

ISPRS GSW2023

"Remote Sensing for Better Future"

TIF Travel Grant Report by Tamer Saleh and Shima Holail

Under the theme "Remote Sensing for Better Future," the fifth Geospatial Week (ISPRS GSW2023) was jointly sponsored by the International Society for Photogrammetry and Remote Sensing (ISPRS) and the Arab Academy for Science, Technology, and Maritime Transport (AASTMT) in Cairo, Egypt. The conference drew nearly a thousand researchers from across the globe who presented their research papers, turning it into a significant academic celebration within the fields of surveying, mapping, and remote sensing. Over 20 workshops were organized throughout the conference duration, encompassing a wide range of cutting-edge topics. Participants engaged in open discussions, fostering meaningful communication and shared learning experiences. The warm and inviting academic atmosphere left a lasting impression on all attendees, comprising scientists representing more than 50 countries and regions.



The support provided by the ISPRS Foundation in the form of a travel grant was instrumental in making our participation in the 5th Geospatial Week (ISPRS GSW2023) in Cairo, Egypt, a reality. This invaluable assistance has not only supported our academic and professional growth but has also allowed us to establish lasting connections with colleagues from all over the world. We are immensely grateful for this support, which has had a profound and positive impact on our careers and research endeavors. We look forward to continuing our engagement with the ISPRS Foundation and contributing to the advancement of geospatial science.

We would like to take this opportunity to share our experience and impressions from the 5th Geospatial Week (ISPRS GSW2023), which made its debut in Africa and the Middle East from September 2nd to 7th. This event proved to be exceptional in every regard. As Ph.D students specializing in photogrammetry and remote sensing at the LIESMARS laboratory, Wuhan University, China, attending an ISPRS conference for the first time was a significant milestone for us. We were delighted that the 5th Geospatial Week (ISPRS GSW2023) took place in our home country, Egypt, and we were even more thrilled to be part of this global forum. It has been our pleasure and a great honor. We dedicated significant effort to prepare our contributions and share our research with colleagues

and evaluators from around the world. During our participation in this event, we were deeply impressed by the quality of information presented and the overall organization. The breadth of topics covered in both oral and poster presentations aligned closely with our field of interest, and we gained valuable insights into the latest scientific and technological developments in remote sensing. The 5th Geospatial Week also provided an excellent opportunity to connect with professionals and scientists who have the potential to contribute to our career advancement through collaboration and business opportunities. In essence, it was a platform where knowledge and expertise converged to fuel innovation and progress in our field.

In conclusion, we firmly believe that the 5th ISPRS Geospatial Week in Cairo significantly contributed to our professional development in multiple ways. We cannot emphasize enough how privileged we feel to have been able to attend this outstanding event. We would like to take this opportunity to extend our heartfelt congratulations to everyone who played a role in making this event possible. Your efforts have made a lasting impact on our academic and professional journey, and for that, we are profoundly grateful.

Pre-Conference

On the first day, both in the Saturday morning and afternoon sessions, we seized the opportunity to attend three highly informative tutorials. These tutorials included:

- 1) "Deep Learning in Remote Sensing: Algorithms and Applications," presented by Henry Leung, Professor of Electrical and Software Engineering at the University of Calgary, Canada.
- 2) "UAV-based 3D Mapping using Imaging and LiDAR Systems: Challenges, Data Processing, and Applications," delivered by Ayman Habib, Professor in Civil Engineering at the Lyles School of Civil Engineering, Purdue University, USA.
- 3) "Sensor Fusion for Mapping and Navigation," conducted by Mohamed Mostafa, the Lead Technical Authority in Mobile Mapping at Trimble Applanix.



Each tutorial began with a comprehensive theoretical introduction, elucidating the algorithmic steps typically involved in most workflows. Subsequently, the presenters showcased practical solutions using a variety of datasets, spanning different examples. They provided valuable insights, comments, tricks, and tips during these demonstrations. Importantly, attendees had the opportunity to engage with the lecturers, pose questions, and gather additional information about their research methodologies. These tutorials were a rich source of knowledge and expertise, offering a deeper understanding of the topics and fostering interactive discussions with the instructors.



At the Conference

Opening

The conference was officially opened by Prof. Naser El-Sheimy, the ISPRS Geospatial Week Director at the University of Calgary. Following this, a welcome speech was delivered by ISPRS President Lena Halounová, who extended her warm welcome to all participants and expressed her appreciation for Egypt's hosting of this international event.



Keynotes

These were extensive sessions that featured keynote presentations by specially invited speakers: Prof. Deren Li, Prof. Dr. Mohamed Elhabiby, Prof. Ruizhi Chen, and Prof. Qihao Weng. These presentations offered a unique opportunity to witness some of the field's foremost experts discussing their work and providing broad perspectives on various topics related to close-range photogrammetry or laser scanning. These talks held significant relevance for all symposium participants and were considered as must-attend sessions. Additionally, ISPRS President Lena Halounová awarded "The Brock Gold Medal Award" to distinguished scientists, with Academician Deren Li being among the recipients. The winners of the ISPRS Foundation (TIF) Travel Grant Award were also honored, including Shimaa and Tamer.



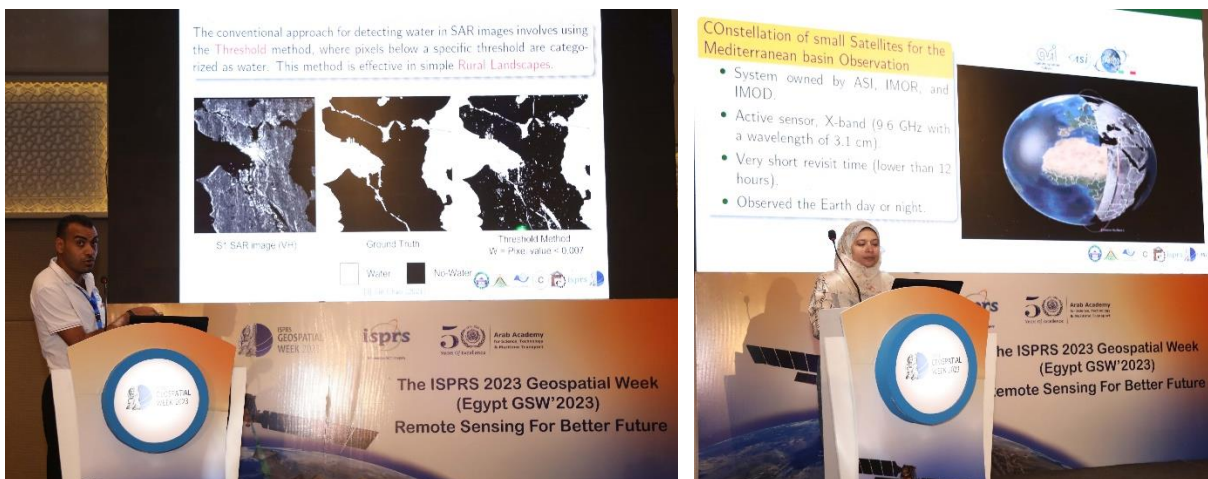


Oral Sessions

Given the concurrent sessions at the conference, it was advantageous to create our personalized schedule to ensure we could fully engage with the diverse and captivating topics related to our field of interest. The in-person program allowed us the flexibility to decide which sessions to attend and when they would take place. Consequently, we could meticulously plan our itinerary, enabling us to seamlessly transition between sessions or remain in the same room to absorb the entirety of the discussions. The Conference4me app played a pivotal role in helping us make well-informed decisions about where and when to attend specific sessions. The breadth of topics covered during the conference was truly

remarkable, with scientists from across the globe displaying unwavering enthusiasm as they shared insights into their research. Listening to their presentations was a truly enriching experience, and it was intriguing to witness a myriad of research projects on display over the course of the six-day Geospatial Week. Throughout the event, we diligently took notes and had the chance to meet individuals whose names we had previously encountered in newspapers or on television, but had never had the opportunity to connect with in person. Engaging in conversations with these esteemed individuals was incredibly exciting, and we took the opportunity to introduce ourselves and exchange ideas.

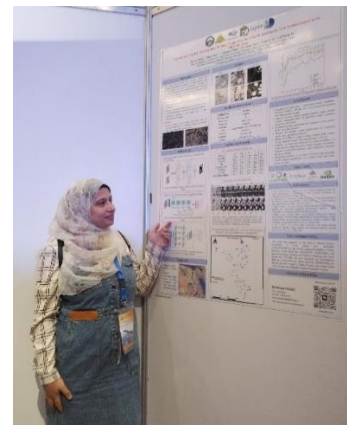
Furthermore, we felt deeply honored to have the opportunity to deliver our own oral presentations. Tamer presented a paper titled "PDCA-Former: Prior-Diagonal Cross Attention-guided Transformer for Flood Mapping from SAR Imagery: A Case Study in Khartoum" during the conference. We are elated to report that our paper was awarded the prestigious Best Paper Award at the SARcon workshop of the conference. Tamer's presentation introduced the PDCA-Former, an innovative approach for flood mapping utilizing synthetic aperture radar (SAR) imagery. The PDCA-Former holds immense potential in strengthening disaster management and mitigation efforts, thus making a substantial contribution to this critical area of research. In parallel, Shima actively engaged with the academic community by delivering an oral presentation on her collaborative research paper titled "Ship Detection in COSMO-SkyMed SAR Imagery using a Novel CNN-Based Detector: A Case Study from the Suez Canal." This research bears significant importance in the routine monitoring of the Egyptian Suez Canal, facilitating the timely detection and prevention of ship accidents within the canal. Overall, our experience at the conference was both professionally and personally rewarding, providing us with invaluable insights and opportunities for collaboration within the geospatial science community.



Poster Sessions

We gleaned a wealth of knowledge from the poster presentations and seized the opportunity to engage with the attendees. Conversations flowed as we not only connected with fellow participants but also extended invitations to Shima's poster presentation. The topic she presented was "M-AFDE-NET: A Novel Deep Learning-Based Approach for Building Change Detection in Newly Developed Areas from Satellite Imagery in the Nile Valley, Egypt." This work represents a significant contribution to the advancement of smart cities, as it streamlines the updating of geospatial databases and monitors urbanization, aligning perfectly with the directives of the Egyptian leadership in establishing a new republic.

To cater to varying time constraints, Shima prepared two versions of her presentation, one concise and the other more detailed. This allowed her to cater to the preferences of her audience, ensuring that those with limited time could still grasp the key points of her research. Some attendees preferred to first peruse the poster and then engage in discussions and questions. Shima fielded numerous questions during the poster presentation and continued to do so even after the formal presentation had concluded. The quality of discussions throughout the event was exceptional, and we found each talk to be both stimulating and informative. Overall, we felt that everything went exceptionally well, making this experience an immensely positive one for us. We wish to express our deep gratitude to our co-authors, whose unwavering support has been instrumental in our journey.



Networking and Friends

This event provided a wonderful opportunity to connect with fellow doctoral and postdoctoral students in our field, fostering enjoyable and meaningful interactions. We firmly believe that socialization is of utmost importance. Prior to our arrival in Egypt, we had already coordinated with our colleagues who were attending the conference, and this gathering served as a perfect opportunity to meet them, especially those who are geographically distant. For instance, Tamer was able to reunite with his parents, whom he had not seen for over four years. The global pandemic had disrupted travel and flights during that period, making such reunions challenging. Additionally, he had the chance to meet with his former master's thesis supervisor, Dr. Mohamed Zahran from the Faculty of Engineering at Shoubra. Moreover, we engaged in conversations with many new individuals, familiar faces, and young researchers. The more people you know, the greater the opportunity to exchange ideas about your research, promote your business endeavors, and receive valuable feedback. It is truly remarkable when others can provide insights into aspects of our work that we might not have noticed ourselves.



Egypt, with its rich ancient civilization and enigmatic historical heritage, never fails to captivate the imagination. During our time together, we were fortunate to capture unforgettable memories with professors from our laboratory against the backdrop of iconic historical sites such as the Pyramids, the Sphinx, and Saqqara.



Conclusion

Undoubtedly, this has been an exceptional experience, and we would like to extend our heartfelt gratitude to the ISPRS Foundation for their generous support during our time of need. Their provision of a travel grant to enable our participation in this outstanding seminar was immensely helpful and appreciated. Their assistance was truly invaluable. Overall, the conference exceeded our expectations, and we made every effort to thoroughly engage in discussions about our current research. We were exposed to a wealth of new insights and ideas, particularly through the engaging poster sessions and presentations. It was indeed a privilege to have meaningful conversations with numerous experts in the field. Upon our return to our laboratory, we eagerly delved into reading the papers and contemplating the multitude of new ideas we had encountered during the conference. This experience reinforced our belief in the immeasurable value of participating in ISPRS events. We have undeniably enhanced our knowledge of deep learning techniques, drones, and laser scanning, which we are confident will make significant contributions to a better future.

