

# CORDULA ROBINSON

Phone: 857.319.6650 Email: [c.robinson@northeastern.edu](mailto:c.robinson@northeastern.edu)

## GEOSPATIAL PROFESSOR

### QUALIFICATIONS PROFILE

Seasoned, goal-driven, and detail-oriented professional with broad-based experience in facilitating and conducting research on domain-driven spatial science with an emphasis on remote sensing, machine learning and automation; complemented with strong expertise in providing guidance and academic support to students on various aspects of geography and geospatial intelligence. Featured in a variety of news; with proven track record of accomplishment in formulating and implementing innovative, nationally-recognized geospatial programs to establish and maintain a safe and secure environment. Armed with strong problem-solving, critical thinking, and decision-making aptitudes and well-versed in various teaching techniques and tools to maximize students' learning potential. Equipped with articulate communication and interpersonal capabilities to cultivate positive work relationships with individuals of diverse backgrounds utilizing fluency in English language and working knowledge of German and French language.

### AREAS OF EXPERTISE

**Remote Sensing | Image Analysis and Processing | Geospatial Intelligence | Spatial Data  
Workflow Integration and Automation | Geospatial Data Analysis and Management | Data Visualization  
Environmental Science | Grant Writing | Project Management | Geographic Information System (GIS)**

### EDUCATION AND CREDENTIALS

#### **Doctor of Philosophy, 1991**

University College London - Physics and Astronomy Department, London, ENG, UK  
*Harrie Massey Prize for Post-Graduate Research in Physics and Astronomy*

#### **Bachelor of Science in Geology (Hons), 1987**

Durham University, Durham, ENG, UK  
*Varsity Letters*

#### **General Certificate of Education (GCE) 7 O-Level in French**

Bradford Girls' Grammar School, Bradford, ENG, UK  
*Bursary on Entrance*

#### **General Certificate of Education (GCE) 3 A-Levels in Chemistry, Geography, and Physics**

Bradford Girls' Grammar School, Bradford, ENG, UK

### TEACHING EXPERIENCE

NORTHEASTERN UNIVERSITY, BOSTON, MA, USA (2007-PRESENT)

#### **Professor**

*July 2018–Present*

#### **Lead Faculty Associate Professor**

*2007–2018*

- Take full accountability in curriculum design, faculty recruitment and creation, program generation, experiential learning integration, and student advisement
- Apply dynamic leadership skills in guiding and mentoring 15 part-time faculty
- Serve as the thought leader in devising original curriculum for the homeland security and analytics master's programs
- Function as the founding member of machine learning an artificial intelligence domain
- Efficiently interface with various accrediting teams, such as the Academic Quality Assurance (AQA), USGIF, and NGA-USGS for continued program quality assurance and relevance
- Offer expert annual guidance to approximately 10 to 15 graduate students on their capstone research projects
- Aid in creating campus-wide network for synergistic activities to enhance the existing geospatial resources and prevent redundancy

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## Key Accomplishments

- ✓ Pioneered innovative interdisciplinary programs on geography, including geospatial, analytics, machine learning, and automation
- ✓ Conceptualized and created the university's geospatial program, which received recognition from the National Geospatial-Intelligence Agency (NGA)- United States Geological Survey (USGS) Centers of Academic Excellence (CAE) and the United States Geospatial Intelligence Foundation (USGIF)
- ✓ Earned a reputation for successfully handling various roles, which included:
  - Faculty advisory council for the Global Resilience Institute
  - Faculty affiliate for the Global Resilience Institute and Kostas Research Center
  - Technical adviser on mapping project for the Boston Municipal Courts with Suffolk University Law School
- ✓ Received geospatial sciences designation from the NGA-USGS CAE in 2015 to 2018
- ✓ Pioneered the USGIF accreditation from 2014 to 2019
- ✓ Gained student nomination on the Excellence in Teaching Award in 2011, 2015, and 2018
- ✓ Maintained the Center of Excellence for the development of PCI Geomatica geospatial software from 2005 to 2013

## RESEARCH EXPERIENCE

BOSTON UNIVERSITY, BOSTON, MA, USA

**Research Associate Professor**, Center for Remote Sensing

DEUTSCHES ZENTRUM FÜR LUFT- UND RAUMFAHRT (DLR), BERLIN, GERMANY

**Junior Scientist**

HARVARD-SMITHSONIAN CENTER FOR ASTROPHYSICS, CAMBRIDGE, MA, USA

**Postdoctoral**

ETHYL CORPORATION, ST. LOUIS MO, USA

**Organic Chemist**, Petroleum Additives Division

UNIVERSITY COLLEGE LONDON (UCL) DEPARTMENT OF PHYSICS & ASTRONOMY, LONDON, ENG, LONDON

**Demonstrator**, Geology Department

## OTHER PROFESSIONAL EXPERIENCE

BOSTON UNIVERSITY, BOSTON, MA, USA

**Consultant**

2007–2009

## RECENT TRAINING

**TensorFlow**, In Progress

**GBDX Notebooks**, In Progress

**C-Essential Training**, 2017

**Data Science Foundations**, 2017

**Processing: Interactive Data Visualization**, 2016

**R Statistics Essential Training**, 2016

**GEOINT** (Massive Open Online Course), 2016

## PROFESSIONAL AFFILIATIONS

American Association for the Advancement of Science (AAAS)

Urban and Regional Information Systems Association (URISA)

*Fellow*, Royal Geological Society of London

Order of the Sword and the Shield

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## ACTIVITIES

<b>Member</b>   USGIF Academic Planning Committee	2018-Present
<b>College Representative</b>   Senate Graduate Council - Northeastern University	2018-Present
<b>Participant</b>   Machine Learning and Artificial Intelligence Working Group - USGIF	2017-Present
<b>Volunteer Member</b>   Professional Education Material's Committee (PEMC) - URISA	2017-Present
<b>Program Administrator</b>   NEASC-AQA, USGIF, and NGA-USGS	2013-Present
<b>Reviewer</b>   Journal of African and Earth Science	2007-Present
<b>Panelist</b>   Takeover Innovation Conference	2018
<b>Contributor</b>   Academic Planning Committee (APC) - USGIF	2018
<b>Lead</b>   College Workload Policy - Advisory Group	2018
<b>Panelist</b>   Access to Justice Conference - Mandatory Continuing Legal Education (MCLE)	2017
<b>Panelist</b>   Warren Conference Center - Northeast Geographic Information Society	2017
<b>Vice Chair</b>   Professional Standards Committee- Northeastern University	2017
<b>Panelist</b>   Foreword Event USGIF Symposium	2017
<b>Participant</b>   College Faculty Affiliate and Faculty Advisory Council - Global Resilience Institute (GRI)	2016-2017
<b>Graduation Speech</b>   CPS Doctoral Hooding Ceremony - Northeastern University	2016
<b>Secretary</b>   Professional Standards Committee - Northeastern University	2016
<b>Supervisor</b>   Research Fulbright Scholar, Lebanon	2015
<b>Task Force Member</b>   Joint Task Force - Northeastern University	2015
<b>Contributor</b>   Professional Standards Committee - Northeastern University	2015
<b>Northeastern University Panel</b>   Career Development and Promotion - Alumni Center	2015
<b>Panelist</b>   New Non-Tenure Track Faculty Orientation	2015
<b>Member and Chair</b>   Faculty Promotions Committee - Northeastern University	2013-2014; 2015
<b>Host</b>   NGA and USGS Site Visit	2014
<b>Original Member</b>   Faculty Academic Council Working Group - Northeastern University	2014
<b>Organizer and Host</b>   Geospatial Technologies for GeoIntelligence Solutions Seminar	2013
<b>Reviewer</b>   Hydrogeology Journal	2007-2010
<b>Reviewer</b>   Journal of Applied Geophysics	2007-2010
<b>Reviewer</b>   Egyptian Journal of Remote Sensing and Space Sciences	2000-2005

## TECHNICAL SKILLS

ENVI IDL (LiDAR and Feature Analyst) | LAStools | PCI Geomatica | Geospatial Data Abstraction Library (GDAL)  
OpenCV | OpenStreetMap | Spatial Libraries | Decision trees | Rule-Based Systems  
OSGeo Suite (QGIS, PostGIS, Leaflet, GeoMesa, GeoSpark, and GeoWave)  
Esri Suite (ArcMap, ArcSDE, ArcGIS Pro, ModelBuilder, ArcGIS Server, AGOL, ArcPy, and ArcObjects)  
Python | R | HTML 5 | JavaScript | Google Earth Engine (GEE) | GBDX Notebooks | TensorFlow | OpenStack

## THESIS

**Robinson, C.A.** (Year). *The crustal dichotomy of Mars*. University College London - Physics and Astronomy Department, London, ENG, UK.

## ARTICLES

- Abdelsalam, M.G., **Robinson, C.A.**, El-Baz, F., and Stern, R.J. (2001). Applications of orbital imaging radar for geologic studies in Arid regions: The Saharan testimony. *Photogrammetric Engineering & Remote Sensing*, 66(6), 717-726.
- Barlow, N.G., Farr, T., Baker, V.R., Bridges, N., Carsey, F., Duxbury, N., ... Thomson, B. (2001). Community decadal panel for terrestrial analogs to Mars. *Bulletin of the American Astronomical Society*, 33, 1055.
- El-Baz, F., Mainguet, M., and **Robinson, C.A.** (2000). Fluvio-aeolian dynamics in the north-eastern Sahara: Interrelation between fluvial and aeolian systems and implications to ground water. *Journal of Arid Environments*, 44, 173-183.

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- El-Baz, F., **Robinson, C.A.**, Mainguet, M.M., Said, M., Nabih, M., Himida, I.H., ... El-El-Etr, H.A. (2001). Distribution and morphology of palaeo-channels in southeastern Egypt and northwestern Sudan. *Palaeoecology of Africa*, 27, 239-258.
- El-Hage, M., **Robinson, C.A.**, El-Baz, F., and Shaban, A. (2018). Fracture-controlled groundwater seeps into the Mediterranean Sea along the coast of Lebanon, *Hydrogeology Journal*. Manuscript accepted for publication.
- Ghoneim, E., **Robinson, C.A.**, and El-Baz, F. (2007). Radar topography data reveal drainage relics in the eastern Sahara. *International Journal of Remote Sensing*, 28, 1759-1772.
- Hauber, E., Oberst, J., Flohrer, J., Mertens, V., Zaglauer, A., Weiss, M., ... Neukum, G. (1995). High-resolution stereo camera outdoor tests: Verification of geometric and radiometric accuracy. *Bulletin of the American Astronomical Society*, 27(3), 1153.
- Hauber, E., Oberst, J., Flohrer, J., Zhang, W., Sebastian, I., **Robinson, C.A.**, ... Neukum, G. (1998). The high-resolution stereo camera (HRSC) for Mars 96: Results of outdoor tests. *International Archives of Photogrammetry and Remote Sensing*, 31, 349-354.
- Hoffmann, H., **Robinson, C.A.**, and Trauthan, F. (1995). A study of the early utilization of the Russian modules on the international space station for Earth observations. *Phase A1 Study, Adlex Experiment*, 3, 1-13.
- Kusky, T.M., **Robinson, C.A.** and El-Baz, F. (2005). Tertiary-quadernary faulting and uplift in the northern Oman Hajar Mountains. *Journal of Geological Society*, 162, 871-888.
- Nassif, N., Abou Jaoude, L., El-Hage, M., and **Robinson, C.A.** (2016). Data exploration and reconnaissance to identify ocean phenomena: A guide for in-situ data collection. *Journal of Water Resource and Protection*, 8(10), 929-943.
- Robinson, C. A.** and Flewelling, D. (2015). Human-centric data immersion. *State and Future of GEOINT Report*, 1, 1-32.
- Robinson, C. A.** (2016). State of GEOINT: Overall contributor. *State and Future of GEOINT Report*, 2, 1-52.
- Robinson, C.A.** (1995a). The crustal dichotomy of Mars. *Earth, Moon, and Planets*, 69 (3), 249-269.
- Robinson, C.A.** (1995b). The Magellan mission to Venus. *Astronomy Magazine*, (February issue), 32-41.
- Robinson, C.A.** (1998). Potential and applications of radar images in Egypt. *Remote Sensing Journal of Egypt*, 1, 25-56.
- Robinson, C.A.** (2002). Application of satellite radar data suggests that the Kharga depression in southwestern Egypt is a fractured rock aquifer. *International Journal of Remote Sensing*, 23(19), 4101-4113.
- Robinson, C.A.** (2007). Radar data contributes to groundwater exploration in the eastern Sahara. *SPIE Newsroom, Remote Sensing*, DOI: 10.1117/2.1200701.0577.
- Robinson, C.A.** (2018). AI for good. *Takeover Biannual Magazine*, 2, 31-32
- Robinson, C.A.** and El-Baz, F. (2006). Future initiatives in desalination research. *Arab Water World*, 98.
- Robinson, C.A.** and Wood, J.A (1992). Recent volcanic activity on Venus: Evidence from radiothermal emissivity measurements. *Icarus*, 102, 26-39.
- Robinson, C.A.**, El-Baz, F., Al-Saud, T.S.M., and Jeon, S.B. (2006). Use of radar data to delineate palaeodrainage leading into the Kufra Oasis in the eastern Sahara. *Journal of African Earth Sciences*, 44, 229-240.
- Robinson, C.A.**, El-Baz, F., and Mainguet, M. (2006). L'eau une ressource limitée en quantité et en qualité. *Clin d'Oeil*, 3, 16-19.
- Robinson, C.A.**, El-Baz, F., and Seto, K.C. (1997). The role of the image processor in planetary instrument definition. *Bulletin of the Astronomical Society*, 29(3), 971.
- Robinson, C.A.**, El-Baz, F., and Singhroy, V. (1999). Subsurface imaging by Radarsat: Comparison with Landsat TM data and implications to ground water in the Selima Area, Northwestern Sudan. *Canadian Journal of Remote Sensing*, 25(3), 268-277.
- Robinson, C.A.**, El-Baz, F., Kusky, T., Mainguet, M., Dumay, F., Al Suleimani, Z., and Al Marjby, A. (2007). Role of fluvial and aeolian processes in the evolution and origin of the Wahiba Sands: A remote sensing perspective. *Journal Arid Environments*, 69, 676-694.
- Robinson, C.A.**, El-Baz, F., Ozdogan, M., Ledwith, M., Blanco, D., Oakley, S., and Inzana, J. (2000). Use of radar data to delineate palaeodrainage flow directions in the selima sand sheet, eastern Sahara. *Photogrammetric Engineering & Remote Sensing*, 66(6), 745-753.
- Robinson, C.A.**, El-Kaliouby, H., and Ghoneim, E. (2017). Special issue phanerozoic of Egypt: Influence of structures on drainage patterns in the Tushka region, southwest Egypt. *Journal of African Earth Sciences*, 136, 262-271.
- Robinson, C.A.**, Thornhill, G.D., and Parfitt, E.A. (1995). Large-scale volcanic activity at Maat Mons: Can this explain the fluctuations in atmospheric chemistry observed by Pioneer Venus. *Journal Geophysical Research*, 100, 11755-11763.
- Robinson, C.A.**, Werwer, A., El-Baz, F., El-Shazly, M., Fritch, T., and Kusky, T. (2007). The Nubian aquifer in southwest Egypt. *Hydrogeology Journal*, 15, 33-45.

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- Sarojak, M., Kepner, D., Tracy, R., **Robinson, C.A.**, Gruber, C., and Feldman, D. (2018). An orchestra of machine intelligence: What the future might hold for intelligence analysis. *State and Future of GEOINT Report*, 4, 47-49.
- Shaban, A., **Robinson, C.A.**, and El-Baz, F. (2009). Using MODIS images and TRMM data to correlate rainfall peaks and water discharges from Lebanese coastal rivers. *Journal of Water Resource and Protection*, 1(4), 10.
- Stewart, C.A., Rampino, M.R., and **Robinson, C.A.** (1993). Impact shocks in the transition zone: Enough energy to trigger a plume? Venus coronae linked to missing population of large Venus impact craters? *EOS Supplement*, 26, 80.

## BOOKS

### Article or Chapter in an Edited Book

- El-Baz, F., **Robinson, C.A.**, and Al-Saud, T.S.M. (2007). Radar images and geoarchaeology of the eastern Sahara. In F. El-Baz and J. Wiseman (Eds.), *Remote sensing in archaeology* (47-70). New York, NY: Springer Science and Business Media, LLC.
- Robinson, C.A.** (2002). The future of solar system exploration. In M.V. Sykes (Ed.), *Terrestrial analogs to Mars* (35-76). San Francisco, CA: The Astronomical Society of the Pacific, ASP Conference Series.
- Vita-Finzi, C., Howarth, R. J., Tapper, S., and **Robinson, C.A.** (2005). Plates, plumes and paradigms. In G.R. Foulger, J.H. Natland, D.C. Presnall, and D.L. Anderson (Eds.), *Venusian craters and the origin of coronae* (815-824). Boulder, CO: Geological Society of America.

### Edited Book with an Author or Authors

- Robinson, C.A.** (2000). *Digital image processing contributor to atlas of the state of Kuwait from satellite images*. F. El-Baz and M. Al-Sarawi (Eds.). Safat, Kuwait: Kuwait Foundation for the Advancement of Sciences.
- Robinson, C.A.** (2001). *Definition contributor to dictionary of geophysics, astrophysics, and astronomy*. R.A. Matzner (Eds.). Boca Raton, FL, USA: CRC Press.
- Robinson, C.A.** (2002). *Digital image processing contributor to Wadis of Oman, satellite image atlas*. F. El-Baz (Eds.). London, ENG, UK: Sultanate of Oman, Office of the Advisor to His Majesty the Sultan for Cultural Affairs.

## CONFERENCE PAPERS AND PRESENTATIONS

### Conference Presentation

- Bergen, K.M., **Robinson, C.A.**, DeRoo, R., and Pierce, L.E. (1998). *SIR-C analysis of Desert Sabkha*. Paper presented at the IEEE Geoscience and Remote Sensing Symposium, Seattle, WA, USA.
- El-Baz, F. and **Robinson, C.A.** (1997). *Inferences of Palaeotopography from Palaeochannels revealed by SIR-C data in the Western Desert of Egypt: Implications to sand dune accumulation*. Paper presented at the Proc. of the 12<sup>th</sup> International Conference Applied Geologic Remote Sensing, Denver, CO, USA.
- El-Hage, M., **Robinson, C.A.**, and El-Baz, F. (2016). *Geospatial innovation and water security: The Coastal MENA Region*. Symposium: Offshore springs 7th - 8th November 2016 Quryat Muscat Governorate, Sultanate of Oman, Muscat, Oman.
- El-Kaliouby, H., **Robinson, C.A.**, and Ghoneim, E. (2016). *Integration of remote sensing and geophysics for groundwater exploration in Tushka area, Egypt, ISNET/NARSS workshop on SAR remote sensing and ground-penetration radar*. National Authority for Remote Sensing and Space Sciences, Cairo, Egypt.
- Fielding, L.W. and **Robinson, C.A.** (1999). *Application of integrated directional filtering (IDF) to radar data for drainage and structure identification*. Paper presented at the Proceeding of the 13<sup>th</sup> International Conference Applied Geologic Remote Sensing Volume II, Vancouver, BC, Canada.
- Gale, J., **Robinson, C.A.**, and Jackson, R. (2015). *Enhanced situational awareness for C4ISR: Automated feature extraction from full motion video*. Intelligence Community Academic Research Symposium, ICARS, NGA, National Academy of Sciences, Washington, DC, USA.
- Johnson, C. and **Robinson, C.A.** (2018). *Building change detection with LiDAR point clouds*. Paper presented at the GEOINT Foreword, Tampa, FL, USA.

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- Kusky, T., **Robinson, C.A.**, El-Baz, F., Considine, P., Blanco, D., Ledwith, M., and Ozdogan, M. (1998). *Tertiary and quaternary faulting in the Northern Oman Mountains*. Paper presented at the The Geological Society of America (GSA) Annual Meeting, Toronto, ON, Canada.
- Morency, R.E. and **Robinson, C.A.** (1996). *Desert pavement as an indicator of ground-water accumulation: Evidence from multispectral Landsat and SIR-C radar data*. Paper presented at the International Geological Correlations Program (IGCP): Project 391, ROSTAS/UNESCO, Cairo, Egypt.
- Robinson, C.A.** (1990a). *The highland-lowland boundary formed on Mars between the late Noachian and early Hesperian*. Paper presented at the LPSC XXI, Houston, TX, USA.
- Robinson, C.A.** (1990b). *Water and evolving magma bodies on Mars*. Paper presented at the Lunar and Planetary Institute (LPI), Houston, TX, USA.
- Robinson, C.A.** (1993). *Subduction on the margins of Coronae on Venus: Evidence from radiothermal emissivity measurements*. Paper presented at the LPSC XXIV, Houston, TX, USA.
- Robinson, C.A.** (1994). *The weathering process on Venus takes 2-3 hundred million years: Evidence from radiothermal emissivity signatures at Coronae*. Paper presented at the LPSC XXV, Houston, TX, USA.
- Robinson, C.A.** (2001). *Sinistral movement along the Maradi fault, Oman: Evidence from SIR-C radar data*. Paper presented at the GSA Annual Meeting, Boston, MA, USA.
- Robinson, C.A.** (2017). *Geographic information technology masters capstone project: Northeastern University*. Paper presented at the Annual Meeting of American Association of Geography (AAG), Boston, MA, USA.
- Robinson, C.A.** and El-Baz, F. (1998). *Radarsat images of the Eastern Sahara: Implications for ground-water resources*. Paper presented at the Radarsat ADRO Symposium, Montreal, Canada.
- Robinson, C.A.** and El-Baz, F. (1999). *Relationships between fluvial features, topographic depressions and sand accumulations: Implications for groundwater reserves on Earth and permafrost in the north polar region of Mars*. Paper presented at the EOS Transactions: AGU Spring Meeting, Boston, MA, USA.
- Robinson, C.A.** and Kusky, T. (1998). *Tertiary sinistral movement along the Maradi Fault, Oman: Evidence from SIR-C radar data*. Paper presented at the The Geological Society of America (GSA) Annual Meeting, Toronto, ON, Canada
- Robinson, C.A.** and Kusky, T. (1999). *Results of structural mapping using radarsat data obtained for the sleetmute and Medfra areas, Alaska*. Paper presented at the GSA Annual Meeting, Boston, MA, USA.
- Robinson, C.A.** and Thornhill, G.D. (1994). *SO<sub>2</sub> and CH<sub>4</sub> levels in the Venusian atmosphere, measured by pioneer Venus: Caused by Plinian-style volcanic activity at Maat Mons?* Paper presented at the LPSC XXV, Houston, TX, USA.
- Robinson, C.A.** and Wood, J.A. (1992). *Recent volcanic activity on Venus: Evidence from emissivity measurements*. Paper presented at the LPSC XXIII, Houston, TX, USA.
- Robinson, C.A.**, and El-Baz, F. (1997). *A lake beneath the Selima Sand Sheet, Southwest Egypt: Evidence from Radarsat data*. Paper presented at the Geomatics in the Era of Radarsat, Ottawa, ON, Canada.
- Robinson, C.A.**, Buynevich, A., El-Baz, F., and Shaban, A. (2005). *Integrative remote sensing techniques to detect coastal freshwater seeps*. Paper presented at the Geological Society of America, Salt Lake City, UT, USA.
- Robinson, C.A.**, Cook, A.S., and Zeitler, W. (1996). *Semi-automated extraction of DEMs for studies of Ares Vallis using Viking orbiter imagery*. Paper presented at the LPSC XXVII, Houston, TX, USA.
- Robinson, C.A.**, El-Baz, F., and Mainguet, M. (2004). *The development of the Wahiba sands, northeastern Oman: A remote sensing perspective*. Paper presented at the 32<sup>nd</sup> International Geological Congress, Muscat, Oman.
- Robinson, C.A.**, El-Baz, F., and Seto, K.C. (1996). *Imaging radar (SIR-C) data of the Eastern Sahara*. Paper presented at the International Geological Correlations Program (IGCP): Project 391, Regional Office for Science and Technology in the Arab States/The United Nations Educational, Scientific and Cultural Organization (ROSTAS/UNESCO), Cairo, Egypt.
- Robinson, C.A.**, El-Baz, F., Jeon S., and Mainguet, M. (2005). *Role of fluvial and aeolian processes in the evolution and origin of the Wahiba sands*. Paper presented at the IGARSS, City, South Korea.
- Robinson, C.A.**, El-Hage, M., El-Baz, F., and Beighley, E. (2016). *Geospatial innovation and water security: The Coastal MENA Region*. 2nd Annual Intelligence Community Academic Research Symposium 20-23rd Sept, Keck Center, Washington, DC, USA
- Robinson, C.A.**, El-Kaliouby, H., Hanafy, S., Nabawy, B., and Ghoneim, E. (2007). *Influence of structures on drainage patterns in the Tushka region, SW Egypt*. Paper presented at the GSA Annual Meeting Abstracts with Programs, Denver, CO, USA.
- Robinson, C.A.**, Grippa, F., Lee, C., Avalon, E., and Edmonds, P. (2018). *Massachusetts opioid crisis: Spatial data-driven approaches for community resilience initiatives*. Paper presented at the URISA, Palm Springs, CA, USA.

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- Robinson, C.A.,** Hoffman, H., Cook, A.S., and Neukum, G. (1995). *Crater count results and digital terrain models for Ares Vallis, Mars*. Paper presented at the Vernadsky-Brown Microsymposium, Moscow, Russia.
- Robinson, C.A.,** Kluckhuhn, C., and Jackson, R. (2015). *Enabling faster delivery of GEOINT: Situational awareness via secure data links, examples from the Boston Marathon 2015*. Paper presented at the GEOINT Foreword Lightning Talks: USGIF's GEOINT Symposium, Washington DC, USA.
- Robinson, C.A.,** Kusky, T., El-Baz, F., and El-Etr, H. (1999). *Using radar data to assess structural controls from variable channel morphology: Examples from the Eastern Sahara*. Paper presented at the Proc. of the 13<sup>th</sup> International Conference Applied Geologic Remote Sensing.
- Robinson, C.A.,** Mainguet, M., and El-Baz, F. (1999). *Channel morphologies observed in radar data: Implications for the development of the Selima Sand Sheet*. Paper presented at the Proceedings of the 13th International Conference Applied Geologic Remote Sensing, Vancouver, BC, Canada.
- Robinson, C.A.,** McRoberts, P., and Barr, T. (2018). *Quantitative and qualitative approaches to measure urban resiliency*. Paper presented at the AAG, NGA-ORNL Session: 2018 Annual Meeting, New Orleans, LA, USA.
- Robinson, C.A.,** Neukum, G., Marchenko, A., Basilevsky, A.T., and Ori, G.G. (1996). *A suggested geological development for Ares Vallis, Mars*. Paper presented at the LPSC XXVII, Houston, TX, USA.
- Robinson, C.A.,** Werwer, A., El-Baz, F., El-Shazly, M., Ghoneim, E., and El-Kaliouby, H. (2006). *Remote sensing to support a better hydrogeological understanding of the Nubian aquifer systems in the western desert of Egypt*. Paper presented at the GSA Annual Meeting Abstracts with Programs, Houston, TX, USA.
- Robinson, C.A.,** Werwer, A., El-Shazly, M., El-Baz, F., Buynevich, A., and Kusky, T. (2006). *Effects of fluvial and structural controls on the Nubian aquifer system in SW Egypt (western desert)*. Paper presented at the 8th International Conference on the Geology of The Arab World, Cairo, Egypt.
- Seto, K.C., **Robinson, C.A.,** and El-Baz, F. (1997). *Digital image processing of Landsat and SIR-C data to emphasize drainage patterns in Southwestern Egypt*. Paper presented at the Proc. of the 12<sup>th</sup> International Conference Applied Geologic Remote Sensing, Denver, CO, USA.
- Shaban, A., **Robinson, C.A.,** and El-Baz, F. (2007). *Using TRMM and MODIS space tools to monitor precipitation versus water flow from the Lebanese coastal rivers*. Paper presented at the Space Tools and Solutions for Monitoring the Atmosphere in Support of Sustainable Development, Graz, Austria.
- Shaban, A., **Robinson, C.A.,** El-Baz, F., and Al-Sulaimani, Z. (2006). *Using thermal imagery to identify water seeps into the sea: a comparative analysis to Lebanon and the Omani Gulf-Arabian Sea coasts*. Paper presented at the 6th International Conference on the Geology of the Middle East, Al-Ain, UAE.
- Vita-Finzi, C., Howarth, R.J., Tapper, S., and **Robinson, C.A.** (2004). *Venusian craters and the origin of coronae*. Paper presented at the LPSC XXXV, Houston, TX, USA.
- Wiseman, J. **Robinson, C.A.** and Stein, C. (1998). *Archaeological applications of radar imagery in Northwestern Greece*. Paper presented at the Radarsat ADRO Symposium, Montreal, Canada.
- White, E., **Robinson, C.A.,** and Gale, J. (2015). *Automated feature extraction techniques to identify flood extent in Minot, North Dakota*. ENVI Analytics Symposium Exelis, Boulder Colorado Conference, Non-Academic, Boulder, CO, USA.

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## GRANTS

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*Project Name:* **Massachusetts Opioid Crisis: Spatial Data-driven Approaches for Community Resilience Initiatives** 2018–Present

*Role:* Principal Investigator

*Role(s) of Other Collaborator(s):* Co-Principal Investigator: Francesca Grippa, Earlene Avalon, and Christina Lee

*Funding Source:* Global Resilience Institute

*Funded Grant Amount:* \$10,000.00

*Objective:* Expansion and scale of evidence-based efforts to deploy a strategy against opioids, substance abuse, and rising overdose rates. The goal is to prioritize prevention, reduce risk factors, and promote resilient approaches for impacted groups

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*Project Name:* **USGIF Accreditation** 2014–Present

*Role:* Principal Investigator

*Role(s) of Other Collaborator(s):* Co-Investigator: Dr. Craig Gruber

*Funding Source:* USGIF

*Funded Grant Amount:* \$300,000 (in gifted software)

*Objective:* Matches knowledge and skills needed in the professional workforce with the education and training provided to students. The program benefits the students, colleges, universities, industry, government, and the GEOINT Community at large, by ensuring current hiring needs are reflected in cross-disciplinary classroom coursework.

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*Project Name:* **Massachusetts Opioid Crisis: Spatial Data-driven Approaches for Community Resilience Initiatives** 2018

*Role:* Principal Investigator

*Role(s) of Other Collaborator(s):* Co-Principal Investigator: Francesca Grippa, Earlene Avalon, Christina Lee, Parker Edmonds

*Funding Source:* Faculty Fund, Northeastern University

*Funded Grant Amount:* \$1,995.00

*Objective:* URISA travel grant to present work. Expand and scale evidence-based efforts to deploy a strategy against opioids, substance abuse, and rising overdose rates. The goal is to prioritize prevention, reduce risk factors, and promote resilient approaches for impacted groups.

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*Project Name:* **NGA-USGS Geospatial Center of Excellence** 2014–2018

*Role:* Principal Investigator

*Role(s) of Other Collaborator(s):* Co-Investigator: Dr. Craig Gruber

*Funding Source:* NGA-USGS

*Objective:* To assist NGA and USGS develop state-of-the-art geospatial sciences technologies and tradecraft.

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*Project Name:* **Developing Algorithms on Geospatial Data** 2017

*Role:* Principal Investigator

*Role(s) of Other Collaborator(s):* Co-Principal Investigator: Colin Johnson and Leonard Perlovsky

*Funding Source:* National Geospatial-Intelligence Agency

*Objective:* 3D volumetric change detection using LiDAR technologies

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*Project Name:* **Large-scale GIT Initiative** 2017

*Role:* Principal Investigator

*Role(s) of Other Collaborator(s):* Co-Investigator: Dr. Max Baber

*Funding Source:* Faculty Fund

*Funded Grant Amount:* \$10,490.00

*Objective:* Attendance at conference venues by Dr. Baber to enable relentless visibility during the high-growth phase of this industry prior to its anticipated full integration of core business processes of large and medium-sized firms



# CORDULA ROBINSON

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**Project Name: Geospatial Innovation to Create a Groundwater Potentiality Map for the MENA Region (Lebanon, Jordan, Morocco, West Bank and coastal Egypt) and Guide Sustainable Practices to Secure Water for Food** 2016

Role: Principal Investigator

Role(s) of Other Collaborator(s): Co-Investigator: Dr. Nadine Nassif and Mhamad El-Hage

Funding Source: Faculty Fund

Funded Grant Amount: \$2,615.00

Objective: Examine new management approaches expected to facilitate cost-saving practices in terms of the ability to assess water availability and location attributes in the MENA region. The work outlined can contribute to improvements in infrastructure and sustainable water practices and could have considerable impact in resource-management decisions.

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**Project Name: Crisis Mapping for Humanitarian Action: Applications of New Information Communication Technologies** 2015

Role: Co-Principal Investigator

Role(s) of Other Collaborator(s): Co-Principal Investigator: Joseph Guay

Funding Source: CATS Foundation

Funded Grant Amount: \$5,000.00

Objective: Applications of New Information Communication Technologies (ICTs) and methods using open source software and digital crowd-sourced methods

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**Project Name: Education Alliance Agreement with PCI Geomatica** 2007–2015

Role: Principal Investigator

Funding Source: PCI Geomatica

Funded Grant Amount: \$832,500.00

Objective: Foster information exchange and collaboration - researchers use software to support their ongoing research programs. In exchange, PCI receive information about research conducted with its software.

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**Project Name: RADARSAT-2 Multi-Polarization Data for Groundwater Exploration, Darfur, Sudan** 2006–2010

Role: Principal Investigator

Role(s) of Other Collaborator(s): Farouk El-Baz

Funding Source: Radarsat-2

Funded Grant Amount: \$12,000.00

Objective: Results used as a basis for developing sustainable water management practices in the Darfur Province with the view that areas with enhanced groundwater represent the best locations for agricultural development.

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**Project Name: Influence of Structures on Drainage Patterns in the Tushka Region, Southwest Egypt** 2005–2008

Role: Principal Investigator

Role(s) of Other Collaborator(s): Co-Principal Investigator: Hesham El-Kaliouby and Eman Ghoneim

Funding Source: NSF S&T Fund, US-Egypt Joint Board

Funded Grant Amount: \$60,000.00

Objective: New methodology to obtain an improved, quantitative understanding of the groundwater aquifers.

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**Project Name: Ports, Customs, and Free Zone (PCFZ) Corporation Project, Advising the PCFZ Regarding the Dubai Technology Park and environmental change remote sensing studies of Dubai** 2004–2007

Role: Co-Principal Investigator | Principal Scientist

Role(s) of Other Collaborator(s): Farouk El-Baz, Principal Investigator

Funding Source: Techno Park, Dubai

Funded Grant Amount: \$188,311.00

Objective: Creation of movie, utilizing satellite images, documenting changes over the Palm. Impervious surface mapping via decision-tree classifications

# CORDULA ROBINSON

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*Project Name:* **Near-Surface Drainage within a Groundwater Basin in Southwest Egypt Using Radar Images** 2004–2006

*Role:* Principal Investigator

*Role(s) of Other Collaborator(s):* Farouk El-Baz, Ali Werwer, Mohamed Shazly

*Funding Source:* NSF S&T Fund, US-Egypt Joint Board

*Funded Grant Amount:* \$60,000.00

*Objective:* Integrative workflows for Synthetic Aperture Radar (SAR) images, and topographic and groundwater data to understand heterogeneities of the Nubian Aquifer between 20–24.5°N and 25–32°E in southwest Egypt.

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*Project Name:* **Boston University-U.A.E. Project**

**Use of Space Images for Groundwater Exploration in the Northern United Arab Emirates** 2001–2005

*Role:* Co-Principal Investigator

*Role(s) of Other Collaborator(s):* Farouk El-Baz, *Principal Investigator*

*Funding Source:* Sharjah Electricity and Water Authority

*Funded Grant Amount:* \$1,747,476.00

*Objective:* Applying spatial data-driven innovative approaches, and satellite information-extraction techniques, to identify the potential of ground-water resources in the Northern Emirates of the UAE.

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*Project Name:* **Boston University-Omani Ministry of Water Resource Proposal**

**Utilizing Satellite Images for Groundwater Exploration in the Sultanate of Oman** 1996–2000

*Role:* Research Scientist

*Role(s) of Other Collaborator(s):* Farouk El-Baz, *Principal Investigator*

*Funding Source:* Oman's Ministry of Water Resources

*Funded Grant Amount:* \$3,000,000.00

*Objective:* Long and near-term planning for groundwater potential in Oman using multi--source satellite data, geophysics and ground-reference data (GPS)

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*Project Name:* **USGS Venture Capital Fund**

**Synthetic Aperture Radar as an aid to Reconnaissance Geologic Mapping in Alaska** 1998

*Role:* Co-Investigator

*Role(s) of Other Collaborator(s):* Dr. T. Kusky, *Principal Investigator*

*Funding Source:* USGS Venture Capital Fund

*Funded Grant Amount:* \$10,000.00

*Objective:* SAR technologies for remote analysis or geologic mapping and identification of prospective areas for base and precious metal deposits in remote parts of Alaska

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*Project Name:* **DARA: Mars 1996 HRSC Airplane Experiment over Etna** 1996

*Role:* Research Scientist

*Role(s) of Other Collaborator(s):* Dr. G. Neukum, *Supervisor*

*Funding Source:* Deutsches Zentrum für Luft- und Raumfahrt (DLR)

*Funded Grant Amount:* \$10,000.00

*Objective:* High-resolution stereo camera tests and data analysis in preparation for Mars 1996 mission, later Mars Express

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*Project Name:* **NASA Venus Data Analysis Program: A Study of the Electrical Properties and Mineralogy of the Surface of Venus** 1991–1993

*Role:* Postdoctoral

*Role(s) of Other Collaborator(s):* Dr. John A. Wood, *Supervisor*

*Funding Source:* Harvard-Smithsonian Center for Astrophysics

*Funded Grant Amount:* \$350,000

*Objective:* Detailed studies of the relationship between altitude, geological context displayed in SAR images, and emissivity as recorded by the Magellan dataset

# CORDULA ROBINSON

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*Project Name:* **University College London Supporting Ph.D. Fund** 1991

*Role:* Researcher

*Role(s) of Other Collaborator(s):* Supervisor: Dr. John Guest

*Funding Source:* University College London

*Funded Grant Amount:* £2,000.00

*Objective:* To understand the crustal dichotomy of Mars through Viking image analysis

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*Project Name:* **National Environmental Research Council (NERC) Ph.D. Grant** 1987-1990

*Role:* Researcher

*Role(s) of Other Collaborator(s):* Dr. John Guest, Supervisor

*Funding Source:* NERC

*Funded Grant Amount:* 19500 pounds

*Objective:* To understand the crustal dichotomy of Mars through Viking image analysis