

CONTACT	ISTB4 Room 677 781 E Terrace Mall Arizona State University Tempe, AZ 85287-6004 USA	<i>Voice:</i> (480)-727-4726 <i>E-mail:</i> jnaneshwar.das@asu.edu <i>WWW:</i> https://dreams-lab.github.io/
RESEARCH INTERESTS	robotics, artificial intelligence, environmental monitoring, precision agriculture, marine sciences, geomorphology, planetary sciences.	
EDUCATION	University of Southern California	Los Angeles, California, USA
	Ph.D., Computer Science, May 2014 <ul style="list-style-type: none">• Dissertation: Data-driven Robotic Sampling for Marine Ecosystem Monitoring• Advisor: Prof. Gaurav S. Sukhatme M.S., Computer Science, May 2008 <ul style="list-style-type: none">• Specialization: Intelligent Robotics• Thesis: A Robotic System for Benthic Sampling Along a Transect• Advisor: Prof. Gaurav S. Sukhatme	
	P.E.S. Institute of Technology (PESIT) B.Engg., Telecommunication Engg., 2004	Bangalore, India
RESEARCH EXPERIENCE	Alberto Enrique Behar Associate Research Professor, School of Earth and Space Exploration Arizona State University	July 2018 — current <i>Tempe, AZ</i>
	<ul style="list-style-type: none">• Director of the Distributed Robotic Exploration and Mapping Systems (DREAMS) Laboratory, developing autonomous exploration systems for spatio-temporal observation of environmental and biological processes, with special focus on exploration of extreme environments such as volcanoes, sub-Antarctic lakes and underwater habitats, and space.	
	Core faculty, Center for Global Discovery and Conservation Science Arizona State University	December 2019 — current <i>Tempe, AZ</i>
	<ul style="list-style-type: none">• Developing automation for mapping of forests and coral reefs with aerial and under-water drones.	
	Postdoctoral Researcher, GRASP Laboratory University of Pennsylvania <i>Sponsor: Dr. Vijay Kumar</i>	June 2014 — June 2018 <i>Philadelphia, PA</i>
	<ul style="list-style-type: none">• Group leader of a USDA funded initiative to develop robot swarm for persistent monitoring in precision agriculture.• Led an NSF CPS funded initiative to design a cloud-enabled robotics testbed to lower the barrier to entry to cyber-physical systems.	

Research Assistant, Robotic Embedded Systems Laboratory Jan 2007—May 2014
University of Southern California *Los Angeles, California*

Worked with a team of researchers on the development of a networked aquatic observing system for inland and coastal waters, consisting of sensor buoys, and autonomous surface and underwater vehicles.

Research Collaborator May 2009—September 2013
Monterey Bay Aquarium Research Institute (MBARI) *Moss Landing, California*

Developed methodologies for mixed-initiative data-driven robotic sampling of dynamic oceanographic features such as algal blooms using underwater robots, drifters, and satellite imagery.

Visiting Doctoral Researcher July 2011—August 2011
École Polytechnique Fédérale de Lausanne (EPFL) *Lausanne, Switzerland*

Investigated environmental sampling using aerial robots and land-based spectrally-selective sensors.

PROFESSIONAL EXPERIENCE

Software Developer July 2004 — July 2006
ThoughtWorks Technologies Pvt. Ltd. *Bangalore, India*

Designed and developed large-scale distributed enterprise applications using agile methodologies.

CURRENT AND RECENT SPONSORED RESEARCH

NASA STTR Phase I: Sub-centimeter Resolution Lunar Digital Twin for Collaborative and Immersive Mission Planning (\$90,000, 2023-2024)

NASA STTR Phase I: Rad-Hard Adaptive Dual-Mode Event-Based Vision and Perception for Autonomous Robot Operations, \$65,000, 2022-2023

NASA Tech Flights; Deployment Test for ExoCam Module Lunar Lander Descent Imaging \$149,607, 5/1/2021-4/30/2022 (Co-PI Das, PI Bell)

National Science Foundation : NSF Cyber-Physical Systems Virtual Organization: Active Resources, \$280,000, 2018 - 2022

NASA STTR Phase I: Planetary-scale Surface Feature Detection and Mapping for Future Exploration Missions \$24,538, 2019 - 2021

NSF/USGS Southern California Earthquake Center (SCEC); Rock Traits from Machine Learning: applications to precariously balanced rocks and fault scarps in Southern California \$107,341, 2019 - 2021, Co-PI Das, PI Arrowsmith

Gift from PG&E: Identify Fragile Geologic Features and Analyze their Dynamics. \$303,499, 2021-2024, Co-PI Das, PI Arrowsmith.

TEACHING

SES 494/598, Autonomous Exploration Systems (Robotics I) Spring 2019 through 2023

SES 130/230, Coding for Exploration Fall 2019 through 2021

SES 484: ASU NASA ASCEND Internship – High-altitude ballooning Fall 2022

REFERRED JOURNAL
AND MAGAZINE
ARTICLES
EQUAL CONTRIB.[‡],
STUDENT MENTEE*,
POSTDOC MENTEE[†]

1. Chen, Z.* , Arrowsmith, R., **Das, J.**, Wittich, C., Madugo, C., Kottke, A. (2024). Virtual Shake Robot: Simulating Dynamics of Precariously Balanced Rocks for Overturning and Large-displacement Processes. *Seismica*, 3(1). <https://doi.org/10.26443/seismica.v3i1.692>
2. Y. Sung[†], Z. Chen*, **J. Das** and P. Tokekar (2023), "A Survey of Decision-Theoretic Approaches for Robotic Environmental Monitoring", *Foundations and Trends® in Robotics*: Vol. 11: No. 4, pp 225-315.
3. Chen, Z.* , Scott, C., Keating, D.* , Clarke, A., **Das, J.** Arrowsmith, R. (2023) Quantifying and analysing rock trait distributions of rocky fault scarps using deep learning. *Earth Surface Processes and Landforms*, 1– 17
4. Z. Chen*, M. Wagner**, **J. Das**, R. K. Doe, ; R. S. Cervený, "Data-Driven Approaches for Tornado Damage Estimation with Unpiloted Aerial Systems" *Remote Sens.* 13, no. 9: 1669, 2021
5. **J. Das**[†], E. Trembath-Reichert[‡]. Deep diving with Clio., *Science Robotics* (commentary), November 2020, 25;5(48)
6. Unpiloted Aerial Systems (UASs) Application for Tornado Damage Surveys: Benefits and Procedures M Wagner[†], RK Doe, A Johnson, Z Chen*, **J Das**, *Bulletin of the American Meteorological Society*, 2019
7. M Kalischuk, ML Paret, JH Freeman, D Raj, S Da Silva, S. Eubanks, D. J. Wiggins, M. Lollar, J. J. Marois, H. C. Mellinger, and **J. Das**, *Plant disease*, 2019
8. X. Liu*, S. W. Chen*, C. Liu*, S.S. Shivakumar*, **J. Das**, C.J. Taylor, J. Underwood, V. Kumar (2019). Monocular Camera Based Fruit Counting and Mapping with Semantic Data Association. *IEEE Robotics and Automation Letters*, 4(3), 2296-2303.
9. S. W. Chen*, S. Skandan*, S. Dcunha*, **J. Das**, C. Qu*, C.J. Taylor, V. Kumar, "Counting Apples and Oranges With Deep Learning: A Data-Driven Approach," in *IEEE Robotics and Automation Letters*, vol. 2, no. 2, pp. 781-788, April 2017.
10. R. Ehsani, D. Wulfsohn, **J. Das**, I.Z. Lagos, "Yield Estimation: A Low-Hanging Fruit for Application of Small UAS," in *ASABE Resource: Engineering & Technology for a Sustainable World*, July 2016, pp. 16-18.
11. R. Ehsani and **J. Das**, "Yield estimation in citrus with UAVs," *Citrus Extension Trade Journals*, pp. 16-18, 2016
12. **J. Das**, F. Py, H. Harvey, J. Ryan, A. Gellene, R. Graham, D. Caron, K. Rajan, and G. Sukhatme, "Data-driven Robotic Sampling for Marine Ecosystem Monitoring", in *International Journal of Robotics Research*, 34(12):1435-1452, Oct 2015.
13. **J. Das**, F. Py, T. Maughan, T. O'Reilly, M. Messié, J. Ryan, G. Sukhatme, and K. Rajan, "Coordinated Sampling of Dynamic Oceanographic Features with Underwater Vehicles and Drifters", in *International Journal of Robotics Research*, Vol. 31, p. 626-646, April 2012.
14. A. Garcia-Olaya, F. Py, **J. Das**, and K. Rajan, "An On-line Utility based Multi-criteria Approach for Sampling Dynamic Ocean Fields", in *IEEE Journal of Oceanic Engineering*, April 2012.
15. R. Smith, **J. Das**, H. Heidarsson, A. de Menezes Pereira, F. Arrichiello, I. Cetinic, L. Darjany, M. Garneau, M. Howard, C. Oberg, M. Ragan, E. Seubert, E. Smith, B. Stauffer, A. Schnetzer, G. Toro-Farmer, D. Caron, B. Jones, and G. Sukhatme, "USC CINAPS Builds Bridges: Observing and Monitoring the Southern California Bight", In *IEEE Robotics and Automation Magazine*, vol. 17, no. 1, pp. 20-30, Mar 2010.
16. D. Caron, B. Stauffer, S. Moorthi, A. Singh, M. Batalin, E. Graham, M. Hansen, W. Kaiser, **J. Das**, A. de Menezes Pereira, A. Dhariwal, B. Zhang, C. Oberg, and G. Sukhatme, "Macro-to fine-scale spatial and temporal distributions and dynamics of phytoplankton and their environmental driving forces in a small subalpine lake in southern California, USA", In *Journal of Limnology and Oceanography*, vol. 53, no. 5, pp. 2333-2349, 2008.

REFEREED

CONFERENCE PAPERS

EQUAL CONTRIB.[‡],
STUDENT MENTEE*,
POSTDOC MENTEE[†]

1. S. Jain*, Y. Shethwala*, and **J. Das**, "Payload Delivery through Acrobatic Quadrotor Flip-and-Throw Maneuver Using Model Predictive Control," IEEE 20th International Conference on Automation Science and Engineering (CASE), 2024, pp. 2463-2470.
2. Z. Chen*, D. Keating*, Y. Shethwala*, A. Adhith PS*, R. Arrowsmith, A. Kottke, C. Wittich, **J. Das**, "Shakebot: A Low-Cost, Open-Source Robotic Shake Table for Earthquake Research and Education". IEEE 20th International Conference on Automation Science and Engineering (CASE), 2024.
3. H. Anand*, Stephen A Rees, Zhiang Chen*, Ashwin Jose Poruthukaran*, Sarah Bearman*, Lakshmi Gana Prasad Antervedi*, Jnaneshwar Das, "The OpenUAV Swarm Simulation Testbed: a Collaborative Design Studio for Field Robotics", 2021 IEEE Conference on Automation Science and Engineering (CASE), (**Best Applications Paper finalist**)
4. A.L.G. Prasad Antervedi*, Z. Chen*, H. Anand*, R. Martin, R. Arrowsmith, **J. Das**, "Terrain-Relative Diver Following with Autonomous Underwater Vehicle for Coral Reef Mapping", 2021 IEEE 17th International Conference on Automation Science and Engineering (CASE), 2021, pp. 2307-2312
5. Z. Chen*, T. R. Scott*, S. Bearman*; H. Anand*; D. Keating*; C. Scott; J R. Arrowsmith; **J. Das**, "Geomorphological Analysis Using Unpiloted Aircraft Systems, Structure from Motion, and Deep Learning," 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020, pp. 1276-1283
6. G. Li*, B.T. Gabrich*, D.J. Saldana, **J. Das**, V. Kumar, M. Yim, "ModQuad-Vi: A Vision-Based Self-Assembling Modular Quadrotor", in *IEEE International Conference on Robotics and Automation (ICRA)*, 2019.
7. X. Liu*, S. W. Chen*, S. Aditya*, N. Sivakumar*, S. Dcunha*, C. Qu*, C.J. Taylor, **J. Das**, and V.Kumar, "Robust Fruit Counting: Combining Deep Learning, Tracking, and Structure from Motion", in International Conference on Intelligent Robots and Systems (IROS) 2018.
8. A. Lukina*, A.Kumar*, M. Schmittle*, A. Singh*, J. Das, S.Rees, C. Buskirk, J. Sztipanovits, R. Grosu, V.Kumar, (2018). Formation Control and Persistent Monitoring in the OpenUAV Swarm Simulator on the NSF CPS-VO. In Proceedings - 9th ACM/IEEE International Conference on Cyber-Physical Systems, ICCPS 2018 (pp. 353-354). [8443757] (Proceedings - 9th ACM/IEEE International Conference on Cyber-Physical Systems, ICCPS 2018).
9. M. Schmittle*, A. Lukina*, L. Vacek*, **J. Das**, C. P. Buskirk, S. Rees, J. Sztipanovits, R. Grosu and V. Kumar, "OpenUAV: A UAV Testbed for the CPS and Robotics Community," 2018 International Conference on Cyber-Physical systems (ICCPS), Porto, Portugal, pp. 130-139.
10. L. Vacek*, E. Atter*, P. Rizo*, B. Nam*, R. Kortvelesy*, D. Kaufma*n, **J. Das**, V. Kumar, "sUAS for deployment and recovery of an environmental sensor probe," 2017 International Conference on Unmanned Aircraft Systems (ICUAS), Miami, FL, USA, 2017, pp. 1022-1029.
11. D. Orol*, **J. Das**, L. Vacek*, I. Orr*, M. Paret, C.J. Taylor, V. Kumar, "An aerial phyto-biopsy system: Design, evaluation, and lessons learned," 2017 International Conference on Unmanned Aircraft Systems (ICUAS), Miami, FL, USA, 2017, pp. 188-195.
12. S. K. Sarkar*, **J. Das**, R. Ehsani and V. Kumar, "Towards autonomous phytopathology: Outcomes and challenges of citrus greening disease detection through close-range remote sensing," 2016 IEEE International Conference on Robotics and Automation (ICRA), Stockholm, 2016, pp. 5143-5148.
13. **J. Das**, G. Cross*, C. Qu*, A. Makineni*, P. Tokekar, Y. Mulgaonkar, V. Kumar, "Devices, Systems, and Methods for Automated Monitoring enabling Precision Agriculture," in IEEE International Conference on Automation Science and Engineering (CASE), vol., no., pp.462-469, 24-28 Aug. 2015
14. P. Ngo*, **J. Das**, J. Ogle, J. Thomas, W. Anderson and R. N. Smith, "Predicting the speed of a Wave Glider autonomous surface vehicle from wave model data," 2014 IEEE/RSJ International Conference on Intelligent Robots and Systems, Chicago, IL, 2014, pp. 2250-2256.

15. K. Gomes, D. Cline, D. Edgington, M. Godin, T. Maughan, M. McCann, T. O'Reilly, F. Bahr, F. Chavez, M. Messié, **J. Das**, K. Rajan, "ODSS: A Decision Support System for Ocean Exploration", In *29th IEEE International Conference on Data Engineering, Workshop on Data-Driven Decision Guidance and Support Systems (DGSS) 2013*.
16. **J. Das**, J. Harvey, F. Py, H. Vathsangam, R. Graham, K. Rajan, and G. Sukhatme, "Hierarchical Probabilistic Regression for AUV-based Adaptive Sampling of Marine Phenomena, In *IEEE International Conference on Robotics and Automation, 2013*.
17. W. Al-Sabban, **J. Das**, and R. N. Smith, "Persistent robot tasking for environmental monitoring through crowd-sourcing," 2013 OCEANS - San Diego, San Diego, CA, 2013, pp. 1-6
18. **J. Das**, W. Evans, M. Minnig, A. Bahr, G. Sukhatme, and A. Martinoli, "Environmental Sensing using Land-based Spectrally-selective Cameras and a Quadcopter", In *13th International Symposium on Experimental Robotics, 2012*.
19. R. Graham, F. Py, **J. Das**, D. Lucas, and K. Rajan, "Exploring Space-Time Tradeoffs in Autonomous Sampling for Marine Robotics", in 13th International Symposium on Experimental Robotics, 2012.
20. R. Smith, **J. Das**, G. Hine, W. Anderson, and G. Sukhatme, "Predicting Wave Glider Speed from Environmental Measurements", In MTS/IEEE OCEANS '11, Kona, Hawaii, Sep 2011.
21. **J. Das**, T. Maughan, M. McCann, M. Godin, T. O'Reilly, M. Messié, F. Bahr, K. Gomes, F. Py, J. Bellingham, G. Sukhatme, and K. Rajan, "Towards Mixed-initiative, Multi-robot Field Experiments: Design, Deployment, and Lessons Learned", In *IEEE/RSJ International Conference on Intelligent Robots and Systems, 2011*.
22. **J. Das**, F. Py, T. Maughan, T. O'Reilly, M. Messié, J. Ryan, K. Rajan, and G. Sukhatme, "Simultaneous Tracking and Sampling of Dynamic Oceanographic Features with AUVs and Drifters", In 12th International Symposium on Experimental Robotics, 2010, Dec 2010.
23. R. Smith, **J. Das**, Y. Chao, D. Caron, B. Jones, and G. Sukhatme, "Cooperative Multi-AUV Tracking of Phytoplankton Blooms based on Ocean Model Predictions", In Oceans '10 - IEEE Sydney, Sydney, Australia, May 2010.
24. **J. Das**, K. Rajan, S. Frolov, J. Ryan, F. Py, D. Caron, and G. Sukhatme, "Towards Marine Bloom Trajectory Prediction for AUV Mission Planning", In IEEE International Conference on Robotics and Automation, pp. 4784 - 4790 , May 2010.
25. F. Arrichiello, **J. Das**, H. Heidarsson, A. de Menezes Pereira, S. Chiaverini, and G. Sukhatme, "Multi-Robot Collaboration with Range-Limited Communication: Experiments with Two Underactuated ASVs", In The 7th International Conference on Field and Service Robots, Cambridge, Massachusetts, Jul 2009.
26. **J. Das**, and G. Sukhatme, "A Robotic Sentinel for Benthic Sampling along a Transect", In IEEE International Conference on Robotics and Automation, pp. 206 - 213 , May 2009.
27. R. Smith, B. Stauffer, **J. Das**, H. Heidarsson, A. de Menezes Pereira, Y. Chao, L. Darjany, I. Cetinic, D. Estrin, C. Oberg, M. Ragan, B. Jones, G. Sukhatme, and D. Caron, "Design and Implementation of Sensor Networks for the Observation and Research of Harmful Algal Blooms in Southern California Coastal Waters", In *Proceedings of the Conference on Coastal Environmental Sensing Networks, pp. 5-7, Boston, MA, Jul 2009*.
28. M. Gupta, **J. Das**, M. Vieira, H. Heidarsson, H. Vathsangam, and G. Sukhatme, "Collective Transport of Robots: Emergent Flocking from Minimalist Multi-robot Leader-following", In IEEE/RSJ International Conference on Intelligent Robots and Systems, 2009.
29. F. Arrichiello, D. Liu, S. Yerramalli, A. de Menezes Pereira, **J. Das**, U. Mitra, and G. Sukhatme, "Effects of underwater communication constraints on the control of marine robot teams", In International Conference on Robot Communication and Coordination, Odense, Denmark, Mar 2009
30. A. de Menezes Pereira, **J. Das**, and G. Sukhatme, "An Experimental Study of Station Keeping on an Underactuated ASV", In IEEE/RSJ International Conference on Intelligent Robots and Systems, pp. 3164-3171, 2008.

WORKSHOP/CONFERENCE

ABSTRACTS

EQUAL CONTRIB.[‡],
STUDENT MENTEE*,
POSTDOC MENTEE[†]

1. D. Rodge*, Z. Chen*, R. Arrowsmith, **J. Das**, "Unsupervised 3D Rock Segmentation: An Interactive Region Growing Approach for Enhanced Geological Analysis of Precariously Balanced Rocks (PBRs)", Southwest Robotics Symposium 2024, Tempe, AZ, 2024
2. A Mahalle*, Y. Lai*, Z. Chen*, R. Arrowsmith, **J. Das**, "Virtual Shake Robot V2.0: A PyBullet-Based Digital Twin for Analyzing Seismic Hazards Using Precariously Balanced Rocks (PBRs)", Southwest Robotics Symposium 2024, Tempe, AZ, 2024
3. Y. Lai*, S. Akurathi*, J. Das, "Information Gain-Based View Planning for Real-Time 3D Reconstruction of Rocks", Southwest Robotics Symposium 2024, Tempe, AZ, 2024
4. Rodney Staggars Jr*, Swaraj Akurathi*, S. Kumar, **J. Das**, "Robotic Laboratory for Aquatic Ecosystem Monitoring", Southwest Robotics Symposium 2024, Tempe, AZ, 2024
5. J. A. Mezilis, W. Hovik, K. Zacny, D. Bergman, J. Bell, D. C Jacobs, **J. Das**, C McCormick, M Adkins, H. Anand*, A. Masud*, L.G Prasad Antervedi, D. Mick*, K Davis*, 'Lunar ExoCam 2021 Payload Test Flight Report', 53rd Lunar and Planetary Science Conference (2022)
6. R. Vishwanatha*, **J. Das**, R. Martin, H. Throop, W. Zhang, R. Ehsani, Real-Time Semantic Mapping of Tree Topology Using Deep Learning and Multi-Sensor Factor Graph, IEEE International Conference on Robotics and Automation (ICRA) Workshop on Agricultural Robotics, 2022, Philadelphia PA (2022)
7. Navarro-Perez, E.*, et al. "Measurement of Fine Root Traits Using 3D Photogrammetric Computational Models." AGU Fall Meeting Abstracts (2021).
8. Hanan, D. *, et al. "Microbial Activity in Response to Non-Rainfall Moisture Systems in Arid and Semi-Arid Sites in the Sonoran Desert." AGU Fall Meeting Abstracts (2021).
9. Taylor, A. *, et al. "Assessment of the Distribution and Physical Structure of Litter Retention Elements in the Sonoran Desert Using 3D Photogrammetry." AGU Fall Meeting Abstracts (2021).
10. Benites, E. *, et al. "Combining Photogrammetry and Field Techniques to Determine Hypolith Colonization and Distribution Patterns." AGU Fall Meeting Abstracts (2021).
11. Collins, C. *, Anand, H. *, Chen, Z. *, **Das, J.**, Throop, H. "Artificial Intelligence Assists in the Estimation of Hypolith Distribution in the Namib Desert." AGU Fall Meeting Abstracts (2021). Poster Presentation. AGU Abstracts.
12. Aparecido, L.M.[†], et al. "Cooling Capacity of Urban Trees Exposed to Thermal Stress." AGU Fall Meeting Abstracts (2021).
13. Chen, Z. *, et al. "Tornado Damage Detection Utilizing Unpiloted Autonomous Systems, Structure from Motion, and Deep Neural Networks." AGU Fall Meeting (2019).

DISSERTATION

Data-driven Robotic Sampling for Marine Ecosystem Monitoring. *Ph.D. dissertation, Computer Science, Viterbi School of Engineering, University of Southern California, Los Angeles, CA, USA, May 2008.*

APPROVED PATENTS

STUDENT MENTEE*

- (a) Systems, Devices, and Methods for Robotic Remote Sensing for Precision Agriculture, V. Kumar, G. Cross*, C. Qu*, J. Das, A. Makineni*, Y. Mulgaonkar; US Patent US11609159B2, 2019 (applied 2017).
- (b) Systems, Devices, and Methods for Agricultural Sample Collection, D. Orol*, L. Vacek*, D. Kaufman*, J. Das, V. Kumar; US Patent US11609159B2, 2023 (applied 2018).

PROVISIONAL PATENTS

STUDENT MENTEE*,
POSTDOC MENTEE[†]

- (a) Auto-switching Gas and Fluid Intake Apparatus for Allowing One Sensor to Sample Multiple Locations, Jnaneshwar Das, Devin Keating*, Saurav Kumar (2023).

- (b) High-altitude Balloon Payload with Attitude Control and Predictive Scheduling, for Aerobiological Sampling and Environmental Monitoring, Cole Brauer*, Jnaneshwar Das, Sophia Davis*, Desmond Hanan*, Anyell Mata*, Darwin Mick*, Thomas Sharp, Elizabeth Trembath-Reichert (2023).
- (c) Drone Deployable Automated Vaccine-pellet Delivery System to Mitigate Plague of Endangered Black Footed Ferret, Cole Brauer*, Jnaneshwar Das, Devin Keating* (2023).
- (d) Shakebot: A Low-cost, Open-source Robotic Shake Table for Earthquake Research and Education, Ramon Arrowsmith, Zhiang Chen*, Jnaneshwar Das, Devin Keating*, Aravind Saravanakumaran*, Yash Shethwala*, Christine Wittich (2023).
- (e) CoRAL: Collaborative Robotic Aquatic Laboratory, Harish Anand*, Lakshmi Antervedi*, Ramon Arrowsmith, Greg Asner, Sarah Bearman*, Cole Brauer*, Zhiang Chen*, Jnaneshwar Das, Alex Goldman*, Devin Keating*, Roberta Martin, Jason Achilles Mezilis, Darwin Mick*, Aravind Saravanakumaran*, Yash Shethwala*, Rodney Staggars Jr.*, Elizabeth Trembath-Reichert (2023).
- (f) QuAD-FLIP: Quadrotor Aerial Delivery with Flipping for Limited-access Inspection and Probing, Ramon Arrowsmith, Zhiang Chen*, Amanda Clarke, Jnaneshwar Das, Saransh Jain*, Abdullah Masud*, Jason Achilles Mezilis, Darwin Mick*, Hariharan Ravichandran*, Stephen Rees, Aravind Saravanakumaran*, Yash Shethwala*, Srikar Siddarth* (2023).
- (g) Terrestrial Observing Network for Digital Twins: Real-time 3D Mapping of Metric, Semantic, Topological, and Physicochemical Properties for Optimal Environmental Monitoring, Harish Anand*, Lakshmi Antervedi*, Luiza Aparecido†, Ramon Arrowsmith, Cole Brauer*, Zhiang Chen*, Amanda Clarke, Jnaneshwar Das, Sophia Davis*, Desmond Hanan*, Kevin Hultine, Devin Keating*, Roberta Martin, Jason Achilles Mezilis, Darwin Mick*, Alejandro Rodriguez†, Kshitij Srivastava*, Heather Throop, Elizabeth Trembath-Reichert, Rakshith Vishwanatha* (2023).
- (h) UltraScan: Affordable High Spectral-resolution 3D Imaging Leveraging Robotic Scanning Spectroscopy Combined with Semantic SLAM, Jnaneshwar Das, Saurav Kumar (2023).
- (i) EarthRover: Affordable and Sustainable Mobility Autonomy for 4D Environmental Monitoring, Jnaneshwar Das (2023).
- (j) Digital-Physical Twins for Environmental Process Modeling and Forecasting, Ramon Arrowsmith, Jnaneshwar Das, Nakul Gopalan, Saurav Kumar (2023).

SAMPLING OF INVITED
TALKS AND
DEMONSTRATIONS

- Autonomous Systems Lab, ETH Zurich, Switzerland, 2011.
- GRASP Special Seminar, University of Pennsylvania, "Data-driven Robotic Sampling for Marine Ecosystem Monitoring", January 2014.
- Google Los Angeles, Venice Beach, California, "Robotic Explorers for Environmental Monitoring", May 2014.
- Workshop for UAV Applications in Agriculture, Lake Alfred, Florida, "Autonomous Aerial Robots for Precision Agriculture", March 2015.
- Special Session on UAVs for Applications in Plant Pathology, American Phytopathological Society (APS) Meeting, Pasadena, California, "Autonomous Aerial Robots for Precision Agriculture", August 2015.
- Invited talk at North Florida Research and Education Center, University of Florida, "Autonomous Aerial Robots for Precision Agriculture", January 2016.
- Invited demonstration and interactive session at the Congressional Robotics Caucus for Fifth anniversary of the National Robotics Initiative, U.S. Capitol Complex, June 2016.
- CPS Frontiers Projects Panel talk at NSF CPS PI meeting, "UAV testbed for the CPS community", October 2016.

- Workshop on CPS Challenges for Unmanned and Autonomous Systems at the NSF PI meeting, NSF CPS PI Meeting, “OpenUAV: CPS Testbed for Aerial Autonomy”, November 2017.
- Invited talk at Phenome 2019, Tucson, AZ, “Robots in the Wild – Collaborative Exploration and Mapping”, February 2019.
- Planetary Surface Feature Mapping Leveraging Robotics and AI, Prorok Lab, Cambridge University, March 2020.
- Plenary talk at the Southern California Earthquake Center (SCEC) annual meeting, ‘Robotics and AI for the advancement of earthquake science’, September 2020
- AGU Fall meeting, AI session invited talk, December 2020.
- 2020 ASU ‘sunhacks’ session on drone hacking, October 2020.
- New Discovery Lecture Series (with Heather Throop), “Earth Innovation: Collaborative Science and Engineering for Exploring Desert Ecosystems”, April 2021.
- Invited mobile interactive projection mapping show ‘Earth Realm Dynamics’ by DREAMS lab at the Mesa Art Center season kickoff festival Wonderland (September 10, 2021).
- Invited talk: Brown University DEEPS colloquium, April 2021
- Invited talk: New York University, August 2021
- Invited talk: Lehigh University, March 2022

AWARDS

- Alberto Enrique Behar Research Professorship, ASU School of Earth and Space Exploration, (May 2018)
- NSF award for extended research visit of the Distributed Intelligent Systems and Algorithms Laboratory (DISAL) at the École Polytechnique Fédérale de Lausanne (EPFL) in Lausanne, Switzerland (July 2011 - September 2011)
- NSF award to attend International Joint Conferences on Artificial Intelligence (IJCAI) 2011 Doctoral Consortium in Barcelona, Spain

MENTORING

Postdoctoral scholars: Luiza Aparecido (SESE Exploration Fellow, co-advisor Heather Throop), Alex Cueva Rodriguez (lead sponsor Heather Throop), Zhiang Chen (co-sponsor Ramon Arrowsmith)

Ph.D. students: Zhiang Chen (graduated 2022), Yanbo Zhang (lead advisor Sara Walker), Madeline Schwarz, Mindy Zuckerman

Masters students: Harish Anand, Sarah Bearman, Devin Keating, Alex Goldman, Ashwin Jose, Philip Mulford, Prasad Antervedi, Rakshith Vishwanatha, Desmond Hanan, Abdullah Masud, Antonio Acuna, Aravind Adith, Yash Shethwala, Saransh Jain, Bhavya Shah, Mohz Zaid, Krutarth Bhatt.

Undergraduate students: Rodney Staggers, Cat Collins, Ethan Duncan, Darwin Mick, Katrina Davis, Zion Basque, Benjamin Danek, Wesam Alzahir, Melissa Parkhurst.

PROFESSIONAL
ACTIVITIES AND
SERVICE

Event Organization: Co-organizer of “USC Water Institute Graduate Student Symposium on Ocean Observing and Monitoring”, University of Southern California, Los Angeles, CA, May 2012; Co-organizer of “Robotics Sciences and Systems (RSS) 2014 Workshop on Robotic Monitoring”, Berkeley, CA, July 2014; Co-organizer of “International Conference on Robotics and Automation (ICRA) 2015 Workshop on Robotics in Agriculture”, Seattle, Washington, May 2015; Co-organizer of “Robotics Sciences and Systems (RSS) 2019 Workshop - Robots in the Wild: Challenges in Deploying Robust Autonomy for Robotic Exploration”, Freiburg, Germany, June 2019; Session Chair of Human -Centered Automation at IEEE International Conference on Automation Science and Engineering; IROS 2020 co-chair for session on Aerial Robotics for Environmental Monitoring Plenary talk at 2020 SCEC annual meeting special session on AI for geosciences; Co-organizer of 2020 NSF Student Drone Challenge ‘SoilScope Mars edition’ themed around MARS 2020 mission, held virtually over a month using OpenUAV online simulation testbed; Robotics Science and Systems (RSS) 2020 workshop ‘Robots in the Wild: Challenges in Deploying Robust Autonomy for Robotic Exploration’.

Reviewing: NSF, NIFA, IEEE Transactions on Robotics, Science Robotics, IEEE Robotics and Automation Letters, Autonomous Robots, Biosystems Engineering, IEEE Journal of Oceanic Engineering, IEEE International Conference on Robotics and Automation, IEEE/RSJ International Conference on Intelligent Robots and Systems, Robotics Science and Systems, AAAI Conference

on Artificial Intelligence, International Symposium on Experimental Robotics, Symposium on Distributed Autonomous Robotic Systems, Journal of Field Robotics.

Program Committee Member: International Symposium on Multi-Robot and Multi-Agent Systems (MRS) 2019, Associate Editor of IEEE International Conference on Robotics and Automation (ICRA) 2016 and 2017, International Symposium on Experimental Robotics (ISER) 2014, AAAI Conference on Artificial Intelligence 2014, AAAI Conference on Artificial Intelligence 2015, Robotics Sciences and Systems (RSS) 2015, International Joint Conference on Artificial Intelligence (IJCAI) 2016.

Journal Editing: Guest Editor of Journal of Field Robotics (JFR) Special Issue on Agricultural Robotics, 2017.

PERSONAL

Nationality
Visa Status

Indian
H-1B (LPR Adjustment of Status in Progress)