Department of Geophysics, Stanford, CA**
  - Graduate Student; *September 2015-Present*  
Project: *Joint inversion of space borne InSAR and airborne AIRMOSS data for improved characterization of permafrost active layer thickness*  
(Advisor: Howard Zebker).
- **Jet Propulsion Laboratory, Solid Earth Group, Pasadena, CA**
  - Summer Internship Program; *June 2014-August 2014*  
Project: *Radar analysis and field investigations of terrestrial landforms as analogues for Titanian landforms*  
(Mentors: Thomas G. Farr; Michael Malaska).
- **Cornell University, Astronomy Department; Ithaca, NY**
  - Paid summer research position; *June 2013-August 2013*  
Specialization: *Mapping and preliminary backscatter modeling of Titan's polar lacustrine features (Hayes Lab)*
- **Cornell University, Astronomy Department; Ithaca, NY**
  - Student Researcher; *September 2012-Present*  
Specialization: *Quantitative morphology and backscattering properties of Titan's lakes (Hayes Lab)*

### Selected Publications

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- **R.J. Michaelides**, A.G. Hayes, M. Mastrogiuseppe, H.A. Zebker, T.G. Farr, M.J. Malaska, V. Poggiali, J.P. Mullen, Constraining the physical properties of Titan's empty lake basins using nadir and off-nadir Cassini RADAR backscatter, *Icarus*, Available online 8 October 2015, ISSN 0019-1035, <http://dx.doi.org/10.1016/j.icarus.2015.09.043>.
- **R.J. Michaelides**, A.G. Hayes, M. Mastrogiuseppe, H.A. Zebker, T.G. Farr, M.J. Malaska, V. Poggiali. Titan's Empty Lake Basins: Constraining Surface Physical Properties by Investigating Radar Backscatter Behavior at Multiple Incidence Angles, *46th Lunar and Planetary Science Conference (LPSC)*, The Woodlands, TX, March 2015.
- **R. J. Michaelides**, A. G. Hayes. Determining physical properties of Titan's empty lake basins through radar backscatter modeling. *45th Lunar and Planetary Science Conference (LPSC)*, The Woodlands, TX, March 2014.
- A. G. Hayes, **R. J. Michaelides**, E. P. Turtle, J. W. Barnes, J. M. Soderblom, M. Mastrogiuseppe, R. D. Lorenz, R. L. Kirk, and J. I. Lunine. The Distribution and Volume of Titan's Hydrocarbon Lakes and Seas. *45th Lunar and Planetary Science Conference (LPSC)*, The Woodlands, TX, March 2014.
- A. G. Hayes, W. E. Dietrich, R. L. Kirk, **R. J. Michaelides**, K. L. Mitchell, M. Malaska, E. P. Turtle, J. W. Barnes, A. Lucas, and O. Aharonson, Constraining the Evolution of Titan's North Polar Landscape, *European Planetary Science Congress (EPSC) 2013*.
- Hayes, A. G., Birch, S. P. D., Dietrich, W. E., Howard, A. D., Kirk, R. L., Poggiali, V., Mastrogiuseppe, M., **Michaelides, R. J.**, Corlies, P. M., Moore, J. M., Malaska, M. J., Mitchell, K. L., Lorenz, R. D., Wood, C. A.

(2017). Topographic constraints on the evolution and connectivity of Titan's lacustrine basins. *Geophysical Research Letters*, 44. <https://doi.org/10.1002/2017GL075468>

- **R. Michaelides**, K. Schaefer, H. Zebker, A. Parsekian, L. Liu, J. Chen, S. M. Natali, S. Ludwig, and S. Schaefer, "Inference of the impact of wildfire on permafrost and active layer thickness in a discontinuous permafrost region using the remotely sensed active layer thickness (resalt) algorithm," *Environmental Research Letters*, 2018. <https://doi.org/10.1088/1748-9326/aaf932>

## Presentations

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- A Singular-Value Decomposition of Closure Phase from InSAR Phase Triplets: Potential for Improved InSAR Time-Series Analysis, and Soil Moisture Time-Series Analysis, AGU 2018.
- Measuring the impact of wildfire on active layer thickness in a discontinuous permafrost region using Interferometric Synthetic Aperture Radar (InSAR), 2018 UNAVCO Science Workshop (**Invited Talk**), Broomfield, CO, March 2018.
- Assessing the Ability of Radar Sounders to Discriminate Between Corner-Reflections and Point Scatterers: Application to Europa's Chaos Terrains, *49th Lunar and Planetary Science Conference (LPSC)*, The Woodlands, TX, March 2018.
- Measuring the Impact of Wildfire on Active Layer Thickness in a Discontinuous Permafrost region using Interferometric Synthetic Aperture Radar (InSAR), 2018 NASA ABoVE Science Team Meeting, Seattle, WA, January 2018.
- Measuring the Impact of Wildfire on Active Layer Thickness in a Discontinuous Permafrost region using Interferometric Synthetic Aperture Radar (InSAR), AGU 2017
- Active-Layer Thickness estimation in the Yukon–Kuskokwim Delta, Alaska, via inversion of InSAR data and field measurements, AGU 2016.
- Titan's Empty Lake Basins: Constraining Surface Physical Properties by Investigating Radar Backscatter Behavior at Multiple Incidence Angles, *46th Lunar and Planetary Science Conference (LPSC)*, The Woodlands, TX, March 2015.
- Quasi-specular radar backscatter responses from Titanian and Terrestrial closed basins *2014 Cornell SES Undergraduate Research Symposium*, Ithaca, NY. October 2014.
- Constraining the physical surface properties of Titan's empty lake basins *Titan Surface Workshop 2014*, Ithaca, NY. October 2014.
- *45th LPSC Recap*. Cornell Planetary Lunch Seminar, Department of Astronomy, Cornell University. April 2014.
- Determining physical properties of Titan's empty lake basins through radar backscatter modeling. *45th Lunar and Planetary Science Conference (LPSC), Springtime for Titan's Lake District*. The Woodlands, TX, March 2014.
- Mapping and Analyzing Lacustrine Features on Titan. Cornell Planetary Lunch Seminar, Department of Astronomy, Cornell University. May 2013.

## Affiliated Presentations

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- The raised ramparts around Titan's northern lakes (Presenting author: Anezina Solomonidou), EGU 2019.
- GPU-accelerated 3D backprojection of ALOS SAR data from Greenland (Presenting author: Ettore Biondi), AGU 2018.
- Geophysical Investigation of Soil Moisture Distribution and Behavior in Permafrost Soils from Interior Alaska (Presenting author: Taylor Sullivan), AGU 2018.
- Influence of Topography and Disturbance on Water and Energy Flow in the Active Layer (Presenting author: Taylor Sullivan), 2018 NASA ABoVE Science Team Meeting, Seattle, WA, January 2018.
- The Permafrost Dynamics Observatory (PDO)(Presenting author: Kevin Schaefer), 2018 NASA ABoVE Science Team Meeting, Seattle, WA, January 2018.

- Combining geophysical techniques to measure soil moisture in permafrost regions (Presenting author: Kevin Schaefer), AGU 2017.
- Leveraging Subsidence in Permafrost with Remotely Sensed Active Layer Thickness (ReSALT) Products (Invited) (Presenting author: Kevin Schaefer), AGU 2017
- Advancing InSAR technology for monitoring the active layer terrestrial water storage and freeze-thaw cycle at Toolik, Alaska (Presenting author: Jingyi Chen), AGU 2017.
- Ground penetrating radar investigation of active layer in continuous- and discontinuous- permafrost, (Presenting author: Andrew Parsekian), SAGEEP 2017.
- The Impact of Fire on Active Layer Thickness, (Presenting author: Kevin Schaefer), AGU 2016.

### **Awarded Grants and Fellowships**

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- *2017 NSF Graduate Research Fellowship Program*

### **Professional Awards**

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- *2017 Stanford University Centennial Teaching Assistant Award*
- *2015 Honorable Mention Undergraduate Oral, 46th LPSC.*
- *2014 Cornell University Michael W. Mitchell Prize*

### **Field Experience**

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- *2018: Active Layer thickness measurement and in-situ validation of PDO data products for the NASA ABoVE Project*
- *2017: Active Layer thickness measurement and in-situ validation of InSAR data on the North Slope, AK*
- *2016: Investigating the effect of wildfires on permafrost active layer thickness in the YK Delta, Alaska, using ground-penetrating radar*
- *2014: Geomorphologic field mapping of playas in the Mojave Desert*

### **Other Experiences**

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- **Stanford University**, Stanford, CA
  - Geophysics department Teaching Assistant Liaison/Mentor *August 2018-Present*  
*Advocate for TAs and coordinate between faculty and students.*
- **Stanford University**, Stanford, CA
  - School of Earth Wellness Liaison *January 2019-Present*  
*Advocate for mental health and wellness resources on campus for the School of Earth*
- **Stanford University**, Stanford, CA
  - Teaching Assistant *January 2019-March 2019*  
*Assisted teaching EE 262: Two Dimensional Imaging*
- **Stanford University**, Stanford, CA
  - Teaching Assistant *April 2018-June 2018*  
*Assisted teaching GEOPHYS 230: Ice Penetrating Radar*
- **Stanford University**, Stanford, CA
  - Teaching Assistant *August 2016-December 2016*  
*Assisted teaching GEOPHYS 110: Introduction to the foundations of contemporary geophysics*
- **Cornell University**, Ithaca, NY
  - Cornell Mars Rover Student Project Team *August 2011-June 2012*  
*Science Team member responsible for astrobiology studies and geochemical analysis of soil samples.*
- **Adler Planetarium**, Chicago, IL
  - Paid camp counselor, *Exploring the Edge of Space* camp *June 2011-August 2011*

*Teaching junior high school students about astronomy and physics; building and operating high-altitude weather balloons with several basic scientific instrument payloads.*

- **Adler Planetarium, Chicago, IL**
  - Volunteer camp counselor, *Summer of 2010-2011*  
*Volunteer camp counselor for the Astro Explorers, Technology camp, and Summer Worlds Tour camp.*

### **Skills**

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- **Language Proficiency:** English, French, and Greek.
- **Programming Experience:** Fortran, Matlab, Mathematica, and Python.
- **Relevant Software Proficiency:** ArcGIS, ENVI, ISIS, QGIS
- **Field Instrument Proficiency:** Ground-Penetrating Radars, Gravimeters, electrical resistivity/conductivity mapping (ERT)

### **Professional Organizations**

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- **American Geophysical Union**