International Society for Photogrammetry and Remote Sensing
Internationale Gesellschaft für Photogrammetrie und Fernerkundung
Société Internationale de Photogrammétrie et de Télédétection

ISPRS AWARDS

XXIV ISPRS Congress
Nice, France

2020 Awards and Citations

ISPRS Honorary Member

An individual is elected as an ISPRS Honorary Member in recognition of distinguished services to ISPRS and its aims. Candidates are nominated by a seven-member committee, chaired by the most recent Honorary Member and including three honorary members, three members from the three previous Councils plus one current Council member. Honorary Members are elected by the Congress during a Plenary Session. There may not be more than ten living Honorary Members of the Society at any given time. The committee has nominated Chen Jun for election as an Honorary Member of ISPRS in 2020.

Chen Jun

Chen Jun had first contacts with ISPRS as early as 1982, when he participated in the Technical Commission VII Symposium in Toulouse, France, where he spent time as a young scientist with IGN and CNES. Later Chen Jun was elected president of Technical Commission II, entitled "Systems for Data Processing, Analysis and Representation" at the time, and was responsible for the Symposium in Xian in 2002.

During the 2004 Congress in Istanbul China was elected to host the XXI Congress, and Chen Jun became Congress Director, organising a very successful ISPRS Congress in Beijing in 2008 and has since served on ISPRS Council, as Secretary General from 2008 - 2012, leading the society as president from 2012 - 2016, a period which included the reorganization of the ISPRS Technical Commissions, in which he had a major share; and as Past President since 2016. He initiated the ISPRS research agenda which was published in the ISPRS Journal of Photogrammetry and Remote Sensing in 2016; initiated financial support for authors of open access papers who cannot afford the related Author Processing Charges; has represented ISPRS at the level of international geospatial societies such as those grouped in the Joint Board of Geospatial Societies (JBGIS) - now renamed to UN GGIM Geospatial Societies; has represented ISPRS at numerous UN and GEO meetings, e.g. the yearly UN GGIM meetings in New York and the various GEO plenaries around the world; has represented ISPRS in the International Science Council (ISC) and has made sure ISPRS keeps its reputation of a respectable scientific society.

With his charming and diplomatic personality and his dedication to the aims and the activities of the society, Chen Jun truly deserves to be elected an ISPRS Honorary Member. ■

ISPRS Fellowships

An ISPRS Fellow is elected by the Society in recognition of sustained, excellent service to the ISPRS and its aims. The following persons have been nominated to receive the ISPRS Fellowship 2020.

Kohei Cho is a professor at the Tokai University in Tokyo, Japan. As the vice president of the Japanese Society for Photogrammetry and Remote Sensing since 2005, he has significantly contributed to streng then the relationship of JSPRS with ISPRS.
He is also an important leader in the field of Remote Sensing in Asia. Since 2009, and as successor of Shunji Murai, he is serving as the General Secretary of the Asian Association of Remote Sensing (AARS), a Regional Member of ISPRS. In 2019, he successfully organized the 40th Asian Conference of Remote Sensing (ACRS). During his ten years in office, he succeeded in continuing the tradition of ACRS, "friendship first and money after.
In ISPRS, Kohei has served as International Science Advisory Committee (ISAC) member (2012-2021), as ISPRS Commission VIII "Remote Sensing Application" Scientific Secretary (2008-2012), as ISPRS Commission VI "Education and Outreach" President (2004-2008), and as ISPRS WG VI/2 "Computer Assisted Teaching" working group chair (1992-2000).
Kohei initiated the CATCON (the educational software contest) in 1996, to activate educational research works within ISPRS. The CATCON has continuously been organized as one of the official events at ISPRS Congresses. He also helped initiate the ISPRS Student Consortium in 2004, under Commission VI, to promote student activities in ISPRS. Success in an education commission in the engineering field is generally not easy to gain at conferences and workshops. However, Kohei has significantly improved the research community of education in ISPRS during his Commission VI "Education and Outreach" presidency. Thanks to Kohei, the Midterm Symposium in Tokyo in 2006 was successful, with many papers and participants.

Kohei Cho

As a researcher, Kohei has been involved in various activities on remote sensing. He was the leader of JAXA AMSR2 sea ice team for years. For the past eight years, he was involved in a project monitoring the recovery of Tsunami damaged areas in Japan for environmental education. He has published more than 100 papers on remote sensing and is co-author of 15 books on remote sensing and image processing.
It should be emphasized, that Kohei has been promoting Remote Sensing in Asia for years through exchange of information, mutual cooperation, and international understanding and goodwill among the member countries of Asia. His smile encourages many young researchers to be involved in research communities and to contribute not only to AARS but also to ISPRS from Asia.

Songnian Li

Songnian Li received a B.Eng. degree in Surveying Engineering from Wuhan Technical University of Surveying and Mapping, China, in 1983 and the Ph.D. degree in Geodesy and Geomatics Engineering from the University of New Brunswick, Canada, in 2002. From 1983 to 1997, he was a Lecturer, Associate Professor and Visiting Scholar in universities in China and Canada. Since 2001, he has been an Assistant Professor, Associate Professor and Professor in Geomatics Engineering in the Department of Civil Engineering, Ryerson University, Canada. Currently, he is the Associate Chair for Graduate Studies and the leader of the GIS and Geo-Collaboration Lab at Ryerson University. He is a licensed professional engineer and registered land surveyor in Ontario, Canada. He was an invited Research Fellow by the Japan Society for the Promotion of Science in 2009 and 2012, and a recipient of both the nomination for the ISPRS U. V. Helava Best Paper Award 2016-19, and the 2015/2016 Canadian Institute of Geomatics President's Citation. His current research interests include geospatial big data, spatio-temporal analysis, moving object and location-based services, geo-collaboration and geospatial web and web services. He has been appointed as Adjunct Professor or Member at over 10 universities in Canada, Japan, and China.

Songnian served as chair of two Working Groups, as President of ISPRS TC II (2012-2016) and as Council Member (Treasurer, since 2016). He is TIF Trustee and Chair of the TIF Grants Evaluation Committee (since 2016) and has represented ISPRS in various roles in UNGGIM, IGU, OGC and GEO.

He has also served as Chair of the Canadian National Committee for ISPRS, Council Member of the Canadian Institute of Geomatics (former Canadian Ordinary Member of ISPRS), and Executive Member of the Canadian Society for Remote Sensing (current Canadian Ordinary Member of ISPRS).

Songnian Li has been involved in the organization of over 90 scientific conferences/workshops; many of them ISPRS or ISPRS-sponsored events, such as the ISPRS TC II Symposium in 2014, in Toronto. He has played a leading role in establishing the workshop series on "Web-based Mapping, Geo-Processing and Services", which has been held six times since 2010, as well as an important role in organizing ISPRS workshops on global land cover and SDGs, and also served as a member of International Programme Committees for the 2016 ISPRS Congress, and the ISPRS Geospatial Week in 2017 and 2019.

Among other ISPRS editorial roles, he has served as an Editorial Advisory Board member of the ISPRS Journal of Photogrammetry and Remote Sensing since 2016, and received a Certificate of Outstanding Contribution in Reviewing in 2017.

Marguerite Madden

Marguerite Madden is a Professor in the University of Georgia, Department of Geography and Director of the Center for Geospatial Research where she has collaborated on environmental research projects using remote sensing and geographic information systems (GIS) since the mid-1980s. Her research focus includes the generation of original geospatial data (e.g. detailed vegetation databases of vegetation in National Park units, animal tracking/behaviour and 3D landscape models from drone imagery), and integration of these data into GIS databases for analysis and modelling of human-environment interactions over broad scales. A Fellow, Past GIS Division Director and Past President of the American Society for Photogrammetry and Remote Sensing (ASPRS) and Editor of the ASPRS Manual of GIS (2009), she has served in the International Society for Photogrammetry and Remote Sensing (ISPRS) Working Group and Technical Commission positions continuously since 1988, including ISPRS Technical Commission President for Commission IV, "Digital Mapping and Geodatabases" (2008-2012) and ISPRS Second Vice President (2012-2016). She has served as The ISPRS Foundation Finance Officer since 2010, and the Lead Science Advisor for the Georgia Node of the NASA DEVELOP National Program since 2012.

She was awarded the ISPRS Willem Schermerhorn Award (2004), the ASPRS SAIC Estes Memorial Teaching Award (2011) and the NASA Silver Achievement Medal (2018).

Marguerite has served as major advisor to 25 Ph.D. and 21 M.S./M.A. students. She has over 65 publications in peer-reviewed journals, 11 book chapters, five edited books and proceedings, and 12 guest-edited special journal issues and serves on the Editorial Boards of five peer-review journals in geospatial science. ■

Charles K. Toth

Charles Toth is a Research Professor in the Department of Civil, Environmental and Geodetic Engineering, at The Ohio State University (OSU). He received a M.Sc. in Electrical Engineering and two Ph.D.s, one in Electrical Engineering and one in Geoinformation Sciences, both from the Technical University of Budapest, Hungary. His research interest and expertise cover broad areas of spatial information sciences and systems, including photogrammetry, multi-sensor geospatial data acquisition systems, LiDAR, high-resolution imaging, surface extraction, modelling, integrating and calibrating multi-sensor systems, georeferencing and navigation, 2D/3D signal processing, and mobile mapping technologies.

He has published over 300 scientific papers, and is the recipient of numerous awards, including the 2009 ASPRS Photogrammetric Award and the United States Geospatial Intelligence Foundation (USGIF) Academic Achievement Award 2015. In 2016, he was awarded the ISPRS Schwidefsky Medal for his significant contributions to the field of photogrammetric theory and practice in the last three decades.

Acknowledged internationally for his visionary contributions to mobile mapping, he was a key architect of the concept development, and conducted significant research in areas of sensor georeferencing and digital imaging technologies. He is credited with the introduction of the term "direct and indirect georeferencing" in the photogrammetric community. He is very devoted to education and mentoring the next generation of the photogrammetric professionals, and has been a major contributor to annual Summer Schools on mobile mapping, held internationally. Charles is highly respected across the international mapping community and has held many senior leadership positions in national and international societies, among them that of President of the American Society of Photogrammetry and Remote Sensing. His service to ISPRS started in 1996, when he became co-chair of a working group. He continued in this position during the 2000-2004 term, and then took over the chair position for 2004-2008. He stayed on as co-chair for the next period, before becoming the ISPRS Commission I President from 2012 to 2016. Currently he serves as ISPRS Vice President.

George Vosselman

George Vosselman is professor in Geo-Information Extraction with Sensor Systems. He graduated with honours from the Delft University of Technology in Geodetic Engineering in 1986, then worked at the Institute of Photogrammetry of the University of Stuttgart, Germany, until 1992. In 1991, he obtained his PhD degree with honours from the Rheinische Friedrich Wilhelms University of Bonn, Germany. After a year as visiting scientist at the University of Washington, Seattle, USA, he was appointed professor of Photogrammetry and Remote Sensing at the Delft University of Technology in 1993. In 2004 he joined ITC, now a faculty of the University of Twente.

He is recipient of the Hansa Luftbild Award, the ISPRS Otto von Gruber Award, the Schwidefsky Medal, and the Karl Kraus Medal. He is a board member of the Netherlands Geodetic Commission and corresponding member of the German Geodetic Commission. As of 2012, he is head of the Department of Earth Observation Science of the University of Twente.

George has been playing an active and often central role in the ISPRS community for over 20 years. He has been instrumental in adapting the society to the rise of laser scanning, including roles as WG chair (2000-2004) on reconstruction from air-borne LiDAR and InSAR, WG co-chair (2008-2012) on point processing, and editor of a well-known standard book (with Hans-Geerd Maas).

Moreover, he has made a massive contribution to scientific standards, quality control and reviewing : he was editor-in-chief of the flagship ISPRS Journal of Photogrammetry and Remote Sensing (2004-2012) and has been a member of the journal's Editorial Advisory Board (since 2012), a member of the International Science Advisory Committee (ISAC), and chair of the International Program Committee for the Congress 2016, and has written over 250 publications, many of which have been cited numerous times. He was also the Director of the ISPRS Geospatial Week, organised in Enschede in 2019. ■

The Brock Gold Medal Award

The Brock Gold Medal Award, donated by the American Society for Photogrammetry and Remote Sensing, is awarded for an outstanding landmark contribution in the evolution of the photogrammetry, remote sensing and spatial information sciences, which is a proven contribution to these sciences and technologies of whatever form, whether a major completed project or program, some fundamentally new equipment, system or fundamentally new technique, or other new departure.

The 2020 awardee is **Li Deren**, for his outstanding scientific achievements in the photogrammetry, remote sensing and geospatial information sciences. Li Deren is a professor at the Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS) and the Director of the Collaborative Innovation Center of Geospatial Technology, both at Wuhan University of China. He enjoys dual membership of both, the Chinese Academy of Sciences and the Chinese Academy of Engineering. In 1985, he received his doctoral degree from the University of Stuttgart, Germany.

Li Deren is a renowned pioneer and leader of civilian space mapping in China. Starting around 2005 he proposed to the central government to establish a high-resolution satellite Earth observation system. As a result of his visionary and strategic suggestion, a dozen high resolution Chinese satellites are now in operation, fulfilling the routine national needs in social and economic developments. Today, about 80% of satellite images in China's market are collected by these satellites.

Li Deren was also among the key individuals who proposed and designed the technical specifications of this alongtrack civilian stereo mapping satellite series ZY-3. Since its first successful deployment in 2012, he led his team to design and develop the ground receiving and processing systems to automatically produce standard topographic products, including digital elevation models and orthophotos based on the specification of the 1:50,000 topographic map. This was achieved for the first time in China's history of civilian mapping; the nationwide mapping revision cycle has been reduced from approximately 5 years to 5 months, empowering the country to be able to map about 30 million square kilometres per year at the scale of 1:50,000.

Li Deren

More recently, Dr. Li refocused on the development and utilization of small and nano-mapping satellites. He led the design of three unique, non-traditional mapping satellites, Luojia-1, 2 and 3. Being the first in China and launched in 2018, Luojia-1 is a nightlight remote sensing satellite with 130 m resolution, which pioneers the utilization of high-resolution nightlight imagery for population distribution, urban sprawl, and regional studies. As a free and open data source, more than 26,000 Luojia-1 scenes were downloaded by over 3,000 international users.

Li Deren is also recognized as the key designer of the very first mobile mapping system in China. Today, enhanced with homemade sophisticated algorithms, such mobile systems can ensure a fast acquisition of streetview geospatial data at an accuracy of a few centimetres. More than 300 sets of such systems were sold to various government agencies, research institutes, higher education colleges, and private companies in China; the system has been used to create 3D street views and models for over 600 cities and towns in the country.

Li Deren has served as the President of ISPRS Technical Commission III (Photogrammetry) and VI (Education). He received an Honorary Doctorate from ETH Zürich, Switzerland in 2008 and was awarded Honorary Member by ISPRS in 2012. ■

The U.V. Helava Award

The U.V. Helava Award is a prestigious ISPRS Award, which was established in 1998 to encourage and stimulate submission of high-quality scientific papers by individual authors or groups to the ISPRS Journal of Photogrammetry and Remote Sensing, to promote and advertise the journal, and to honour the outstanding contributions of Dr. Uuno V. Helava to research and development in photogrammetry and remote sensing. The Award is presented to authors of the best paper, written in English and published exclusively in the ISPRS Journal during the four-year period from January of a Congress year, to December of the year prior to the next Congress.
The award consists of a monetary grant of 10,000 SFr., certificates and a silver plaque. It is sponsored by Elsevier B.V. and Leica Geosystems, while the Institute of Photogrammetry and Remote Sensing, Aalto University (the University where Helava studied) donates half the costs for the silver plaque. The plaque was designed by the 1980-88 ISPRS Technical Commission III President, Einari Kilpelä, previously professor at the now Aalto University. A five-member Jury evaluates the papers. For each year of the four-year evaluation period, the best paper is selected, and among these four papers, the one to receive the U.V. Helava Award.

The award-winning paper for the 2016 -2019 period:

"Bundle adjustment with raw inertial observations in UAV applications" *by Davide Antonio Cucci, Martin Rehak and Jan Skaloud*
from École Polytechnique Fédérale de Lausanne, Switzerland, published in volume 130, August 2017, pp. 1-12,
https://www.sciencedirect.com/science/article/pii/S0924271617301387

Davide Antonio Cucci

Martin Rehak

Jan Skaloud

Jury's rationale for the paper selection

This paper presents a new contribution to integrated sensor orientation. It overcomes problems encountered with the traditional, Kalman filter approach for deriving exterior orientation parameter estimates from integrated GNSS/IMU systems used for bundle adjustment. The authors' novel approach incorporates raw inertial observations into the bundle solution as a dynamic network adjustment. Their tight fusion method allows rigorous propagation of error models and properly treats correlations between observations. The success of their approach is experimentally demonstrated with real UAV data and is shown to be superior to the conventional approach for incorporating GNSS/IMU observations. The jurors felt this is a highly significant work that presents a practical solution to a technically challenging problem. Moreover, they were impressed with large-scale applicability given the increasing utilization of UAVs for spatial data capture. They felt this well-written contribution represents a genuine scientific advance to photogrammetry and, therefore, very deserving of the U.V. Helava Award for 2016-2019.

The awardees of the three next-best papers during 2016 – 2019

For 2016 : "Understanding human activity patterns based on space-time-semantics" by Wei Huan, and Songnian Li.

For 2018 : "From Google Maps to a fine-grained catalog of street trees", by Steve Branson, Jan Dirk Wegner, David Hall, Nico Lang, Konrad Schindler, and Pietro Perona.

For 2019 : "Design and evaluation of a full-wave surface and bottom-detection algorithm for LiDAR bathymetry of very shallow waters" by Roland Schwarz, Gottfried Mandlburger, Martin Pfennigbauer and Norbert Pfeifer.

The Jack Dangermond Award

The Jack Dangermond Award was established in 2017 to encourage and stimulate submission of high-quality scientific papers by individual authors or groups to the ISPRS International Journal of Geo-Information, to promote and advertise the journal, and to honour the outstanding contributions of Jack Dangermond, founder and CEO of ESRI, to research and development in Geospatial Information Sciences. The Award is presented to authors of the best paper, written in English and published exclusively in the ISPRS Journal during the four-year period from January of a Congress year, to December of the year prior to the next Congress.
The award consists of a monetary grant of 10,000 USD and certificates, it is sponsored by MDPI and ESRI. A five-member Jury evaluates the papers. For each year of the four-year evaluation period, the best paper is selected, and among these four papers, the one to receive the Jack Dangermond Award.

For the period 2017 - 2019, the winning paper is:

"Voxel-based 3D Point Cloud Semantic Segmentation : Unsupervised Geometric and Relationship Featuring vs Deep Learning Methods" *by Florent Poux and Roland Billen*
From the Geomatics Unit, University of Liège, Belgium, published in Vol. 8, (5), 2019,
https://doi.org/10.3390/ijgi8050213

Florent Poux

Roland Billen

Jury's rationale for the paper selection

The winning paper addresses the problem of voxel-based 3D point cloud semantic segmentation. The authors propose a workflow that uses voxelization, a two-step feature extraction for low-level shape-based features as well as connectivity and relationship features, and finally a knowledge-based decision tree for feature classification. This paper has potential to greatly influence the processing of 3D point cloud data sets that fulfil the definition of Big Data in volume and velocity of data collection. It progresses the trajectory of geospatial analysis toward true 3D functionality. The use of a knowledge-based decision tree for feature classification also leverages the wealth of existing information that can contribute to classification in many application areas. The jury felt this well-written contribution represents a genuine scientific advance in voxel-based semantic segmentation and, therefore, very deserving of the Jack Dangermond Award for 2017-2019.

The awardees of the two next-best papers during 2017 – 2019

For 2018 : Generative Street Addresses from Satellite Imagery" by Ilke Demir, Forest Hughes, Aman Raj, Kaunil Dhruv, Suryanarayana Murthy Muddala, Sanyam Garg, Barrett Doo and Ramesh Raskar.

For 2017 : Evaluation of Feature Selection Methods for Object-Based Land Cover Mapping of Unmanned Aerial Vehicle Imagery Using Random Forest and Support Vector Machine Classifiers" by Lei Ma, Tengyu Fu, Thomas Blaschke, Manchun Li, Dirk Tiede, Zhenjin Zhou, Xiaoxue Ma and Deliang Chen.

The Samuel Gamble Award

The Samuel Gamble Award is sponsored by the Canadian Institute of Geomatics in honour of Dr. Samuel G. Gamble, former President of ISPRS, and Director of the 1972 Congress. A recipient of the award shall be a person who, like Dr. Gamble, has contributed significantly to the development, organization or professional activities of photogrammetry, remote sensing and spatial information sciences, at the national or international level.

Jonathan Li

In 2020, two recipients are awarded : **Jonathan Li**, for his significant contribution to the field of photogrammetry and remote sensing in Canada and internationally; and **Jan Skaloud**, who has advanced the frontier between photogrammetry & remote sensing and navigation sensors.

Jonathan Li is a professor both in Geomatics and Systems Design Engineering at the University of Waterloo (UW), where he founded and leads the "Mobile Sensing and Geodata Science" group with 20 researchers. He has been a principal investigator of over 30 research projects since 2001. He has made outstanding contributions to the development and commercialization of photogrammetry and remote sensing technologies. His research has resulted in the development of new concepts and algorithms for a HD mapping system for smart cities and a 3D LiDAR point cloud processing system for roadway inventory.

Jonathan has been serving on the Canadian National Committee for ISPRS of both the Canadian Institute of Geomatics and the Canadian Remote Sensing Society. He has been an officer of several ISPRS working groups, he has also served as associate editor of various scientific prestigious journals. His research has been supported by government funding agencies, industry and international sponsors. His research activities have led to 16 granted patents, 8 books, and more than 400 research papers published in refereed journals, and in refereed conferences. He has received numerous citations and has also received a number of awards.

Jonathan Li has played an important role in the successful training of geomatics students and professionals. He is very actively involved in many international professional activities, which include his role as a national examiner of Professional Engineers Ontario (PEO) and a co-organizer and/or programme committee of several well-known international conferences including mobile mapping technology (MMT, since 2003), and earth observation for global/environmental changes (EOGC, since 2009).

Jan Skaloud

Jan Skaloud is, among other accomplishments, senior research fellow at EPFL since 2008 and (co-)chair of ISPRS WGs for 12 years. Furthermore, he is active in other international (ION, IAG) and national (Swiss Geodetic Commission, Swiss Society for Photogrammetry and Remote Sensing) scientific and professional organisations.

From these positions he has contributed significantly in the organisation of professional activities and events. A highlight of his contributions is his role in the successful EuroCOW conference series.

Throughout his career, Jan Skaloud has advanced the frontier between photogrammetry & remote sensing and navigation sensors: during his time in Canada he developed the 1st practical result of airborne direct orientation, presented at the ISPRS Congress in Vienna while optimizing georeferencing by INS/DGPS in general. Since his arrival in Switzerland, he put forward the rigorous calibration technique for airborne lidar and new methodology for sensor georeferencing. He led the development of a system and techniques for real-time registration of airborne lasers with sub-decimetre accuracy and in-flight quality control. Since 2013, he pioneered the integrated sensor orientation on small UAV for mapping with cm-level accuracy without ground control, which won him the Hansa Luftbild Price in 2014. In this field, he is the co-recipient of 2020 Helava Award for the development of bundle adjustment with raw inertial observations.

Over the last 20 years, Jan Skaloud contributed to various ISPRS and EuroSDR activities, chairing ISPRS working groups (since 2008) that organize the EuroCOW meetings for which he acts as a main convener since 2016. His other research activities are related to geodesy and navigation.

The Willem Schermerhorn Award

The Willem Schermerhorn Award (1988), sponsored by Geo-Information Netherlands is granted to a person who has most significantly contributed to the activities of a Working Group of the ISPRS during the four-year Congress period. The award consists of a certificate.

Michael Ying Yang

The 2020 Award has been awarded to **Michael Ying Yang** for his leadership of in co-chairing ISPRS working group II/5 Dynamic Scene Analysis in continuity of his involvement in working group III/3 in Image Sequence Analysis (2012-2016). Through this working group he displayed great effort in building bridges between communities, in particular Computer Vision. Such an effort is permitted by the fact Dr. Yang has a clear and sharp vision of this domain and current challenges, as well as by his methodological expertise and publication track record. This allows him to pave the way in new directions for ISPRS and to build new initiatives with counterparts in other communities.

His research interests broadly cover computer vision and photogrammetry. During the last 10 years, he specialized on scene understanding and semantic interpretation from imagery and videos, and has published more than 100 papers in international journals and conference proceedings.

He serves as Associate Editor of Photogrammetric Engineering & Remote Sensing journal, he co-organized 10 international workshops, and is guest editor of 4 journal special issues. He was also the Programme Chair of the ISPRS Geospatial Week 2019.

He is recipient of the ISPRS President's Honorary Citation (2016) and Best Science Paper Award at BMVC 2016. Since 2012, he is regularly serving as program committee member of conferences and reviewer for international journals. He has twice received the Outstanding Reviewer Award for ISPRS Journal of Photogrammetry and Remote Sensing.

He also recently co-edited a book in Multimodal Scene Understanding, which includes state-of-the-art developments on the topic both from a theoretical and an applicative perspective.

The Schwidefsky Medal

The Schwidefsky Medal is sponsored by the German Society of Photogrammetry, Remote Sensing, and Spatial Information (DGPF), in memory of Professor Dr. rer. techn. Dr.-Ing. e.h. Kurt Schwidefsky, Honorary Member of the ISPRS. The Award is in the form of a medal made of porcelain. The recipients shall be persons who have made significant contributions to photogrammetry and remote sensing, either through the medium of publication as author or editor, or in another form.

Derek Lichti

The Schwidefsky Medal 2020 is awarded to **Derek Lichti**, in recognition of his role as Editor-in-Chief for the ISPRS's flagship journal, the ISPRS Journal of Photogrammetry and Remote Sensing, a role in which he served since 2013. He successfully managed the journal's tremendous growth by doubling the editorial team and kept quality the primary focus, as evidenced by the impact factor more than doubling, and the journal's top ranking among remote sensing journals.

Widely recognized for his professional prominence in the worldwide photogrammetry and laser scanning community, Derek has held senior leadership positions with several national and international societies and associations. He was the Co-Chair of Working Group V/3, Terrestrial Laserscanning for the period 2004-2008, and then continued as Chair for the next four-year period. During this time, he organized the very successful Laser Scanning 2011 workshop in Calgary, Canada.

He was the Head of the Geomatics Engineering Department at the University of Calgary from 2013 to 2018, and has received numerous awards for his excellence in teaching undergraduate students and supervising graduate students, and has an outstanding scholarly record, measured in a large number of peer-reviewed journal papers, giving keynotes, teaching tutorials and workshops worldwide.

Prior to his time in Calgary, Derek worked as an academic in Perth, Australia, starting in 1999 and has held visiting academic positions in Australia, Brazil, Malaysia and Switzerland. He was also a co-founder of Scanalyse Pty. Ltd., a successful Perth-based start-up company specialising in wear-measurement solutions for the mining industry, based on laser scanning technology.

The Eduard Doležal Award

The Eduard Doležal Award is donated by the Austrian Society for Surveying and Geoinformation to assist individuals or representatives of institutions from developing or reform countries to participate in the ISPRS Congress.

Damdinsuren Amarsaikhan

The 2020 recipient is **Damdinsuren Amarsaikhan** for his implementation of many practical applications of remote sensing (RS) and GIS. In 1991, as one of the first GIS specialists of Mongolia, he developed the first GIS system of the country.

Since then, he has developed many techniques applied in different fields of RS/GIS and also worked as a project leader in many RS/GIS projects. Damdinsuren Amarsaikhan has been working as Head of Division of RS and Spatial Modelling, Institute of Geography and Geoecology, Mongolian Academy of Sciences (MAS) since February 25, 2015. From 2004 to 2015, he worked as Head of Geoinformatics Department, Institute of Informatics and RS, MAS. He was elected as a full member of the Mongolian Academy of Sciences and became Academician (i.e. Distinguished Professor of Mongolia) in June 2011. From 2007 to 2017, he worked as a professor of GIS/RS at the Geography Department, National University of Mongolia.

He was awarded the "Young Scientist" Prize, by World Academy of Sciences; "Outstanding Scientist of Mongolia - 2005", by the Ministry of Science and Education of Mongolia; "Best ITC Alumni Paper Award", from the ISPRS TC VII Mid-Term Symposium of 2006; "Outstanding Scientist of Mongolia - 2008"; and "Most Outstanding IT Researcher of Mongolia - 2009". In November 2011, his paper entitled "Advanced Applications of Optical, Microwave and Hyperspectral RS in Mongolia" was selected as "The Paper of the Month" by the International Federation of Surveyors.

The Wang Zhizhuo Award

The Wang Zhizhuo Award is sponsored by the Chinese Society of Geodesy, Photogrammetry and Cartography (CSGPC) and consists of a medal and a monetary grant. It is granted at each quadrennial ISPRS Congress to a person who has made significant achievement or innovation in the spatial information sciences.

Wolfgang Kainz

The recipient of the 2020 Award is **Wolfgang Kainz** for his contribution to the theoretical foundations of GIS in fuzzy logic and topology, his efforts to strengthen international education through the development of international graduate programs in geospatial information technology at LIESMARS, Wuhan University, and his excellent work as editor-in-chief of the ISPRS International Journal of Geo-Information.

Wolfgang Kainz is a full professor of Cartography and Geo-Information Science at the Department of Geography and Regional Research of the University of Vienna, Austria. In his research, he focuses on the theoretical issues of GIS, in particular related to spatiotemporal modelling, uncertainty, and topology.

Previously, he has led several research groups in Austria and the Netherlands. He has published more than 150 scientific papers and guided more than 25 international PhD students.

Wolfgang held visiting professor positions at universities in Brazil, the Czech Republic, Kuwait and the USA. In 2014, he became a visiting professor at Wuhan University. He has served ISPRS as chair of WG II/5 (2000-2004), President of Technical Commission II (2004-2008), member of the Executive Committee for the preparation of the ISPRS Centennial (2007-2010), and member of the ISPRS International Scientific Advisory Committee (2008-2012).

He is co-editor of volumes 1 and 5 of the ISPRS Book series. Since 2011, he is founding editor-in-chief of the ISPRS International Journal of Geo-Information (IJGI). In 2019, he was accepted as a member of the ISPRS White Elephant Club.

The Karl Kraus Medal

The Karl Kraus Medal, sponsored by the German Society of Photogrammetry, Remote Sensing, and Spatial Information (DGPF), the Austrian Society of Surveying and Geoinformation (OVG), and the Swiss Society of Photogrammetry and Remote Sensing (SGPF), is awarded to authors of excellent textbooks in the fields of photogrammetry, remote sensing, and spatial information sciences, published no more than eight years prior to the commencement of the ISPRS Congress at which it is to be awarded.

In 2020, the medal is awarded to **Wolfgang Förstner** and **Bernhard P. Wrobel** for their textbook *Photogrammetric Computer Vision - Statistics, Geometry, Orientation and Reconstruction*, published by Springer in 2016

Wolfgang Förstner

After obtaining a degree in geodesy, **Wolfgang Förstner** started his career at the Institute for Photogrammetry, University of Stuttgart. In his dissertation he concentrated on blunder detection in photogrammetric blocks; his results still prevail.

Förstner then devoted his research to the problem of image matching which was highly topical with the first-time availability of digital images. His work was pioneer in digital photogrammetry world-wide. Papers on least squares matching presented at the 1984 ISPRS Congress and on an Interest-Operator, later named the Förstner Operator, at the 1986 ISPRS Symposium are, to this day, recognized as ground-breaking. Almost all systems, which have proven themselves in the practical world, are based on either LSM, the Förstner-Operator or variants thereof. After his appointment to the professorship of photogrammetry at Bonn University in 1990, Förstner became interested also in pattern recognition and computer vision. Work on building reconstruction from aerial images formed his scientific focus for the following years, resulting in many scientific publications but also in the commercial program system inJect.

Many other areas of interest of Wolfgang Förstner and many more of his achievements could be mentioned. Suffice it to say that throughout his exemplary career of more than 40 years as a researcher, inventor, innovator and educator, he has made exceptionally significant scientific contributions in many areas of Information from Imagery and mentored generations of mapping scientists and engineers. Although formally retired since 2012, he continues his scientific activities.

In 2016, Wolfgang received the Brock Gold Medal Award for his outstanding scientific achievements in the fields of photogrammetry and computer vision. ■

Bernhard P. Wrobel

After studying Surveying and Mapping at the Technical University Darmstadt and the University of Bonn, Germany, where he also worked as a research assistant, **Bernhard P. Wrobel** obtained a PhD degree in 1965. He continued his career as an assessor at the Land Registry Cadastre, in the state of North Rhine-Westphalia. From 1967 to 1974, he was head engineer in Photogrammetry at the Institute for Theoretical Geodesy, Bonn University, where he obtained his venia legendi in 1973. He took up the position of associate professor at the Universität Hannover in 1974, and in 1981 became full professor of photogrammetry at the TU Darmstadt, a position he employed until his retirement in 2001. Since then he has intensified his interest in the link between photogrammetry and computer vision, which is visible in the publication of the awarded book. He was guest lecturer in Zurich, in 1992, 1996 and 2000, and in Tainan, Taiwan in 1984, 1988 and 1999. Bernhard's main areas of interest have been mathematical aspects of photogrammetry, surface reconstruction of objects using digital image matching, particularly with the "Facetten-Stereosehen" approach, and applications in cadastre, construction and engineering. He is author and co-author of various publications, including "Digital Image Matching by Facets using Object Space Models" (SPIE 804, 1987) and "Calibration and Orientation of Cameras in Computer Vision" (Springer, 2001). In 1977, he was awarded the Hansa Luftbild Prize.

The Frederick J. Doyle Award

The Frederick J. Doyle Award is awarded to an individual who has made significant accomplishments in advancing the photogrammetry, remote sensing and spatial information sciences and technologies. A recipient of the award should typically be less than 50 years of age and have outstanding stature within the ISPRS community. The award consists of a silver medal and a monetary grant.

Konrad Schindler

The Frederick J. Doyle Award 2020 goes to **Konrad Schindler** for his important contributions in research and education, as well as in ISPRS affairs.

Konrad Schindler has been active in photogrammetry, remote sensing and computer vision for more than 20 years. He has worked in various academic positions, since 2010 he is professor of Photogrammetry and Remote Sensing at ETH Zurich. He has been a figurehead of photogrammetric computer vision, both within the world of photogrammetry and as one of the few photogrammetrists with a long-term recognition in the computer vision community. He has made sustained contributions to the use of high-level computer vision in photogrammetry and remote sensing, and to the adoption of deep learning.

Overall, he has co-authored more than 150 peer-reviewed publications. His work has won several scientific awards : Helava Award 2008-2011, the Helava Best Paper 2018, Best Paper at the TC2 Symposium 2018, Best Paper at PIA 2015, and Honourable Mentions for the Marr Prize 2013, and the 3DV Award 2019. With more than 12,000 citations and a h-index of 63, Konrad is among the most-cited academics in photogrammetry.

Konrad has been ISPRS Technical Commission II President (2012-2016), organiser of several joint ISPRS/IEEE workshops, and since 2012 is associate editor of the ISPRS Journal. His exceptionally inspirational work consistently and successfully bridges the presumable gap between photogrammetry and remote sensing on one hand, and (modern) computer vision on the other. In this way, he has inspired many top PhDs, helping them to a successful career. ■

The Giuseppe Inghilleri Award

The Giuseppe Inghilleri Award, sponsored by the Italian Society for Surveying and Photogrammetry (SIFET) is presented to a person who has significantly enhanced the applications of photogrammetry, remote sensing or spatial information sciences in the 4 years preceding the Congress. The award consists of SFr 2,500 and a certificate.

Two recipients of the award have been chosen for 2020: **Marc Pierrot Deseilligny**, for his long-term development of the open source software MicMac ; and **Cheng Wang**, for his work in 3D point cloud processing.

Marc Pierrot Deseilligny

Marc Pierrot Deseilligny is research director at IGN. He currently works at the Ecole Nationale des Sciences Géographiques (ENSG) where he is involved in research and teaching in the LaSTIG (Laboratoire en Sciences et Technologies de l'Information Géographique). It is his conviction that research must be closely linked to teaching. The principal topic of his scientific career is "Image processing applied to data production for geographic information systems". Until 2003, his research was focused on "Automatic interpretation of scanned maps". Since then, his main activities have moved to the field of photogrammetry.
Since 2003, Marc's photogrammetric research has been integrated into the software named MicMac. In 2007, he proposed to IGN, to make MicMac a free open source project, motivated by his belief that it is good that intangible property is shared for free, and because free open source is a necessary condition to preserve freedom in the digital domain. Since then, the user base of MicMac has largely increased, demonstrating the convincing success of his work.

Cheng Wang

Cheng Wang is presently a professor in Computer Science and Executive Associate Dean at the School of Informatics, Xiamen University, China, and Deputy Director of the Fujian Key Laboratory on Sensing and Computing for Smart Cities.
His main research interests are 3D point cloud processing, mobile mapping system design and geospatial big data analysis with applications on Smart Cities.

ISPRS Best Young Author Award

2020 Virtual Event

The awards for Best Papers by Young Authors are provided by donor organizations and by ISPRS to authors who are less than 35 years old and are the 1st author of a high-quality paper presented at the Congress. Two awards are given per Technical Commission.

Technical Commission I

Emmanuel Cledat Switzerland
Camera calibration models and methods in corridor mapping with UAVs
Stefan Blaser Switzerland
Cm-accuracy in forests and urban canyons – combining a high-performance image-based mobile mapping backpack with new georeferencing methods

Technical Commission II

Dennis Wittich Germany
Deep domain adaptation by weighted entropy minimization for the classification of aerial images
Eleonora Maset Italy
Bundle Block Adjustment with Constrained Relative Orientations

Technical Commission III

Rory Clifford Pittman Canada
Estimation of soil bulk density and carbon using multi-source remotely sensed data
Jiangyuan Zeng China
Development and validation of a new passive microwave-based soil moisture index

Technical Commission IV

Xiaoli Li China
Region-based fuzzy clustering image segmentation algorithm with Kullback-Leibler distance
Patrick Hübner Germany
Voxel-based indoor reconstruction from hololens triangle meshes

Technical Commission V

Priyanka Singh India
Maximum entropy modelling using citizen science: use case on Jacobin cuckoo as an indicator of Indian monsoon
Recep Can Turkey
Development of a CitSci and artificial intelligence supported GIS platform for landslide data collection

The President's Honorary Citation

The President's Honorary Citation is a certificate of recognition presented by the President of ISPRS to one or more officers (chairperson, co-chairperson or secretary) of one Working Group of each ISPRS Technical Commission. The citation is to recognize special, personal and meritorious contributions to the operation of the relevant Technical Commission's activities and advancement of its interests, during the quadrennial term of the Society.

The 2020 recipients are:

Technical Commission I : Francesco Nex

for his outstanding efforts in leading ICWG I/II "UAS and Small Multi-Sensor Platforms" and meritorious contributions to our scientific community.

Technical Commission II : Diego Gonzalez-Aguilera

for his excellent work in strengthening relationships with the heritage community, for his overall contribution to the organization of scientific events related to heritage 3D documentation and for his efforts in educational activities.

Technical Commission III : Eija Honkavaara

for her outstanding leadership of ISPRS Working Group III/4 on "Hyperspectral Image Processing", and meritorious contributions to the objectives and missions of TC III.

Technical Commission IV : Maria Antonia Brovelli

for her significant support to Commission IV by organising multinational open data projects with the aim of promoting geospatial knowledge and technologies for community-based mapping and outstanding leadership of WG IV/4 on "Collaborative Crowdsourced Cloud Mapping (C^3M)".

Technical Commission V : Vladimir Seredovich

for his meritorious contributions to Technical Commission V and invaluable leadership of WV/7 on "Innovative Technologies in training Civil Engineers and Architects". ■

Student Consortium Service Award

The ISPRS Student Consortium Service Award recognizes an individual who has rendered exceptional contributions to the Consortium during an ISPRS Congress term. This award is given for the first time in 2020, and then at each following Congress.

Sheryl Rose Reyes

For 2020, the award is presented to **Sheryl Rose Reyes** for outstanding leadership of the ISPRS Student Council in the 2016 to 2020 term.

In the past four years, Ms. Reyes has provided outstanding leadership for the ISPRS Student Council and developed strong respect among her peers.

From her many achievements, two are particularly noteworthy: the first is the Student Consortium Newsletter, SPECTRUM, which, for the student community is in par with the ISPRS eBulletin, and signifies Sheryl's commitment and hard work. The second one is the increasing number of Student Consortium Summer Schools, which have not only grown but improved in quality under her Student Consortium leadership. ■

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Nice, France