

Curriculum Vitae

Haosheng HUANG, PhD

Geographic Information Science (GIS)
Department of Geography, University of Zurich - Irchel

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1. Personal Information

Date of Birth: 23 March 1983

Place of Birth: Guangdong, China

Status: Married, 2 children (born in 2011 and 2015)

Nationality: Chinese

Language: Chinese (Mandarin, Cantonese), English, German (beginner's level)

2. Education

Ph.D. (with Distinction/Honours) in Surveying and Geoinformation 03/2008 – 09/2013

Department of Geodesy and Geoinformation

Vienna University of Technology (TU Wien), Austria

Advisers: Prof. Georg Gartner, Prof. Martin Raubal (ETH Zurich, Switzerland)

Ph.D. Diss.: Learning from Location Histories for Location Recommendations

MSc in Computer Software and Theory, Department of Computer Science 09/2004 – 06/2006

South China Normal University, China

BSc in Computer Science and Technology, Department of Computer Science 09/2000 – 07/2004

South China Normal University, China

3. Research Fields

- Geographic Information Science
- Location-Based Services (LBS), Navigation Systems
- Spatial Cognition, Wayfinding
- Computational Place Modelling
- LBS-Based Mobility and Transportation Applications

4. Academic Experiences

Research Group Leader (since 12.2016), Oberassistent (Senior Researcher/Lecturer) 07/2016 - Present

Geographic Information Science (GIS), Department of Geography, **University of Zurich**

Duties: teaching, supervising, research

Guest Professor 03/2017-06/2017

Department of Geodesy and Geoinformation, **Vienna University of Technology**

<u>Adjunct Research Fellow</u> Research Center for Social Informatics, Kwansei Gakuin University , Japan	10/2016-03/2021
<u>Univ.Ass. Dr. (senior researcher and lecturer)</u> Department of Geodesy and Geoinformation, Vienna University of Technology Duties: teaching (undergraduate and postgraduate), MSc/PhD supervising, research (LBS and crowdsourcing), and industrial consulting (LBS for finding parking spots) Research project “EmoMap – Emotional Mapping for Enhancing LBS”	03/2014-06/2016
<u>Guest Researcher</u> (secondment, funded by EU COST) Polytechnic University of Milan (Como), Italy	07/2015-07/2015
<u>Guest Researcher</u> (secondment, funded by EU COST) Siena University, Italy	04/2015-05/2015
<u>Visiting Scholar and Guest Lecturer</u> (secondment, funded by EU Erasmus+) Department of Geography, Ghent University, Belgium	11/2014-11/2014
<u>Research Assistant</u> , Research Group Cartography Vienna University of Technology, Austria Austrian Research Promotion Agency (FFG) funded projects “Ways2navigate with Mobile Maps, Verbal Instructions and Augmented Reality” and “EmoMap”	08/2010-02/2014
<u>Visiting Scholar</u> , Department of Geography University of California, Santa Barbara (UCSB), USA Austrian Marshall Plan Foundation funded project “Context-aware Collaborative Filtering in Location-Based Services” (PI)	02/2010-07/2010
<u>Research Assistant</u> , Research Group Cartography Vienna University of Technology, Austria Austrian Science Fund (FWF) funded project “UCPNav: Ubiquitous Cartography for Pedestrian Navigation”	10/2007-02/2010
<u>Doctorate Research Assistant</u> , Guangzhou Institute of Geochemistry Chinese Academy of Sciences, China	03/2007-09/2007
<u>Research Assistant</u> , Spatial Information Research Center South China Normal University, China	07/2006-02/2007

5. Publications

Journal Articles

1. Fellner, I., **Huang, H.***, Gartner, G. (2017): “Turn left after the WC, and use the Lift to go to the 2nd floor” - Generation of Landmark-based Route Instructions for Indoor Navigation. *ISPRS International Journal of Geo-Information*, 6(6), 183, doi:10.3390/ijgi6060183.
2. Griffin, A., White, T., Fish, C., Tomio, B., **Huang, H.**, Robbi Sluter, C., Meza Bravo, J., Fabrikant, S., Bleisch, S., Yamada, M., Picanco, P. (2017): Designing Across Map Use Contexts: A Research Agenda. *International*

Journal of Cartography. doi: 10.1080/23729333.2017.1315988.

3. **Huang, H.**, (2016): Context-Aware Location Recommendation Using Geotagged Photos in Social Media. *ISPRS International Journal of Geo-Information*, 5, 195, doi:10.3390/ijgi5110195.
4. Gartner, G., **Huang, H.**, (2016): Recent research developments in modern cartography in Europe. *International Journal of Cartography*, 2(1), pp. 1-5, doi:10.1080/23729333.2016.1187908.
5. **Huang, H.**, Klettner, S., Schmidt, M., Gartner, G., Leitinger, S., Wagner, A., Steinmann, R. (2014): AffectRoute – Considering people’s affective responses to environments for enhancing route planning services. *International Journal of Geographical Information Science*, 28(12), pp. 2456-2473.
6. **Huang, H.**, Gartner, G. (2014): Using trajectories for collaborative filtering based POI recommendation. *International Journal of Data Mining, Modelling and Management*, 6(4), pp. 333-346.
7. **Huang, H.**, Gartner, G., Turdean, T. (2013): Social media data as a source for studying people’s perception and knowledge of environments. *Mitteilungen der Österreichischen Geographischen Gesellschaft (Transactions of Austrian Geographical Society)*, 155, pp. 291-302.
8. Klettner, S., **Huang, H.**, Schmidt, M., Gartner, G. (2013): Crowdsourcing affective responses to space. *Kartographische Nachrichten - Journal of Cartography and Geographic Information*, 2013, no.2&3.
9. **Huang, H.**, Schmidt, M., Gartner, G. (2012): Spatial Knowledge Acquisition with Mobile Maps, Augmented Reality and Voice in the Context of GPS-based Pedestrian Navigation: Results from a Field Test. *Cartography and Geographic Information Science*, 39(2), pp. 107-116.
10. **Huang, H.**, Gartner, G. (2012): Collective Intelligence Based Route Recommendation for Assisting Pedestrian Wayfinding in the Era of Web 2.0. *Journal of Location Based Services*, 6(1), pp.1-22.
11. Gartner, G., **Huang, H.**, Millonig, A., Schmidt, M., Ortog, F. (2011): Human-centred mobile pedestrian navigation system. *Mitteilungen der Österreichischen Geographischen Gesellschaft (Transactions of Austrian Geographical Society)*, 153, pp. 237-250.
12. **Huang, H.**, Li, Y., Gartner, G., Wang, Y. (2011): An SVG-based method to support spatial analysis in XML/GML/SVG-based WebGIS. *International Journal of Geographical Information Science*, 25(10), pp. 1561-1574.

Books, Edited Volumes and Proceedings

1. Gartner, G., **Huang, H.** (eds.) (2017): *Progress in Location-Based Services 2016*. Lecture Notes in Geoinformation and Cartography, Berlin/Heidelberg, Springer.
2. Capineri, C., Haklay, M., **Huang, H.**, Antoniou, V., Kettunen, J., Ostermann, F., Purves, R. (eds.) (2016): *European Handbook of Crowdsourced Geographic Information*. London: Ubiquity Press, DOI: <http://dx.doi.org/10.5334/bax>.
3. Gartner, G., **Huang, H.** (eds.) (2016): *Proceedings of 13th International Conference on Location Based Services*, Vienna, Austria, November 14-16, 2016, ISBN 978-1-907075-02-5.
4. Gartner, G., **Huang, H.** (eds.) (2016): *Special issue on EuroCarto 2015*. *International Journal of Cartography*, 2(1).
5. Gartner, G., Jobst, M., **Huang, H.** (eds.) (2016): *Progress in Cartography*. Springer Lecture Notes in Geoinformation and Cartography, ISBN 978-3-319-19601-5.
6. Gartner, G., **Huang, H.** (eds.) (2015): *Proceedings of the 1st ICA European Symposium on Cartography*, Vienna, Austria, November 10-12, 2015, ISBN 978-1-907075-03-2.
7. Gartner, G., **Huang, H.** (eds.) (2015): *Progress in Location-Based Services 2014*. Springer Lecture Notes in

Geoinformation and Cartography, ISBN 978-3-319-11878-9.

8. **Huang, H.**, Hahn, J., Claramunt C., Reichenbacher, T. (eds.) (2014): *Proceedings of the 1st International Workshop on Context-Awareness in Geographic Information Services (CAGIS 2014)*, in conjunction with GIScience 2014, Vienna, Austria, 23 September 2014.
9. Gartner, G., **Huang, H.** (eds.) (2014): *Special issue on 11th Int. Conf. LBS*. Journal of Location Based Services, 8(3).

Book Chapters

1. **Huang, H.**, Gartner, G. (2016): Using mobile crowdsourcing and geotagged social media data to study people's affective responses to environments. In: Capineri, C., Haklay, M., Huang, H., Antoniou, V., Kettunen, J., Ostermann, F. and Purves, R. (eds.) *European Handbook of Crowdsourced Geographic Information*, pp. 385–399. London: Ubiquity Press. DOI: <http://dx.doi.org/10.5334/bax.ab>.
2. Klettner, S., **Huang, H.**, Schmidt, M., Ortag, F., Gartner, G. (2013): Smart citizens - the potential of humans in smart cities. In H. Widmann, eds. *Smart City - Viennese Expertise based on Science and Research*, Schmid-Verlag, pp. 194-199.
3. **Huang, H.**, Gartner, G. (2012): A Technical Survey on Decluttering of Icons in Online Map-based Mashups. In M.P. Peterson, eds., *Online Maps with APIs and WebServices*, Springer.
4. **Huang, H.**, Li, Y., Gartner, G. (2011): A load balancing method to support spatial analysis in XML/GML/SVG-based WebGIS. In S. Li, S. Dragicevic, & B. Veenendaal, eds. *Advances in Web-based GIS, Mapping Services and Applications*. CRC Press, pp. 153-168.
5. **Huang, H.** (2011). Supporting Smart Mobile Navigation in a Smart Environment. In S. A. Ahson & M. Ilyas, eds. *Location-Based Services Handbook: Applications, Technologies, and Security*. CRC Press, pp. 109-129.
6. **Huang, H.**, Gartner, G. (2010): A Survey of Mobile Indoor Navigation Systems. In G. Gartner & F. Ortag, eds. *Cartography in Central and Eastern Europe*. Springer, pp. 305-319.

Peer-reviewed Conference Full Papers

1. Wang, W., **Huang, H.**, Gartner, G. (accepted): Considering existing indoor navigational aids in navigation services. Accepted for COSIT 2017 workshop on Rethinking Wayfinding Support Systems.
2. Ostermann, F., **Huang, H.**, Andrienko, G., Andrienko, N., Capineri, C., Farkas, K., Purves, R. (2015): Extracting and Comparing Places using Geo-Social Media. ISSDQ 2015 - The 9th International Symposium on Spatial Data Quality.
3. Cao, Y., **Huang, H.**, Gartner, G. (2014): A Signal-Loss-Based Clustering Method for Segmenting and Analyzing Mixed Indoor/Outdoor Pedestrian GPS Trajectories. In C. Liu, eds. *Principle and Application Progress in Location-Based Services*. Springer, pp. 3-19.
4. **Huang, H.**, Gartner, G. (2012): Using Context-aware Collaborative Filtering for POI Recommendation in Mobile Guides. In G. Gartner & F. Ortag, eds. *Advances on Location Based Services*. Springer, pp. 131-146.
5. **Huang, H.**, Gartner, G. (2011): Incorporating Context-Aware Collaborative Filtering into Location Based Services. In *Proc. of the 25th International Cartographic Conference*. Paris, France.
6. **Huang, H.**, Gartner, G. (2010): Collaborative Filtering Based Route Recommendation for Assisting Pedestrian Wayfinding. In *Proc. of LBS 2010*. Guangzhou, China.
7. **Huang, H.**, Gartner, G. (2009): Collective intelligence based mobile navigation in a smart environment. In *Proc. of LBS 2009*. Nottingham, UK.

8. **Huang, H.**, Gartner, G. (2009): Using Activity Theory to Identify Relevant Context Parameters. In G. Gartner & K. Rehrl, eds. *Location Based Services and TeleCartography II*. Springer, pp. 35-45.
9. **Huang, H.**, Li, Y., Gartner, G. (2008): SVG-Based Spatial Information Representation and Analysis. In M. Bertolotto et al., eds. *Web and Wireless Geographical Information Systems*. Springer, pp. 17-26.

Short Papers in Conference & Workshop Proceedings

1. **Huang, H.** (2017): Indoor Semantic Wayfinding. In ICC 2017, Washington DC, USA.
2. **Huang, H.** (2017): Context-Aware POI Recommendation in Location-Based Services. In ICC 2017, Washington DC, USA.
3. **Huang, H.** (2015): Context-Aware Location Recommendation Using Geotagged Photos in Social Media. In *Proc. of LBS 2015*, Augsburg, Germany.
4. **Huang, H.** (2015): Designing across Human Abilities and Map Use Contexts. In *ICC 2015 pre-conference workshop on "Envisioning the Future of Interactive Cartography Research"*, Curitiba, Brazil.
5. **Huang, H.** (2015): Using Social Media Data to Study People's Perception and Knowledge of Environments. In *Proc. of the 27th International Cartographic Conference*, Rio de Janeiro, Brazil.
6. **Huang, H.**, Klettner, S., Schmidt, M., Gartner, G. (2014): Considering Affective Responses towards Environments for Enhancing Location Based Services. In *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XL-4, pp. 93-96.
7. Klettner, S., **Huang, H.**, Schmidt, M., Gartner, G. (2013): Acquisition and Cartographic Applications of Subjective Geodata. In *Proc. of the 26th International Cartographic Conference*, Dresden, Germany.
8. **Huang, H.**, Schmidt, M., Gartner, G. (2012): Evaluating three interface technologies in assisting pedestrians' spatial knowledge acquisition. In *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XXII ISPRS Congress, Melbourne.
9. Ortog, F., **Huang, H.** (2011): Location-Based Emotions Relevant for Pedestrian Navigation. In *Proc. of International Cartographic Conference 2011*, Paris, France.
10. **Huang, H.**, Gartner, G., Schmidt, M., Li, Y. (2009): Smart Environment for Ubiquitous Indoor Navigation. In *Proc. of Inter. Conf. on New Trends in Information and Service Science*, Beijing, China.
11. Gartner, G., **Huang, H.**, Ortog, F., Millonig, A. (2009): Strategies of Context-based and Semantic Adaptive Route Communication. In *AGILE Workshop on Adaptation in Spatial Communication*, Bremen, Germany.

6. Invited Talks and Presentations

1. Human-Centered Location-Based Services. Invited talks at Nanjing Normal University (Nanjing, China, 24 Dec. 2015), Beijing Normal University (Beijing, China, 28 Dec. 2015) and Tongji University (Shanghai, China, 30 Dec. 2015).
2. Location-Based Services. Invited talk at Research Seminar at Institute of Software Technology and Interactive Systems, Faculty of Informatics, TU Wien, Austria. 15 April 2015.
3. EmoMap: Acquisition and Application of People's Affective Responses to Environments. Invited talk at OECD (Organisation for Economic Co-operation and Development) Workshop "Using Technology to engage citizens". Paris, France. 18 Sep 2014.
4. Modelling People's Affective Responses. Invited talk at 1st Siena Workshop on well-being and happiness. Siena, Italy. 22 May 2014.

5. EmoMap: Emotional Mapping. Presentation at European Commission Joint Research Centre "Citizen Science and Smart Cities Summit". Ispra, Italy. 5-7 Feb 2014.
6. Location Based Services and Pedestrian Navigation. Invited talk at the 3rd International Workshop of "Geotym" Project. Brno, Czech Republic. 24 Sep 2012.
7. Incorporating context-aware collaborative filtering into Location Based Services (ICA travel award). Presentation at the 25th International Cartographic Conference ICC. Paris, France. 3-8 July 2011.

7. Competitive Research Funding and Awards

Project "Semantic Wayfinding for Indoor Navigation" (PI) , UZH Forschungskredit, 54096 CHF	2017
Project "Context-aware Collaborative Filtering in LBS" (PI) , Austrian Marshall Plan Foundation	2010
Government Award for Outstanding Students Abroad , Ministry of Education, China	2011
Best Poster Award , Final Conference (RGS, London) of EU COST IC1203 and TD1202	2016
Distinction/Honours for PhD dissertation ("mit Auszeichnung bestanden" in German)	2013
ISPRS Congress 2012 Travel Award International Society for Photogrammetry and Remote Sensing (ISPRS)	2012
ÖFG Travel Awards , Austrian Research Association	2011, 2012, 2013
ICA Travel Award , International Cartographic Association	2011
First prize of outstanding student presentation , LBS 2010 (Guangzhou, China)	2010
Horizon student bursary winner, LBS 2009 (Nottingham, United Kingdom)	2009
1 st place University Scholarship (every year), South China Normal University	2001 - 2004

8. Courses Taught

GEO 884 Location-Based Services , Instructor MSc course, University of Zurich	Spring 2017
GEO 874 Introduction to Databases (w/ R.Meile), Instructor MSc course, University of Zurich	Fall 2016
GEO 875 Spatial Databases (w/ R.Meile), Instructor MSc course, University of Zurich	Fall 2016
GEO 662 Project Planning, Execution and Management (w/ R.Weibel), Instructor MSc course, University of Zurich	Fall 2016
126.099 Location-Based Services (w/ G.Gartner, G.Retscher, K.Rehrl), Instructor MSc course, Vienna University of Technology	Summer 2016, 2015, 2014, 2013, 2012, 2011

126.102 Cartography Information Systems , Instructor Undergraduate and MSc course, Vienna University of Technology	Summer 2016, 2015, 2014, 2013, 2012
126.101 Programming Cartographic Tasks (Web Mapping) , Instructor Undergraduate and MSc course, Vienna University of Technology	Summer 2014, 2013, 2012
Guest Lecturer, Ghent University (Belgium), GIScience (MSc course)	Winter 2014

9. PhD/MSc Students Supervised (*: co-supervised)

- *Wangshu Wang (PhD, in progress, TU Wien): Indoor wayfinding
- Darryl Schumacher (MSc, in progress, UZH): Route choice behavior of taxi drivers in Vienna
- Kimberley Chin (MSc, in progress, UZH): Transport mode detection using cellular network data
- * Junyan Li (MSc, in progress, TU Munich): Do Taxi Drivers Take the Fastest Routes?
- Martin Perebner (MSc, in progress, TU Wien): Smart watch based pedestrian navigation
- *Julian Kissling (MSc, 2017, UZH): Carpooling in multimodal routing
- *Irene Fellner (MSc, 2016, TU Wien): Auto-generated route descriptions with landmarks for indoor navigation
- *Timea Turdean (MSc, 2014, TU Wien): Identifying affective qualities of environment from social media data
- *Markus Sommer (MSc, 2014, TU Wien): Identifying attributes relevant for route choice in public transport
- *Wangshu Wang (MSc, 2014, TU Wien): Modelling individual's familiarity of places using social media
- *Connie Kwok (MSc, 2013, TU Wien): Discovering context-dependent trajectory patterns from social media

10. Community Services

Chair , Commission on Location-Based Services, International Cartographic Association (ICA)	2015 - 2019
Member of editorial board , Journal of Location Based Services, Taylor & Francis	2013 – Present
Member of editorial board , Journal of Geovisualization and Spatial Analysis, Springer	2016 – Present
Member of editorial board , Open Geospatial Data, Software and Standards, Springer	2017 – Present

Editorship of Special Issues:

- International Journal of Geographical Information Science (special issue on “Representation and Analytical Models for Location-based Social Media Data and Tracking Data”)
- ISPRS International Journal of Geo-Information (special issue on “Location Based Services”)
- International Journal of Distributed Sensor Networks (special issue on “Ubiquitous Localization and Context-Awareness”)
- Journal of Location Based Services (special issue on LBS 2014, 8(3))
- International Journal of Cartography (special issue on EuroCarto 2015, 2(1))

Conferences/workshops/special sessions organized: LBS 2018 (Switzerland, PC co-chair), LSMTD 2017 (USA), LBS 2016 (Austria), Special session on LBS at ISPRS Congress 2016 (Czech Republic), EuroCarto 2015 (Austria), Special session on LBS at MMT 2015 (Australia), LBS 2014 (Austria), Workshop Context-Aware Geographic

Services @ GIScience 2014 (Austria), COST ENERIGIC 3rd MC meeting (Austria)

PC member in Conferences/workshops: GIScience 2018 (Australia), W2GIS 2018 (Iran), GISTAM 2018 (Portugal), ET4S 2018 (Switzerland), LocalRec 2017 (USA), SemGeoSoc 2017 (Switzerland), GeoSpatial Science Conference 2017 (Mexico), ICC 2017 (USA), W2GIS 2017 (China), GISTAM 2017 (Portugal), LBSN 2016 (USA), GISTAM 2016 (Italy), MapInteract 2015 (USA), LocalRec 2015 (Austria), LBSN 2015 (USA), EuroCarto 2015 (Austria), LBS 2015 (Germany), FOSS4G Europe 2015 (Mapping Party, Italy) GISTAM 2015 (Spain), LBS 2013 (China), LBS 2010 (China)

Referee for Journals (in the last three years): ACM Transactions on Intelligent Systems and Technology; Advances in Mechanical Engineering; Cartography and Geographic Information Science; Computers, Environment and Urban Systems; Cyberpsychology; Geoinformatica; IEEE Access; IEEE Transactions on Learning Technologies; IEEE Transactions on Multimedia; International Journal of Cartography; Information Visualization; International Journal of Geographical Information Science; ISPRS International Journal of Geo-Information; Journal of Ambient Intelligence and Humanized Computing; Journal of Geographical Systems; Journal of Information Science; Journal of Location-Based Services; Journal of Spatial Information Science; Journal of Spatial Science; KI - Künstliche Intelligenz; Spatial Cognition & Computation; The Cartographic Journal; Transactions in GIS; Urban Planning