Curriculum Vitae

Dr Hao Chen

Summary

I have a strong background in geomatics, geographic information systems (GIS), and spatial information science. I hold a bachelor's degree in GIS and digital mapping and a master's in spatial information science. My PhD research focused on developing a spatial graph database model to make natural language place descriptions more accessible to computers and information systems. With extensive practical and teaching experience, I have worked as a tutor and research assistant at the University of Melbourne. My expertise spans across spatial programming, modelling, and spatial databases, with additional interests in information technology and computer science. I've strong problem-solving abilities in spatial data and techniques, and I bring enthusiasm, self-motivation, and a commitment to continuous learning to my work.

I have received a course certificates for PUBH5785 - Introductory Analysis of Linked Health Data taught by Prof. David Preen from University of Western Australia; During my master, I've enrolled in two subjects that are relevant to the health domain: Public Health and Health Economics.

Education

2015-2019 Doctor of Philosophy (Engineering, Spatial) - University of Melbourne, VIC, Australia
Thesis: A place graph database as a qualitative human place knowledge base

2013-2014 Master of Spatial Information Science - University of Melbourne, VIC, Australia Dean's Honor List; First class honours from all semesters

2008-2012 Geographic Information System, Bachelor of Science - Wuhan University, Wuhan, China

Research and Working Experiences

July 2015 - May 2019
University of Melbourne *Research project for the degree of Doctor of Philosophy*
The research project focuses on studying how place-related information from human-generated natural language descriptions can be modelled, geo-referenced, and utilized in an information system. This research enables natural language descriptions to become a new source of input to geographic information systems, thus contributing to broad areas that are not limited to spatial data infrastructure, disaster management and emergency service, and smart city. Three journal and two workshop papers have been published during the project, all in high-quality outlets in the field.

Nov 2014 - Feb 2015
University of Melbourne *Research Assistant*
The goal of the position is to develop algorithms for maintaining consistency (from structural, semantic, and spatial perspectives) in a spatial database. The spatial database utilizes techniques including graph database as well as a relational database.

Feb 2016 - June 2018
University of Melbourne *Tutor and demonstrator*
The subject title is Spatial Information Programming and is for graduate students: ”Many application problems in spatial information cannot be solved with standard tools but require programming for fast and effective solutions. Using case studies, this subject will enable students to develop software programs that address specific spatial information problems.”

June 2021 - Current
AURIN *Spatial Database Software Developer*
Lead the development and implementation of the AusUrb-HI project’s technical capabilities and work closely with partners to deliver high-value, research-ready tools and data assets.

Skills

Major - Geographic Information System

- 4013 Geomatic engineering
- 4699 Other information and computing sciences (geospatial)
- 4605 Data management and data science

Secondary - Information System and Computer Science

- 4609 Information systems
- 4612 Software engineering
- 4602 Artificial intelligence and 4611 Machine Learning

Public health

- 4601 Applied computing (Health)

Publications

Chen, H., Vasardani, M., Winter, S., & Tomko, M. (2018). A graph database model for knowledge extracted from place descriptions. ISPRS International Journal of Geo-Information, 7(6), 221.

Chen, H., Winter, S., & Vasardani, M. (2018). Georeferencing places from collective human descriptions using place graphs. Journal of Spatial Information Science, 31-62.

Chen, H., Vasardani, M., & Winter, S. (2019). Clustering-based disambiguation of fine-grained place names from descriptions. GeoInformatica, 23(3), 449-472.

Hamzei, E., Chen, H., Vasardani, M., Tomko, M., & Winter, S. (2018). Deriving place graphs from spatial databases. Research@ Locate, 25-32.

Chen, H. (2019). A place graph database as a qualitative human place knowledge base