

Sino-German Workshop
Dynamic Maps

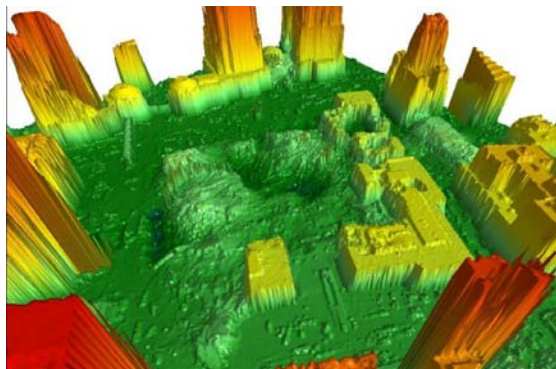
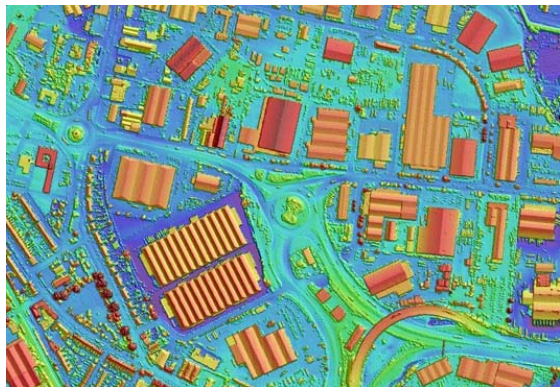
2009.12.07 – 2009.12.09

At the

Haiyi Jinjiang Hotel

海怡锦江大酒店

武汉市武昌洪山路特1号武汉电信商务会议中心



Organized by



Wuhan University

AND



Leibniz University Hannover

Supported by



Organizer (in China)

Bisheng Yang



Bisheng Yang obtained his Ph.D degree in Photogrammetry and Remote Sensing from Wuhan University, China in 2002. He was a Post-doctoral Research Fellow in GIS Division, Department of Geography, University of Zurich, Switzerland from October 2002 to October 2006. He is now a Full Professor at the State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing (LIESMARS) in Wuhan University. His research interests cover multi-resolution data modelling, laser point clouds processing, 2D/3D visualization, progressive transmission of spatial data over the Internet.

Organizer (in Germany)

Claus Brenner



Claus Brenner received his diploma in computer science in 1994 and his PhD (Dr.-Ing.) from the faculty of civil engineering and surveying in 2000, both from the University of Stuttgart, Germany. From 1994 to 2000, he was with the Institute for Photogrammetry, University of Stuttgart, from 1996 on as head of the optical inspection group. From 2000 to 2002, he worked for Robert Bosch Corporate Research and Development, investigating next generation car navigation systems. Since 2002 he is with the Institute of Cartography and Geoinformatics, where he leads a junior research group on 'Automatic methods for the fusion, reduction and consistent combination of complex heterogeneous geoinformation'. His research interests are automated object extraction from images and laser scanning data, as well as modeling and generalization.

Brief Introduction

Future mapping will replace the traditional separation between map making and map usage by a holistic approach, where participants, equipped with sensors, use map data while at the same time contribute information, effectively keeping the map up to date at all times. This workshop brings together experts from the classical mapping community – photogrammetry, geodesy, geoinformatics, and cartography – and experts from related fields, such as computer vision, computer graphics, robotics, machine learning and autonomous driving.

It is our common goal to pursue research towards new mapping approaches, focusing on topics such as:

- new platforms for low-altitude and close range acquisition, e.g. unmanned airships and micro drones
- highly detailed modeling of large scenes and structures
- capture, mapping, perception, and localization in dynamic scenes
- automotive and robotic mapping
- representation and visualization of dynamic scenes
- persistent localization and mapping
- interrelation of mapping and driver assistance / autonomous driving
- data models and structures for dynamic maps
- high-performance retrieval of (high-dimensional) spatial information
- integration of multiple sensors like airborne, terrestrial, and mobile platform sensors, including 'consumer grade' sensors
- interpretation and fusion aspects applied to acquisition 'systems of systems' of inhomogeneous resolution and accuracy
- geo-sensor networks to collect spatiotemporal data
- detailed capture of cultural heritage objects
- aspects of pattern recognition, especially recognition and modeling of complex 3D structures.

It is a major purpose of the workshop to look at the dynamic mapping problem from the viewpoints of different disciplines and arrive at a more concrete definition of research projects which are properly mirrored between the Chinese and German partners.

Monday, December 7, 2009		
8.30~9.00	Opening Ceremony	
9:00-9:15	Photo	
9.15~10.45	3D Mapping	
	Digital Cultural Heritage in China (45 minutes)	Deren Li
	Future maps and mapping infrastructures	Claus Brenner
	Topographic Mapping with High-resolution optical remote sensing imagery in remote areas	Li Zhang
	6D SLAM – Small and Large Scale Robotic 3D Mapping	Andreas Nuechter
10:45~11:00	Coffee & Tea Break	
11:00~12:15	Modeling	
	World modeling	Giorgio Grisetti
	Level-of-detail Modeling from Laser Scanning Point Clouds	Bisheng Yang
	Spatio-temporal fusion of multi-sensor and multi-scale data for dynamic site model generation	Stefan Hinz
	Multi-scale Modeling	Zhilin Li
	Machine learning of models (grammars) for high resolution models of historical buildings	Lutz Plümer
12:15~13:45	Lunch Break	
14:00~15:00	Robotic mapping	
	Hierarchical Structure in Spatial Representations	Sven Behnke
	Dynamical Perception Modeling for Autonomous Driving	Qingquan Li
	Dynamic pattern recognition	Wolfgang Förstner
	Annotation of Geographical Information in Natural Language	Xueying Zhang
15:00~15:15	Coffee & Tea Break	
15:15~16:45	Discussion	Group 1.
		Group 2.
		Group 3.
16:45~18:00	Incremental Mapping	Jukka Krisp
	Towards an Omni-Directional Measurement of a Large Dynamic Environment	Huijing Zhao
	Towards Automatic Mapping and Dynamic 3D Scene Understanding Using Camera-Based Systems	Olaf Hellwich
	Design and Evaluating Methods of Test Environment of Auto-driving	Shuming Tang
18:00~	Dinner	

Tuesday, December 8, 2009		
9:00~10:15	Data Acquisition and Processing	
	Digitizing of E-heritage Using Terrestrial Laser Scanning	Yanmin Wang
	Similarity and Self-Similarity in Geometry Acquisition	Andreas Schilling
	Spatial Data for Rapid Response of Emergency	Jing Li
	Decentralized incremental data capture	Monika Sester
	DEM based relief recognizing & terrain analysis	Guoan Tang
10:15~10:30	Coffee & Tea Break	
10:30~11:45	Data Acquisition and Processing	
	3D Reconstruction and Object Extraction from UAV and Terrestrial Image Sequences	Helmut Mayer
	Complex Primitive Segmentation from Terrestrial Point Clouds based on Panoramic Reflectance Images	Zhizhong Kang
	Feature Extraction by Meanshift Method from Airborne LIDAR Data Fused with Aerial-Image	Chun Liu
	Challenges in enrichment and automatic texturing of 3d building models by terrestrial and airborne IR video	Uwe Stilla
	Automatic Extraction of Building Footprints from Airborne LIDAR Data	Zhi Wang
11:45-12:00	Short Summary	
12:15~13:45	Lunch Break	
14:00~15:00	Applications	
	3D Data Modeling of Ming Great Wall	Jun Chen
	Small Stack PS-InSAR in Shanghai	Mingsheng Liao
	Photogrammetric data acquisition for dynamic maps using image sequences	Christian Heipke
	Monitoring and Precaution of dangerous moving objects in disaster areas	Lixin Wu
15:00~15:15	Coffee & Tea Break	
15:15~16:30	Discussion	Group 1.
		Group 2.
16:30~17:15	Digital Photogrammetric Grid and Applications in Fast Processing of Aerial and Low Altitude Images	Yongjun Zhang
	3D Mapping for Mobiles	Christoph Stiller
	Multi-Data Source based e-Heritage	Xianfeng Huang
18:00~	Dinner	

Wednesday, December 9, 2009		
9:00~11:00	Discussion	Final discussion, first steps towards proposals.
11:00~12:00	Technical Visit	Tour to State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing
12:00~14:00	Lunch Break	
14:00~17:00	Technical Visit	Tour to Wuhan Wuda Zoyon Science and Technology Co., Ltd., Wuhan Wuda Geoinformatics Co., Ltd.
17:30~	Dinner	

	Speaker	Institute		Speaker	Institute
Germany	Sven Behnke	Universität Bonn	China	Bisheng Yang	Wuhan University
	Claus Brenner	Universität Hannover		Jun Chen	NFGIS
	Giorgio Grisetti	Universität Freiburg		Qingquan Li	Wuhan University
	Wolfgang Förstner	Universität Bonn		Deren Li	Wuhan University
	Christian Heipke	Universität Hannover		Yanmin Wang	Beijing University of Civil Engineering and Architecture
	Olaf Hellwich	Technische Universität Berlin		Xueying Zhang	Nanjing Normal University
	Stefan Hinz	Universität Karlsruhe		Li Zhang	Chinese Academy of Surveying & Mapping
	Helmut Mayer	Universität der Bundeswehr München		Mingsheng Liao	Wuhan University
	Jukka Krisp	Technische Universität München		Zhizhong Kang	China University of Geosciences
	Andreas Nuechter	Jacobs University Bremen		Zhilin Li	Hong Kong Polytechnic University
	Lutz Plümer	Universität Bonn		Huijing Zhao	Peking University
	Andreas Schilling	Universität Tübingen		Shuming Tang	Chinese Academy of Sciences
	Monika Sester	Universität Hannover		Guoan Tang	Nanjing Normal University
	Uwe Stilla	Technische Universität München		Jing Li	Beijing Normal University
	Christoph Stiller	Universität Karlsruhe		Yongjun Zhang	Wuhan University
				Chun Liu	Tongji University
		Lixin Wu	Beijing Normal University		
		Xianfeng Huang	Wuhan University		
		Zhi Wang	Northeastern University		

The workshop will be held at the Haiyi Jinjiang Hotel

海怡锦江大酒店

湖北武汉市武昌洪山路特 1 号武汉电信商务会议中心

Haiyi Jinjiang Hotel - Wuhan Telecom Business Conference Center, Te 1, Hongshan Road, Wuhan

