CV

Michael Jendryke, Dr.-Eng.

Geospatial Data Engineer and Scientist

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GEOSPATIAL DATA ENGINEER AND SCIENTIST

An enthusiastic and dedicated geography professional with over nine years of international experience in geospatial research and practice. Extremely organized with the ability to work both independently of own initiative or as part of a successful team, demonstrating the motivation and multi-tasking abilities required to meet demanding deadlines while maintaining the highest of standards. Combines a professional and confident approach with excellent interpersonal skills, and can communicate concisely at all levels.

PROFESSIONAL EXPERIENCE

Postdoc Wuhan University – China *Nov 2017 – present*
State's key laboratory of information engineering in surveying, mapping, and remote sensing.

- Research on multi-source geo-data and Deep Learning; measured outcome: SCI publications.
- Supervising Master and PhD students for research and manuscript writing.

Geospatial Data Scientist *Geospatial Engineering & Consulting* – Remote Jan *2017 – present*
Providing custom solutions for clients from research and public sector

- Consultation and development of solutions for clients from archeology, non-profit voter mobilization, and management consulting.

Data Management Officer World Health Organization – Switzerland *Nov 2013 – Mar 2014*
Public health arm of the United Nations, monitoring outbreaks and assessing health systems globally.

- Worked on the Polio Eradication Program, matching confirmed polio cases to place names to provide more effective monitoring. Increased the rate of place name matches from 80% to 95%.
- Added 50+ consolidated administrative boundary layers to global geo-database at level 2 and 3, to gain cartographic and topological regularity, and historical records of previous boundaries, overcoming problems of inconsistent data that had been provided by member states.
- The developed geodatabase was the back-end solution to geolocate and analyse all polio cases that have ever been recorded and digitized – enabling the team to perform multi temporal spatial analysis.

Visiting Researcher Wuhan University – China *Feb 2011 – Jul 2011*
State's key laboratory of information engineering in surveying, mapping, and remote sensing.

- Created a prototype for an algorithm which allowed the University to process high resolution TerraSAR-X Spotlight Mode satellite imagery, for the first time, and process archive data and future acquisitions of high resolution interferometric data. Learned MATLAB and Python programming languages to complete this prototype.
- Established contacts in China's academic geo-spatial community, allowing the University to achieve its objectives of attracting and exchanging foreign and local students.
- Organized and facilitated a weekly support group for 25 non-English-speaking students and teachers to help them improve their language skills. All reported increased language abilities.

Remote Sensing Analyst UN Institute for Training and Research – Switzerland *Aug 2009 – Feb 2011*
Principal research arm for the United Nations. Worked on the UN Operational Satellite Applications Program.

- Geographically analyzed and visualized maps after 20 natural disasters (including Haiti earthquake, 2010; Pakistan flooding, 2011), by extracting information from various optical and

microwave satellite sensors. Provided tangible insights about the situation for ground team coordination – while being under severe time pressure to produce meaningful results (often within 2 days), and update maps as the disaster progresses.
- Accountable for precise flood information extraction using advanced remote sensing methods, lowering false alarms. 0% of my analysis was reported as being incorrect by ground teams.
- Remotely assessed civil conflicts in Sri Lanka, Kyrgyzstan, and South Sudan using high resolution optical satellite imagery, delivering information to internal UN security documents, to compile evidence about war situations.
- Generated course material for advanced software products by writing tutorials and preparing data so students can develop their methodological remote sensing capabilities.

Water Resources Intern Assoc. for Water and Rural Development – South Africa *Jun 2007 – Oct 2007*
Non-profit organization specialising in multi-disciplinary, participatory, research based project implementation aimed at addressing issues of sustainability, inequity, and poverty.

- Drafted a 150-page document on water resources management in South Africa to make government guidelines and instructions easier to understand for stakeholders and participants. Achieved objectives despite challenge of having no prior knowledge about the subject.
- First time assessment and analysis of historic aerial photography of six villages in South Africa, demonstrating the rapid expansion of build-up and decline in agricultural land during Apartheid using GIS and historical airborne imagery. Research delivered leverage during (financial) development negotiations.

EDUCATION & PROFESSIONAL DEVELOPMENT

Dr.-Eng. in Photogrammetry and Remote Sensing, Wuhan University, China *Jun 2012 – Jan 2017*
Modules included: Advanced Topics on Remote Sensing, Spatial statistics & analysis, Spatial-Temporal Big Data Analytics, and Data Science. Overall course GPA: 3.50/4.00.
Main project: 'Inferring Shanghai's urban vibrancy using microwave remote sensing and big social sensing data' An investigation into urban dynamics in China.

- Improved written and oral scientific communication, and learned to raise money through proposals. Problem solving skills, analytical thinking, and 2+ years of PhD project management.

M.Sc. in Geography / Geomatics, Ruhr-Universität Bochum, Germany *Sep 2008 – Oct 2010*
Modules included: Geographic Information Systems I and II, Extraction of geoinformation from remote sensing data: digital photogrammetry, Digital image processing. Overall course GPA: 3.65/4.00.
Main project: 'System development for flood analysis with RADAR remote sensing data'. Enhancing procedures and decreasing processing time to derive flood extents (see UNOSAT).

- Acquired skills to analyze, interpret, and represent geo-spatial data.

B.Sc. in Geography, Ruhr-Universität Bochum, Germany *Sep 2005 – Aug 2008*
Modules included: Fundamentals of geo-science, Territories and ecological systems of Europe, GIS use in Geography. Overall course GPA: 3.00/4.00.
Main project: 'Spatial investigation of six South African settlements – A qualitative aerial photo analysis'. Base line research, creating facts about the development of settlements, used by AWARD (see internship) and others (universities, NGOs).

- Attained geographic knowledge, scientific method competencies.

PUBLICATIONS & ACADEMIC ACHIEVEMENTS

Peer-reviewed Journal Articles

Gino Caspari, Michael Jendryke (2017) *Archsphere – A cluster algorithm for archaeological applications*, Journal of Archaeological Science: Reports

Michael Jendryke, Timo Balz, Mingsheng Liao (2017) *Big location-based social media messages from China's Sina Weibo network: Collection, storage, visualization, and potential ways of analysis*, Transactions in GIS

Michael Jendryke, Timo Balz, Stephen C McClure, Mingsheng Liao (2016) *Putting people in the picture: Combining big location-based social media data and remote sensing imagery for enhanced contextual urban information in Shanghai,* Computers, Environment, and Urban Systems

Michael Jendryke, Stephen C McClure, Timo Balz, Mingsheng Liao (2016) *Monitoring the built-up environment of Shanghai on the street-block level using SAR and Volunteered Geographic Information*, International Journal of Digital Earth

Michael Jendryke, Timo Balz, Houjun Jiang, Mingsheng Liao, Uwe Stilla (2013) *Using Open-Source Components to Process Interferometric TerraSAR-X Spotlight Data*, International Journal of Antennas and Propagation

Proceedings

Michael Jendryke, Timo Balz, Mingsheng Liao (2016) *Observing urban built-up change in Shanghai with SAR imagery*, Proceedings IGARSS 2016, Beijing, pp. 1788-1791, 2016.

Michael Jendryke, Mingsheng Liao, Timo Balz (2013) *Using ENVISAT ASAR for urbanization surveillance in Shanghai*, Proc. 2013 Dragon Symposium, Palermo, Italy

Timo Balz, Lianhuan Wei, Michael Jendryke, Daniele Perissin, Mingsheng Liao (2012) *TomoSAR and PS-InSAR analysis of high-rise buildings in Berlin*, IGARSS 2012 Proceedings

Lianhuan Wei, Mingsheng Liao, Timo Balz, K. Liu, and Michael Jendryke (2012) *High-resolution TomoSAR & PS-InSAR analysis in urban areas*, Proceedings Dragon 2&3 Symposium, Beijing, China

Presentations

Michael Jendryke, Xi Li (2017) *Observing China's urban development using big data*, ISPRS Workshop on Collaborative and Dynamic Land Cover Information Services Supporting UN Sustainable Development Goals, Jinan, China

Michael Jendryke, Guan Lin, Xi Li, Yidong Lou, Deren Li (2016) *Benefits of Geospatial Technology in the One Belt One Road Initiative*, Wuhan University – Chinese Scholarship Council Meeting for Doctoral Students, Wuhan, China

Michael Jendryke, Mingsheng Liao (2016) *Urban vibrancy inference from remote sensing and big social sensing data*, Ministry of Science and Technology – National Science Foundation of China, Annual Key Project Report, Beijing, China

Michael Jendryke, Timo Balz, Mingsheng Liao (2016) *Urban vibrancy inference from remote sensing and big social sensing data*. School of Remote Sensing and Information Engineering – Doctoral Forum, Wuhan, China

Michael Jendryke, Timo Balz, Mingsheng Liao (2016) *Collecting, visualizing, and analyzing location-based social media messages from China's Sina Weibo network*, International Symposium on Digital Earth – Digital Earth Summit, Beijing, China

Michael Jendryke, Timo Balz, Stephen McClure, Mingsheng Liao (2015) *Combining Mobile Social Media Messages and Remote Sensing Results to Identify Urbanization Patterns in China*, American Association of Geographers Annual Meeting AAG, Chicago, USA

Michael Jendryke, Timo Balz, Mingsheng Liao (2015) *Urban Dynamics in China*. LIESMARS Geoscience Café – Wuhan University, Wuhan, China

Michael Jendryke, Timo Balz, Mingsheng Liao, Zhang Lu (2013*) Interferometric Processing of TanDEM-X Bi-Static Pairs Using an Open-Source Platform*. TerraSAR-X/TanDEM-X Meeting DLR, Oberpfaffenhofen, Germany

Michael Jendryke, Timo Balz, Mingsheng Liao and Uwe Stilla (2013) *Measuring Shanghai's urban growth since 2003 using ENVISAT ASAR*. International Symposium of Remote Sensing of the Environment ISRSE, Beijing, China

Michael Jendryke, Wendi Petersen (2010) *Satellite Derived Analysis and Mapping Population Dynamics*, United Nations Fund for Population Activities UNFPA Expert Meeting: Population Dynamics and Climate Change II: Building for Adaption, Mexico City, Mexico (invited talk)

Maps

- ESRI Inc. (2011) ESRI Map Book Volume 26, pp. 93-95 http://www.esri.com/mapmuseum
- UNITAR/UNOSAT (2009-2011) Maps at https://www.unitar.org/unosat/maps (Contributions to maps as part of the team)

Acknowledgements

- Du Toit D; Pollard S (2012) Public participation in the drafting of catchment management strategies made simple!
- Da Silva, A (2011) Land Use/Land Cover Modelling and Prediction
- Aigner, E. (2010) As Floodwaters Recede, a Crisis Emerges. The New York Times, Sept. 25
- Carvajal, D. (2010) Unrelenting misery in Pakistan. Int. Herald Tribune pp. 4, Aug. 28./29.
- Gall, C. (2010) Extent of the Flooding in Pakistan. The New York Times pp. A10, Aug. 20
- Shankar, R (2010) Accuracy Assessment of Post-Earthquake Building Damage Classification in Haiti

Journal Reviewer

- Computers, Environment and Urban Systems
- Transactions in GIS
- Geoinformatics & Geostatistics: An Overview

Professional Membership

- Deutsche Gesellschaft für Kartographie DGfK (German Association for Cartography)
- Open Source Geospatial Foundation (OSGeo)

SKILLS & TRAININGS

Skills

- Remote Sensing, Geographical Information Systems, Geospatial Analysis, Image Processing, Spatial Statistics, Project Management, Geoscience, Earth Observation, Social Media, Location Based Services, Volunteered Geographic Information, Open Street Map
- Linux, Windows, ESRI/ArcGIS, ERDAS, QGIS, GDAL, Git
- C#, SQL, Python, MATLAB, C++, HTML/CSS
- German (native), English (fluent), Chinese (beginner)

Trainings

2011	Google: Advanced training on KML generation, Geneva, Switzerland	3 days
2010	ERDAS: General software introduction, Geneva, Switzerland	3 days
2009	ESA: Next ESA SAR Toolbox (NEST), Frascati, Rome, Italy	3 days
2009	ESRI: GeoPortal version 9.x, Nyon, Switzerland	3 days

GRANTS & HONORS

2016	Publication Award – LIESMARS Star Lake Award	1,500 EUR
2012-2016	Doctoral scholarship – Chinese Scholarship Council	per y ~14,000 EUR
2012-2014	Doctoral scholarship – German Academic Exchange Service	per y ~7,000 EUR
2010	Top 10% of all students in NRW cut BAföG student loan by	25%
2009	UN short term grant – German Academic Exchange Service	~1,000 EUR

VOLUNTEERING

Co-hosted English Corner; an informal group of students who want to improve their oral English, at Wuhan University. Weekly meetings and special event such as baseball or Halloween parties.

FURTHER LINKS

- LinkedIn: https://www.linkedin.com/in/michaeljendryke/
- Github: https://github.com/MichaelJendryke
- OSGeo: https://wiki.osgeo.org/wiki/User:MJ
- WHO Polio Information System POLIS Backend: http://maps.who.int/arcgis/rest/services/POLIO/GEODATABASE/MapServer
- UNOSAT Maps: https://www.unitar.org/unosat/maps

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