



2020 International Graduate Workshop On Geoinformatics

December 16th-18th , 2020 , Online

WUHAN UNIVERSITY
PEKING UNIVERSITY
THE HONG KONG POLYTECHNIC UNIVERSITY



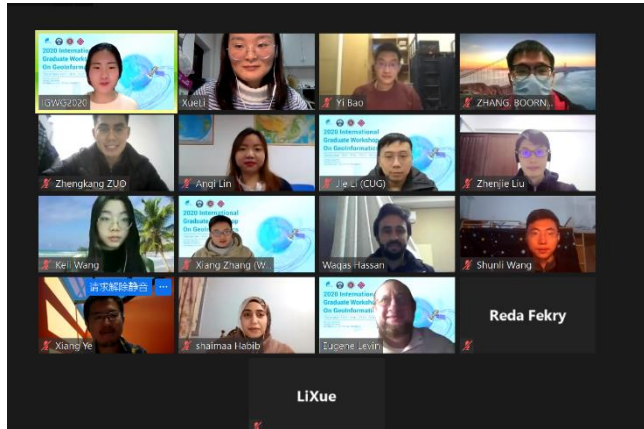
编者按：为了及时总结和通报论坛进展，分享与会者见闻与心得，特设立“论坛快报”，对论坛相关信息和分享进行及时整理和发布，以飨读者。

IGWG2020 EXPRESS

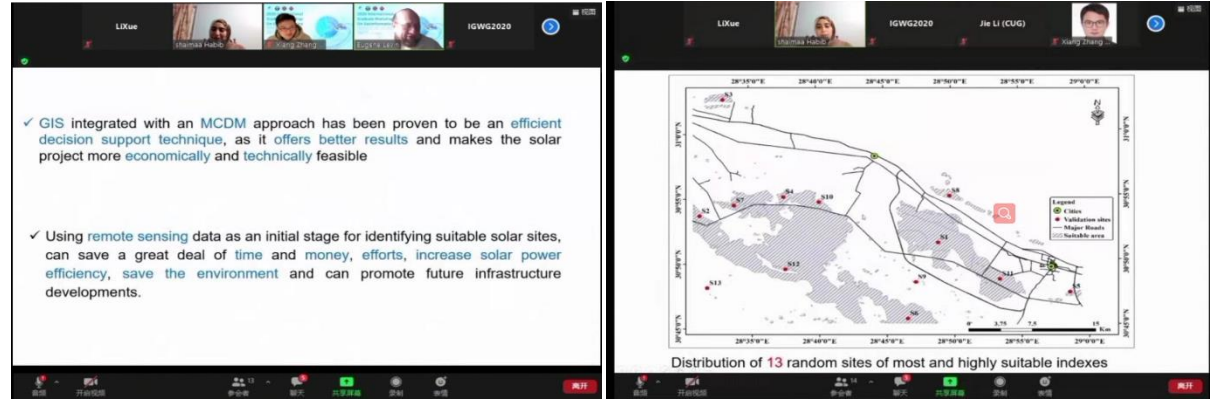
DAY 2

Dec. 17, 2020

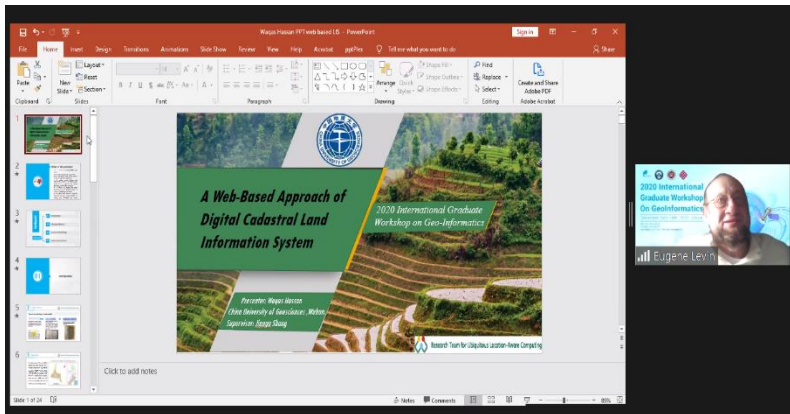
➤ Session 1-2 Geospatial Analysis, Software, and Applications



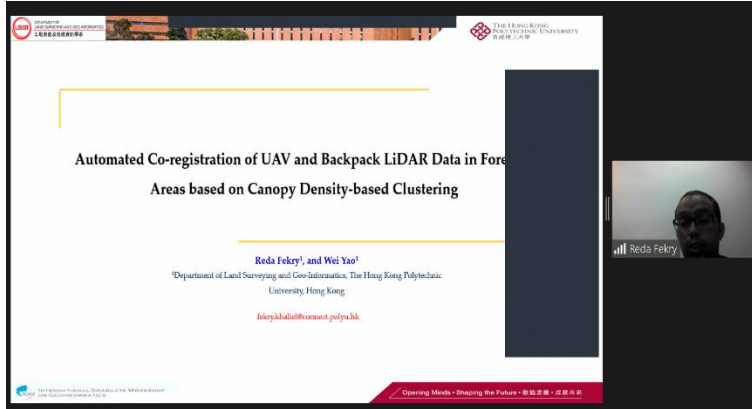
Session 1-2 合照 Group Photos in ZOOM



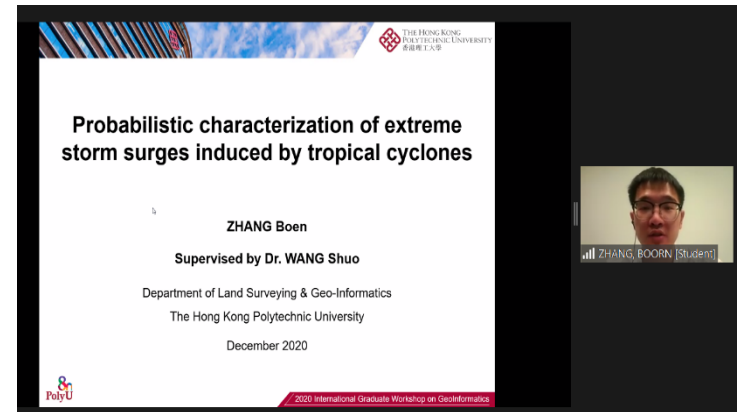
与点评专家的交流 Q&A



Waqas Hassanc
China University of Geosciences



Reda Fekry
The Hong Kong Polytechnic University

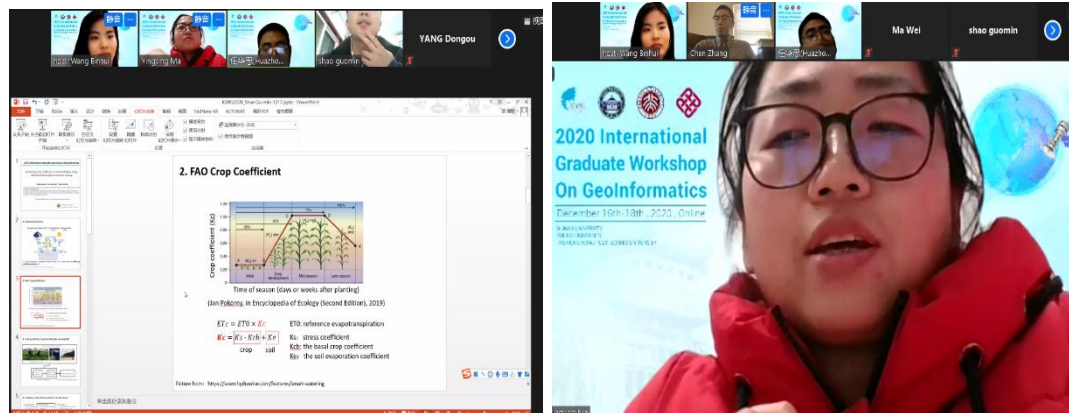


Boen Zhang
The Hong Kong Polytechnic University

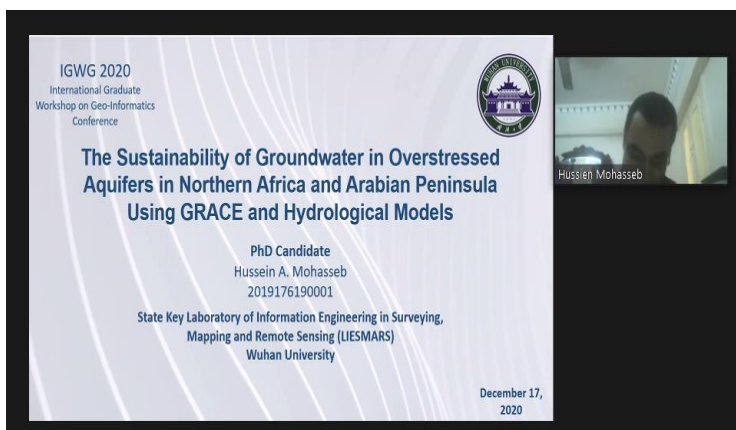
➤ Session 3 Ecological Environment Monitoring by Quantitative Remote Sensing



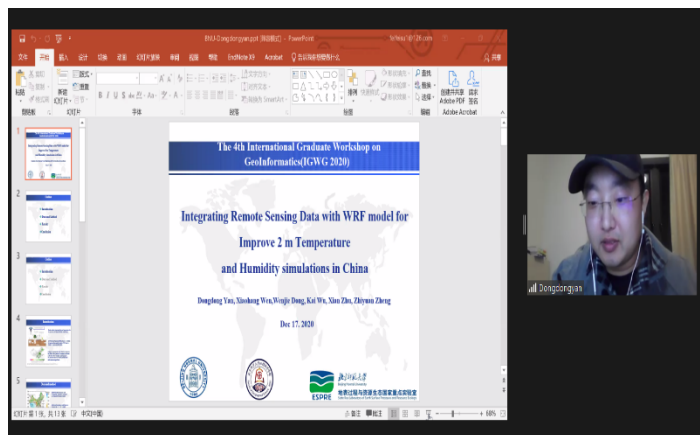
 Session 3 合照 Group Photos in ZOOM



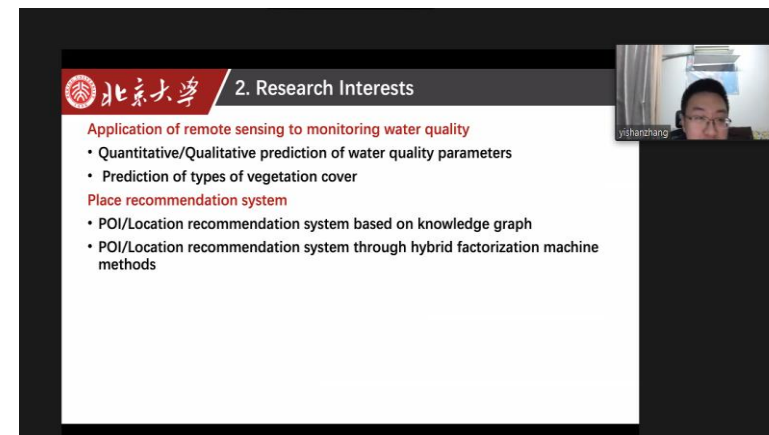
与点评专家的交流



Hussein Abdelhady Mohasseb Abdelalim
Wuhan University



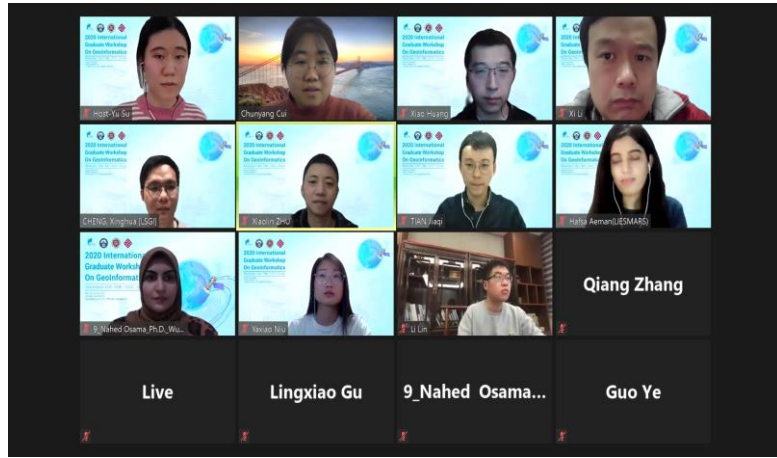
Dongdong Yan
Beijing Normal University



Yishan Zhang
Peking University

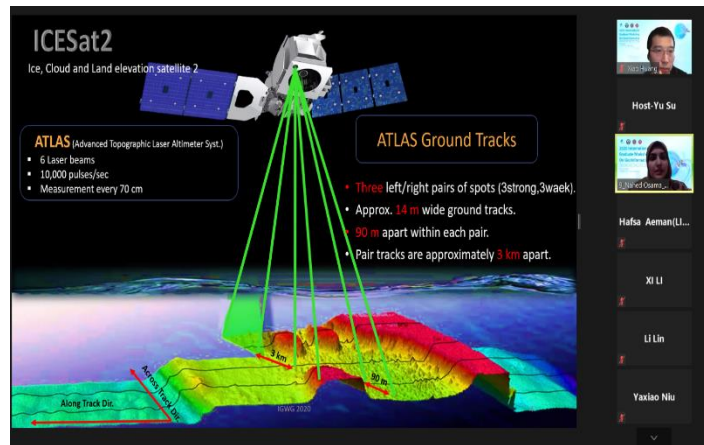
来自海内外学者的学术分享

➤ Session 4 Remote Sensing Applications

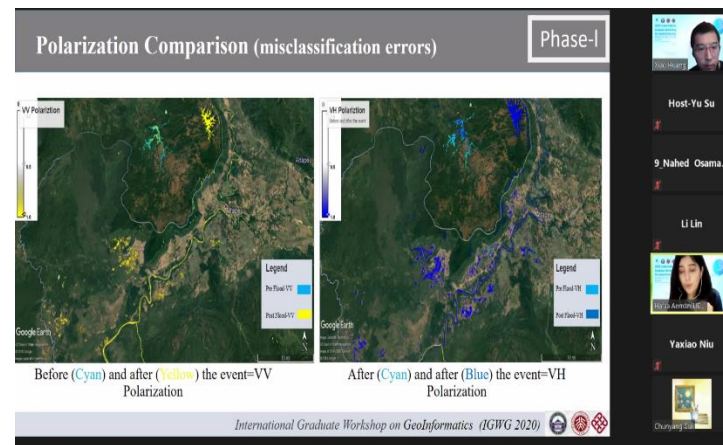


Session 4 合照 Group Photos in ZOOM

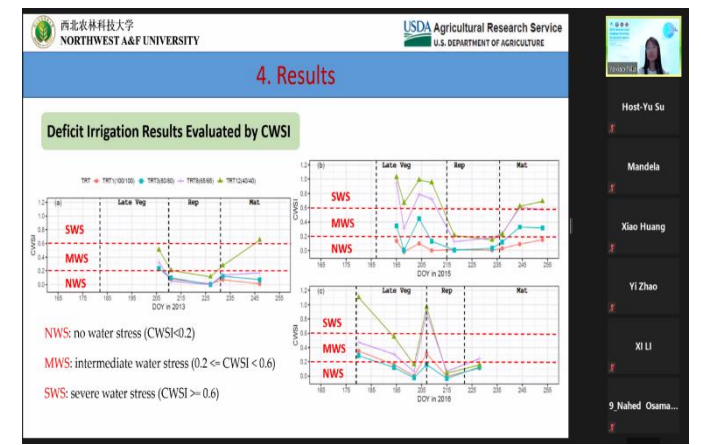
与点评专家的交流



Nahed Osama Saber Shalaby
Wuhan University



Hafsa Aeman
Wuhan University



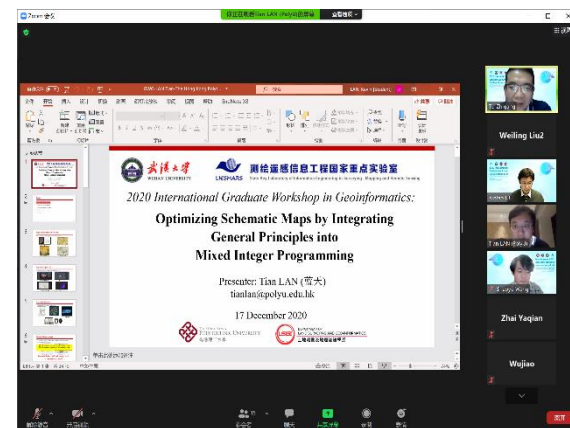
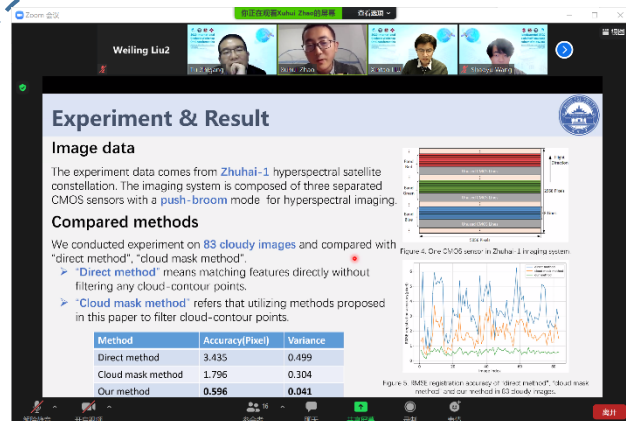
Yaxiao Niu
Northwest A&F University

来自海内外学者的学术分享

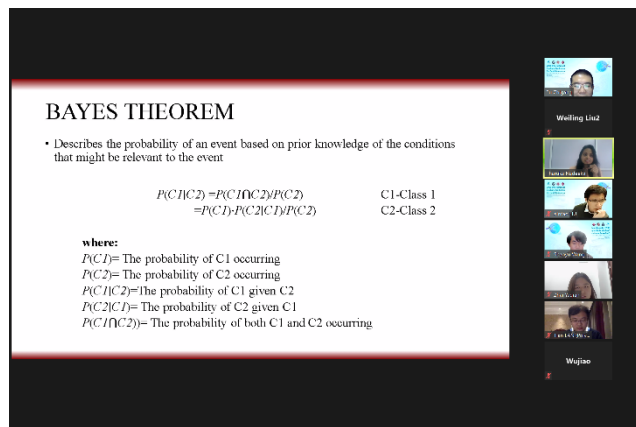
➤ Session 5 Intelligent Analysis and Application of Image Data



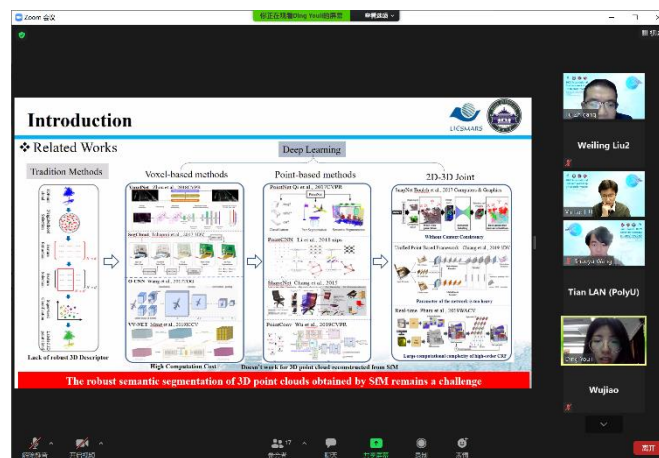
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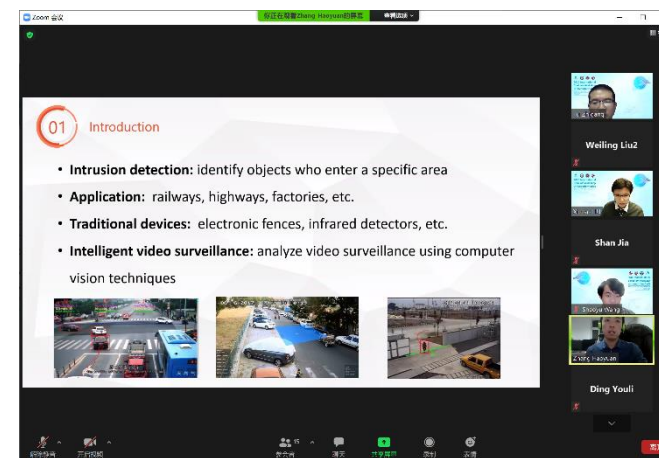
与点评专家的交流



Asurappullige Milani Tharuka Nadeeka
Wuhan University



Ding Youli
Wuhan University



Haoyuan zhang
Peking University

来自海内外学者的学术分享



指导老师 (第2期) ADVISORS 02



As one of the advisors in Session two, I had a very good experience working with other advisors and the hosts of the session. Session two was well organized, and the researchers and students prepared well for their presentations. It is great to see so many brilliant young researchers gathering together to share their experience and knowledge. Thank you, Wuhan University, for providing such a nice opportunity.

—— *Prof. QIN Jianqi* *Advisors, Beijing University*



Thank you for inviting me to work as an advisor for the session of Geodesy, Navigation and Location Services. All the speakers at the session did great presentations. I really enjoy the presentations and hope the session will be better in the future. Good luck and stay safe!!!

—— *Prof. ZHUANG Yuan* *Advisors, Wuhan University*



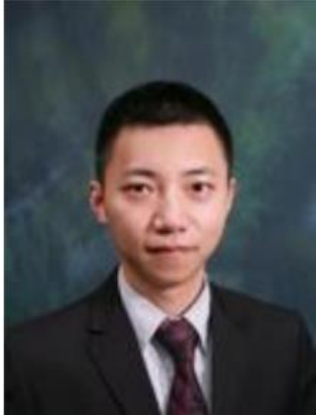
It was a very interesting meeting. I enjoyed it! Thank you very much for inviting me.

—— *Dr. Eugene LEVIN* *Advisors, Michigan Tech*





指导老师 (第2期) ADVISORS 02



Twelve PhD students from different countries delivered excellent presentations in the Remote Sensing Applications session in the IGWG2020 tonight. These talks cover a wide range of hot topics in remote sensing technologies and applications, from detecting noises caused by satellite jitters, to smoothing satellite time series for vegetation phenology extraction, to producing DEM from the new satellite ICESat-2. These presentations demonstrate innovation and creativity of research from PhD students, and stimulate the idea exchange and discussion on the current challenges in remote sensing applications. This session were broadcasted online that could benefit other PhD students in the field of remote sensing.

—— *Dr. ZHU Xiaolin* Advisors, *The Hong Kong Polytechnic University*



A total of twelve Ph.D students with differing research backgrounds presented at IGWG 2020 today. Their presentations cover a wide range of Remote Sensing applications. Their academic outcomes and presenting skills uniquely prove that they are the future stars in Remote Sensing field. IGWG has always been a great venue that facilitates knowledge sharing. I have no doubt of IGWG's success in the near future.

—— *Prof. HUANG Xiao* Advisors, *University of Arkansas*





指导老师 (第2期) ADVISORS 02



There are 12 presentations of Ph.D students from different countries in the remote sensing methodology and application forum. Their presentations have been carefully prepared, with different topics covering but not limited to quantitative remote sensing, DEM modelling and disaster monitoring. I think these students have good potential in their future academic careers due to their good performance shown in this forum. In sum, the forum has been organized very successfully.

— *Dr. LI Xi Advisors, Wuhan University*



It is so lucky that this is my third time to join this workshop. Considering that, I have been witnessing the continuous growth of this event, I have learnt a lot from those academic representations, and more importantly, I have made a lot of new friends during the whole process. Many people say that the year of 2020 is a miraculous year, which indeed highlights the preciousness of our virtual meeting. Thanks for all participants and looking forward to our next gathering in 2021.

— *Dr. ZHANG Xiang Advisors, Wuhan University*





指导老师 (第2期) ADVISORS 02



This is a very interesting and valuable conference, which supplies a good platform for PhD students to communicate and exchange academic ideas, where some novel and amazing new ideas may be inspired and generated in the process. Besides, this conference can let the PhD candidates to know the progress of their companions, which is beneficial for promoting their own research. Moreover, this conference gives a good chance for the PhD candidates to practice their abilities in multiple aspects, e.g., presentation, thinking, organizing, reaction, etc. I hope this conference can be held for long time.

—— *Dr. TU Zhigang Advisors, Wuhan University*



There are 11 presenters from Peking University, Technical University of Munich, The Hong Kong Polytechnic University, Wuhan University, Jilin University, and China University of Geosciences, Wuhan, reported their work in this forum. This forum aimed to bring together outstanding PhD candidates and researchers in different fields. The presenters are very professional and the topics cover a wide range of fields, including deep learning, remote sensing, land cover, cartography, WebGIS and facial recognition. This forum contributes to a stimulating and dynamic exchange of state-of-art ideas and technologies. I believe it will provide a good basis to study various up-to-date issues on “Intelligent Analysis and Application of Image Data”.

—— *Dr. LIU Xintao Advisors, The Hong Kong Polytechnic University*





Session1-2 Geospatial Analysis, Software, and Applications

Some inspirations from president Shi Wenzhong's report show that with the development of urbanization in human society, the rapid popularization of cities also brings us many challenges, such as urban traffic problems, housing problems, energy problems, urbanization and so on.

The nature of geographic information system (GIS) is the integration and management of multidimensional information with geographic information tags (location, height). The advantage of GIS over other forms of information is that everything is geo-tagged, providing a deeper connection to the real world. The multidimensional nature of GIS information is reflected in the fact that almost any information can be connected with the real world. No matter the traditional elevation, groundwater, mineral information, or the recently popular Internet of Things (IoT) and big data, it can become the information source of GIS after adding location information. Then any system that can store, process, query, and display geo-tagged information can be a GIS. As dean wen-zhong shi shown in traffic medical and even will be coronavirus prediction has its application,

but give me the biggest inspiration is GIS is a tool, and the more important thing is how we will other project or platform combined with GIS, the maximum play to the role of GIS on geographic information, as in a digital city, how to use GIS to realize the co-construction and sharing of urban spatial information application, relies on government affairs private network (involving confidential data) and the Internet (with open data), using GIS integration of various technologies and information, GIS is widely used as the direction to achieve the unification of data update and maintenance, reduce investment, avoid repeated construction of data and system, and realize the centralized sharing and application of all kinds of government information

—Zhang Min LIESMARS, WHU



Expression and Inspiration on Session 4 — Remote Sensing Application

At the sub **session 4** on remote sensing applications, I took note of two reports on remote sensing monitoring of flood disaster emergency and urban expansion, which are “Rapid Flood Damage Mapping and Information Dissemination During Emergency Event: An Experiment in OGC Disaster Resilience Pilot” presented by Li Lin from George Mason University and “A Comparative Analysis of Multi-temporal Image Fusion Methods for Monitoring City Expansion” presented by Paulo J. Mandela from Sokoine University of Agriculture.

As we all know, natural disaster emergency response and urban monitoring play a very important role in national security and economic development. Nowadays, natural disasters occur frequently in the world. From the perspective of emergency situation, emergencies such as river dam break are still in the prone period. In addition, the research on the spatial distribution of built-up areas is an important part of urban development planning. Thus, these two studies have important impact. First, in the study of Li Lin, accurate crop-specific damage assessment immediately after flood events is crucial for grain pricing, food policy, and agricultural trade. The main goal of this research is to estimate the crop-specific damage that occurs immediately after flood events by using a newly developed Disaster Vegetation Damage Index (DVDI). Moreover, the effective information processing and publishing platform is established to conduct rapid mapping and information release for flood losses in emergencies. At the same time, OGC disaster resistance pilot test was carried out to effectively monitor the occurrence of disasters. For the city expansion monitoring, in view of the problem that single temporal data source is not enough to provide accurate and timely information of built-up area, Paulo J. Mandela proposed “A Comparative Analysis of Multi-temporal Image Fusion Methods for Monitoring City Expansion”.

In addition, from another perspective, the rapid collection, processing and transmission of emergency information is the key problem in the construction of emergency response technology system of resources and ecological environment security. But at the same time, the unique characteristics of the disaster lead to the difficulty of emergency information collection, processing and transmission. The multi-source heterogeneity of emergency data increases the difficulty of its effective utilization. Therefore, it is very important to develop an effective information acquisition, processing and transmission platform. In addition, as one of the important monitoring areas, remote sensing provides effective and large-scale monitoring for urban monitoring. It is not only the classification of urban features, but also the scene classification and analysis, which should play a great role in the monitoring of urban expansion.

——*Wan Yuting* LIESMARS, WHU



Session 1-2 Geospatial Analysis, Software, and Applications 思考感想

今日分论坛报告让我们收获颇丰。其中有几个报告让我印象深刻。研究结果表明，利用新兴的大数据和数据分析（如兴趣点数据和网络爬虫）有助于实现对建成环境存量的更精确的空间描述，并突出此类信息和城市规划在城市资源、废物和环境战略中的作用；Shunli Wang博士报告中谈及人口密度是评估暴露在风险中的人口数量的关键参数之一，拥有的数据质量越好，风险评估就越好。一个高分辨率的空间分布人口密度网格，以公社规模估计人口精细尺度的人口网格数据集对应急响应、资源配置和交通规划中具有重要意义；由于疫情影响，新冠病毒的传播与影响也是大家关注的热点。今天来自北京大学的博士Zhengkang Zuo和Keli Wang都分享了相关的研究：基于个体的COVID-19传动力学建模和预计COVID-19大流行的反弹加剧了全球健康风险研究。通过采取切实可行的措施，提高公民的认识，减少病毒的传播，在重要场所进行诊断和监测，并对感染者进行隔离是或许一种较好的策略。

——张源 LIESMARS, WHU



Section5 Intelligent Analysis and Application of Image Data 思考感想

今天我主要听了IGWG2020 session5的有关报告，这个session主要介绍了有关图像数据的智能分析与应用，与我所从事的研究方向存在一些交集。

我比较感兴趣的是贾山老师介绍的基于双线性分解编码的3D人脸反欺诈方法。近年来，随着人脸识别技术的快速发展和在各个领域的广泛应用，他所带来的伦理问题和安全问题也引起越来越多的思考。例如之前有新闻报道显示有几名小学生利用手持照片攻破了蜂巢快递柜的人脸识别系统，这对我们的人生和财产安全带来巨大的挑战。贾山老师课题组提出使用一种基于多颜色通道的双线性分解编码方法，从颜色空间中提取出人脸的判别信息和互补信息，通过结合这两种信息实现人脸欺诈的识别。

我觉得深度学习的发展和实际应用需要和实际生产生活挂钩，脱离生活实际需要的科研是没有价值的，因此我们平时在做科研搞学术的时候需要更多的聚焦于生产生活，从日常生活中来到日常生活中去，把论文写在祖国大地上，用科研成果带来生产力的持续提升，为人民生活的福祉添砖加瓦，努力攻克外国资本主义带来的“卡脖子”问题，早日实现中华民族的伟大复兴。

——陶玉龙 LIESMARS, WHU



Session 3 Geodesy, Navigation and Location Services 思考感想

首先非常感谢实验室组织的这次博士生论坛，一方面认识了一群志趣相同的朋友，在科研路上可以感受同龄人的温暖，因为是同龄人所以会有更多共同的话题分享彼此的科研经历和科研故事；另一方面也扩大了自己的知识范围，了解国际上其他的人都在使用哪方面的方法去解决相同的问题，不会陷入闭门造车的困境，希望以后有更多的机会参加类似活动。最后，因为是国际论坛，全程都是英语一方面也为自己用英文做报告提供了参考。

对于具体的报告而言，使我感受最深刻的是中山大学的niuqun 分享的Geomagnetic Indoor Localization Using Multi- Scale Features and Attention Guidance。因为最近自己也做相似的研究，同样是用神经网络去实现室内定位，所以感触很深。首先他提到室内定位的必要性，和市场价值。然后说明了现阶段用地磁去坐定室内定位所面临的挑战包括：

(1) 计算开销很大 (2) 特征尺度不统一 (3) 如何更加高效的去融合

以及最后报告中所提到的attention guide方法对本人启发很大。

此外，我们同样接触到了很多其他领域的人，虽然研究的主题和领域不一样，但是使用的方法都是大同小异，很多地方都是值得借鉴。希望以后可以邀请更多来自国内外高水平大学的博士，或者如果有机会可以举办一些线下的交流活动，这样可以面对面的交流，更加有效果一些，而且也会更加有利于彼此之间友谊的建立。

同学们对举办的这次活动都表现出十足的兴趣。再次非常感谢实验室策划的这次活动，非常有意义!!!

——杨先圣 LIESMARS, WHU



Session 4 Remote Sensing Applications 感想

感谢武汉大学、北京大学与香港理工大学提供机会，可以有幸作为听众参与线上IGWG博士论坛Session4(Remote Sensing Application)。在科研的同时，可以有机会了解不同学校，不同领域的同学们的研究内容，受益良多！首先，与第一天的感触大致相同，基于几位博士同学的报告内容，最大的启发在于，大多数的研究已经从仅对算法领域的创新，转向根据先进技术寻找实际应用。且深度学习是研究的热点，多位同学的研究中提到了神经网络。因此，不能仅在自己领域内钻研，需要思考同学科不同领域的交叉融合。多传感器融合的内容也是研究重点。根据评审专家的提问总结，几位专家提出的问题主要集中于：如何通过纵向对比，来证明研究方法的优越性；此外，根据香港理工大学Serein Han教授的招聘信息，现在的研究热点为AI,深度学习，大数据处理，智慧城市等。研究方向值得思考。

——姜昊男 LIESMARS, WHU



Session4 Remote Sensing Applications感想

作为一名摄影测量与遥感专业的学生，我为遥感专业能为整个世界的发展起了很大的推进作用感到自豪。同时在听取报告的同时，我感受到博士师兄师姐们对于治学研究严谨的态度以及遇到困难迎难而上的昂扬斗志。因此作为一名学遥感的学生，我们要更加明白自己的使命和担当。在生活和学习中要把基础知识学扎实，同时要把自己学习到的知识和技能多多地应用到实际生产生活当中去，在实践中检验自己所学，同时将自己所学转化为有价值的、有社会效益的产品。总体感觉就是遥感学科大有可为，自己要多多努力学习。

——**张力飞** LIESMARS, 武汉大学

Session3 Geodesy, Navigation and Location Services 感想

本次论坛使我对未来进行科研创新的方向产生了新的思考。在一些已经被广泛探讨过的议题上，创新来自于寻找以往研究中仍未解决的问题，未来应考虑结合日益发展的新信息技术手段提出创新的科研方向，如针对传统模型的不足和不确定性进行针对性改进，如针对新型观测手段得到的高质量观测数据提出的新研究算法等，此外还可以考虑在其他领域类似问题上的研究方法进行知识迁移等。

——**林慧** LIESMARS, 武汉大学

Session5 Intelligent Analysis and Application of Image Data心得体会

Haiming Zhang的“A Coarse-to-Fine Deep Learning Based Land Use Change Detection Method for High-Resolution Remote Sensing Images”和Jiao Wu的“Remotely Sensed Change Detection method based on Convolution Neural Network”给了我新的思考，在使用深度学习来解决遥感影像变化检测问题时，数据是一个十分重要的问题，而目前变化检测的数据集比较少，所以如果想要做出比较好的东西需要自己标注新的数据集。除此之外，在进行变化检测时需要注意时间维度上的信息，而不是仅仅将输入的影像当做两个独立的影像，充分利用两张影像之间的关系对于提高变化检测的精确度十分重要。而张同学在介绍自己的工作考虑了影像中相邻像素之间的关系，这个是一个很好的想法，因为这样做可以充分利用整个影像的信息而不是将目光局限于某一个像素点或者是某一片像素集。吴同学的报告中提到了在图像中加入充分的时间信息，这也是之前我和导师讨论后导师的想法

——**李王斌** LIESMARS, 武汉大学





IGWG2020 WORKING GROUP-DAY2



InstaMag



各分会场紧张而有序的开展工作



非常荣幸可以作为分论坛五的负责人参与此次博士论坛。为了拓宽研究视野，深化研究思路，向优秀博士学习研究方法手段，我第一批报名成为博士论坛志愿者。此次的参与不仅让我深刻的感知了幕后工作者的付出，也深刻了解和学习了参会者的研究方向，内容和进展，以及科研工作者所应具有求真务实的态度和科研思路的敏感程度。各位参会者的精彩汇报给我这个刚刚踏入深度学习之门的人充分的营养和启发，让我更进一步地认识了深度学习的应用范围，为我的研究课题提供了有益的参考价值。在此对此次论坛的成功举办致以谢意。此外，还希望学校能够多多举办此类博士论坛。

——刘伟玲 (志愿者) *LIESMARS, 武汉大学* 😊



本次博士生论坛是我第一次担任学术会议主持人，是一次很新奇的体验。😄 一开始感觉有点手忙脚乱，出了一些差错，但是后面慢慢熟悉之后就顺利一些，总之是成功完成了分论坛的主持，还有很多不足的地方，需要继续努力。感谢老师们给我们提供了一下这么好的平台，感谢点评老师对我们工作的配合，感谢我的搭档的大力支持，还要感谢大伙们的协力和帮助！

——王少宇 (志愿者) *LIESMARS, 武汉大学*



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很高兴可以参加本次论坛的志愿者工作，认识了很多可爱的同龄人和老师。本次论坛从前期的筹备、宣传、邀稿、审稿和论坛开幕参与了全程的工作，同时也体会到了论坛的成功召开需要许多同学的共同努力，每个人都像一颗小螺丝钉，大家共同努力，才能保障论坛的顺利召开。感谢关老师和何老师对本次论坛的统筹工作；感谢会务组的同学，有时候微信消息回复不及时，感谢他们的包容和理解；感谢丁师姐不厌其烦的回答我的各种问题。今天遥感应用的分论坛直播顺利的完成了，体验了一把做直播up主的感觉，虽然在直播前进行了培训和网络的测试，但是我们在直播的过程中也遇到了许多突发的情况，感觉还有许多不足之处需要进一步的改进，主要的原因是没有准备突发预案，没有对可能的突发情况进行假设，同时找对应的解决办法，希望在以后论坛的主持人准备过程中可以增加准备突发预案这一项。🤔
 预祝本次论坛可以圆满成功！🔥🔥🔥

——崔春旸 (志愿者) LIESMARS, 武汉大学



本人是一个没有参加过国际会议，基本没有与国际友人交流经验的小小白，万万没想到有一天也可以参与一个大型国际论坛的组织和分会场主持工作，虽然在线上直播的过程中紧张的手忙脚乱，甚至出现了一些小事故，但结束后发现，更多的是收获，是经验，是充实，有太多经验值得分享，比如事先沟通会议流程，测试所有的设备，明确好分工的每一个细节，预判每一个可能出现的问题并做好解决措施。。。原来，一场看似容易的会议，背后需要准备的东西是那么的复杂繁琐，必须付出十分的认真细心才能达到最后看似圆满的呈现。同时，在这场学术盛宴中，我也感受到了全世界优秀博士生对科研的严谨和热情，以及点评老师们对报告的悉心指导，很喜欢这种良好的学术氛围，也非常荣幸能为这场优秀的学术论坛出一份力，我要学习的东西还很多，希望自己也能成为更优秀的人。😊

——宿钰 (志愿者) LIESMARS, 武汉大学

注：“论坛快报”及时发布参会者、志愿者、指导老师等撰写的交流信息和心得。欢迎大家踊跃赐稿。论坛优秀稿件，将获赠院士签名的纪念T恤衫。

“最佳稿件”将由组委会评选后另行公布。

