IEEE GHTC 2023

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13th IEEE Global Humanitarian Technology Conference

October 11-14, 2023 | Villanova University, Pennsylvania, USA

GHTC 2023 Report

The 2023 IEEE Global Humanitarian Technology Conference (IEEE GHTC 2023) was the 13th annual international flagship conference sharing practical technology enabled solutions addressing the needs of underserved populations and resource constrained environments around the world and the United Nations Sustainable Development Goals (UNSDG).

IEEE GHTC 2023 was in-person, with access for remote author presentations. GHTC 2023 was held on October 11-14, 2023 at the Inn at Villanova University, Philadelphia. The original plan was October 12-15, but there were problems with the venue availability so we ended on the 14th. October 11 was for pre-conference events – workshops and the opening poster display and reception.

Student Poster Contest

The Student Poster Contest was not held. Instead, a general poster display open to any participant was held on October 11.

PROGRAM SUMMARY

GHTC 2023 featured 3 ½ days of workshops, events, keynotes, panels, technical sessions and exhibits.

The first day of GHTC 2023 featured two Workshops, Networking Social and Special Event.

- A Roadmap for Geospatial Analysis, presented by Mathworks
- Exploring Challenges in Education and Research When Advancing Technology for Humanitarian Efforts, presented by Elsevier

The conference program included 12 keynote and plenary presentations by professionals from academia, industry, and non-profit organizations.

Our keynote and plenary speakers were: Jordan Ermilio, Villanova University, Varun Loomba, Global Himalayan Expedition (GHE), Mou Riiny, SunGate Solar Ltd, South Sudan and Dr. Krista Donaldson, Stanford University.

The conference program included three panels: IEEE Humanitarian Panel, Connectivity Panel and Young Professionals Panel.

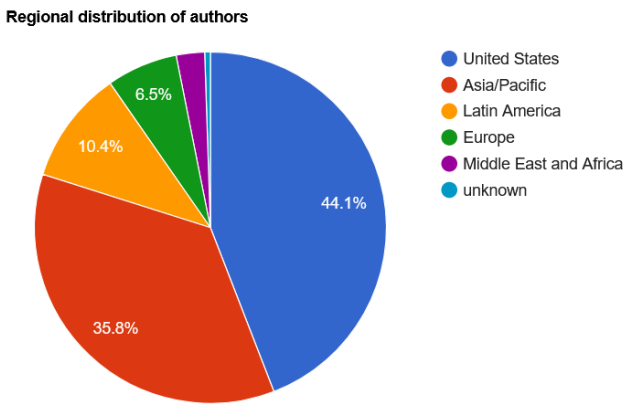
Papers: Over 80 papers in 10 tracks; on-site and remote presentations:

Thematic Area	Final Papers Accepted
1A: Applying Technologies to Global Development Issues	7
1B: Critical Improvements in Energy Efficiency	9
2A: Apps for All	9

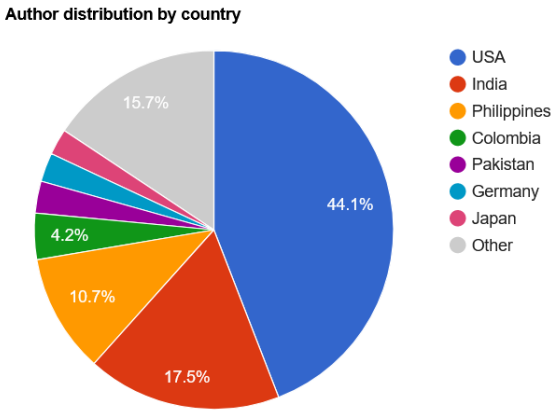
2B: Modeling Opportunities in Global Development	9
3A: Gender Equity through Technology	6
3B: Small farmer AgTech	6
4A: Strategic Ideas for Global Development	10
4B: AI for Impact	9
5A: EdTech Everywhere	10
5B: Critical Role of Sensing and Monitoring	8
Poster Session	4

AUTHORS:

- 383 Authors of accepted papers
- 135 Submissions; 91 Accepted
- Acceptance ratio: 70%



Region	Authors	%
United States	169	44.1
Asia/Pacific	137	35.8
Latin America	40	10.4
Europe	25	6.5
Middle East and Africa	10	2.6
unknown	2	0.5
Total	383	



Country	Authors	%	Papers
USA	169	44.1	42
India	67	17.5	14
Philippines	41	10.7	7
Colombia	16	4.2	4
Pakistan	11	2.9	3
Germany	10	2.6	2
Japan	9	2.3	2
Other	46	11.7	14

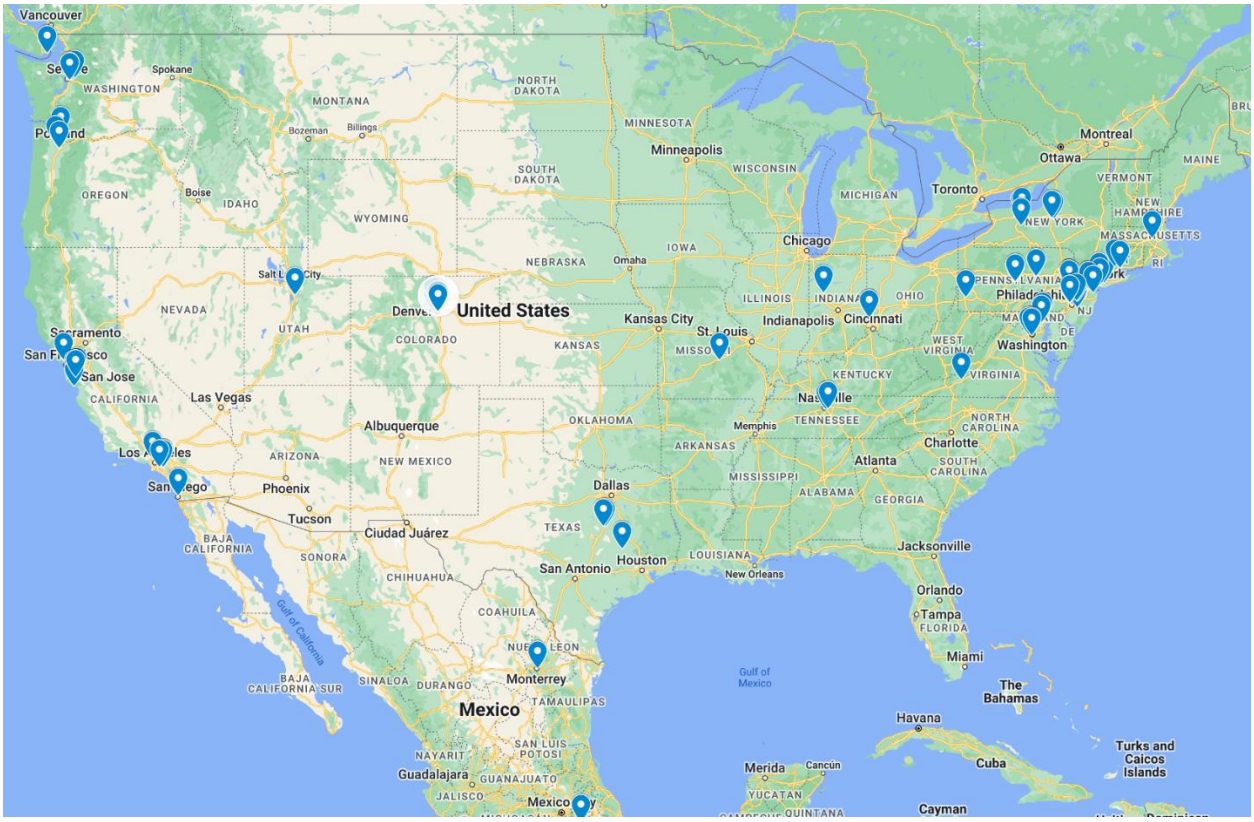
ATTENDEES

- Total 127 attendees (26 virtual).
- 94 (74%) attended GHTC for the 1st time
- 70 are non-IEEE members (55%)
- 35 Virtual Paper presentations (44%)

Geographical distribution of attendees

Worldwide

United States Attendees



SPONSORS

WORKSHOPS

Wednesday afternoon featured these afternoon workshops included with GHTC full registration:

- A Roadmap for Geospatial Analysis, presented by Mathworks
- Exploring Challenges in Education and Research When Advancing Technology for Humanitarian Efforts, presented by Elsevier

PANEL SESSIONS

IEEE Humanitarian Panel

- Stephanie Gillespie, EPICS in IEEE Committee Chair, and Associate Dean, Tagliatela College of Engineering, University of New Haven in West Haven, CT, USA
- Kit August, IEEE Humanitarian Technology Board, Stevens Institute of Technology, Hoboken, NJ USA
- Ed Rezek, IEEE Smart Village, Northrop Grumman Space Technology (retired), Redondo Beach, CA, USA

Connectivity Panel

- Mei Lin Fung, People-Centered Internet
- Chris Clement Igiraneza, KIT-HUB, Burundi

Young Professionals Panel

- Kory Hansen, Counterpart International
- Wayne Lifshitz, Chemonics Inc
- Ben Savonen, Global Development Incubator

PLENARY and KEYNOTE SPEAKERS

Opening Session

- Jordan Ermilio, Villanova University
- Varun Loomba, Global Himalayan Expedition (GHE)
- Mou Riiny, SunGate Solar Ltd, South Sudan

Conference Banquet

- Dr. Krista Donaldson, Stanford University

Keynote and Plenary Speakers

Jordan Ermilio

Varun Loomba

Krista Donaldson

Stephanie Gillespie

Kit August

Mei Lin Fung

Chris Clement Igiraneza

Kory Hansen

Wayne Lifshitz

Ben Savonen

AWARDS

The IEEE Society on Social Implications of Technology (SSIT) generously funded best paper & poster awards.

SSIT Student Poster Awards

	"SicklED: Low-Cost, Point-of-Care, Sickle Cell Screening Device for Use in Low-to-Middle Income Countries" Lehigh University: Lauryn Jones, Jake Feuerstein, and Chibugo Okeke (pictured), Alice Chen, Anjali Shah, Norman Zvenyika, Aiden McCurley, Kathleen Gifford, Hamsa Javagal, and Quan Hoang With Pritpal Singh, GHTC 2023 Chair and Prasanta Ghosh, SSIT
	"The Ecological Impacts of Red-Billed Quelea Birds" The Pennsylvania State University: Alexander Aumen, Gianna Gagliardi, Colleen Kinkead, Van Nguyen, Kaylee Smith, John Gershenson Ph.D. With Pritpal Singh, GHTC 2023 Chair and Prasanta Ghosh, SSIT

SSIT Best Paper Awards

	"How Teacher Feedback Helped Reimagine, Redesign, and Recode a Sustainability Education App", Akanksha Y Gavade, Andrew W Leaventon, Hayden Ossinger, Saik A Jalal, Malika Buribayeva, Allison J Bronson, Chingiz Tuleubayev, Lehigh University

	"Investigating the Feasability of Crowdsourcing Current Events Information in Kenya", Sonika Kohli, Eric Leon and Hayes Rakvin (Penn State, USA); Dorcas Owino (LakeHub, Kenya); John Gershenson, The Pennsylvania State University

WORKSHOPS – Abstracts

A Roadmap for Geospatial Analysis
Pre-conference Workshop Wed. Oct 11, 2:30-4:00 PM
Dr. Laura Sammon, MathWorks

Overview:
This workshop covers key features in MATLAB for analyzing geospatial data, including import, manipulation, and export of file types used in GIS and Google Earth applications.

Agenda:
Accessing and visualizing different types of data is crucial for understanding the impact natural hazards can have on a region. However, sometimes just gathering and processing the data can result in time consuming hurdles.

MATLAB has many capabilities for working with and visualizing data, including multiple new functions and features that make handling and viewing geospatial data much easier – and require much less coding.

During this workshop, we will use MATLAB to study the risk of natural hazards such earthquakes, tsunamis, and landslides in Southeast Asia. This case study will demonstrate how to:

- Access and import geospatial data, such as netCDF, .shp, .xml, and Landsat imagery
- Experiment with different map projections and display techniques
- Display web map data with layers superposed
- Manage large datasets
- Automate your data analysis and visualization routines

Exploring Challenges in Education and Research When Advancing Technology for Humanitarian Efforts
Pre-conference Workshop Wed. Oct 11, 4:00-5:00 PM

Description:
Don't miss out on the opportunity to join our engaging "Discovery Workshop", tailored exclusively for GHTC conference attendees. Hosted by Elsevier, a global leader in information analytics, this workshop is dedicated to unraveling and addressing challenges that arise in education and research when propelling technology for humanitarian purposes.

Here are reasons for you to join this workshop:

- Interactive Sessions: Participate in fruitful dialogues and group discussions aimed at examining issues related to education and research concerning the application of technology for humanity's

benefit. Share your experiences, learn from your peers, and add to our collective understanding of the field.

- Insightful Trends: Gain insights into what's currently trending in humanitarian technology, giving you a competitive edge in your own research and applications. Understand how evolving technologies can be harnessed to solve real-world challenges.
- Knowledge Sharing: Interact with Elsevier's product team, who are deeply committed to collaborating with academic communities. They aim to share their industry knowledge, shedding light on the best practices and trends in the field.
- Collaborative Opportunities: We are also looking to build a team of early adopters or evangelists from our attendees, to serve as a customer panel for future initiatives. If you have a passion for making a difference, this could be your chance to take a leading role.

Aligned seamlessly with the mission and themes of the GHTC 2023 conference, this workshop aims to:

- Provide a platform to share challenges, ideas, and lessons learned from applying technologies for humanitarian purposes in education and research.
- Invite attendees to form a collaborative group dedicated to developing better solutions for education and research.

2023 SPONSORS

Financial:

IEEE Region 6 | IEEE Philadelphia Section | IEEE SSIT Society on Social Implications of Technology

Grants & Patrons:

IEEE Humanitarian Technologies Board	EPICS IN IEEE
Electron Devices Society	Villanova University
IEEE Foundation 50 Years – Reflecting on 50 Years of Impact	Elsevier

Technical: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