Haidong Wang

whdtune@gmail.com • (+86) 131-4148-6734
37 Xueyuan Road, Haidian District, Beijing, China

EDUCATION

Beihang University Beijing, China
M. Eng. in Information and Communication Engineering *Sept. 2016 - Present*

- GPA: 87.36/100
- Research Topic: Indoor Positioning
- Relevant Courses: Matrix Theory, Digital Signal Processing, Satellite Navigation, Algorithm Design and Analysis, Detection Estimation and Modulation Theory, Advanced Integrated Navigation Technology

Beihang University Beijing, China
B. Eng. in Electronic and Information Engineering *Sept. 2012 - Jul. 2016*

- GPA: 87.71/100
- Relevant Courses: Signals and Systems, Digital Signal Processing, Principles of Communication, The Foundation of Information Theory, Stochastic Process Theory, The Principles of Automatic Control, Image Signal Processing, Microcomputer Principle and Application, Network Security – Technology and Practice

RESEARCH

Communication, Navigation and Test Laboratory, Beihang University Beijing, China
Research Assistant *Dec. 2015 - Present*

- Designed an indoor pedestrian dead reckoning (PDR) algorithm and reduced 3σ positioning error of 10-lap walking by 70%. Relevant paper [1] under minor revision.
- Implemented and optimized a positioning algorithm based on integration of GPS/DTMB/FM signal and reduced 3σ positioning error by 68% comparing to GPS alone. Relevant paper [2] in preparation.
- Designed an indoor positioning algorithm based on WiFi/FM fingerprint fusion and improved average positioning accuracy by at least 15% comparing to either alone.
- Developed an Android PDR app with positioning error less than 4m in 5-minute walk.
- Guided an international student in English for one year on indoor positioning algorithm integrating PDR and WiFi fingerprint positioning. Already finished implementation of PDR and WiFi positioning either alone.

PUBLICATION

1. **Haidong Wang**, Li Cong, Honglei Qin, A Real-time Pedestrian Dead Reckoning System with FM-aided Motion Mode Recognition, *IEEE Sensors Journal*, 2018. (Under minor revision)
   - Achieved classification accuracy of 88.0% and 98.1% respectively for turning and straight-line moving moments with random forest classifier using data from FM receiver and inertial sensors on a smartphone.
   - Extracted straight-line headings with better precision and stability than traditional methods from magnetic measurements filtered by a selection scheme.
   - Tested the algorithm at three sites and got 3σ positioning error improvement by at most 70%.
2. Li Cong, **Haidong Wang**, Honglei Qin, An Environmentally Adaptive Positioning Method Based on Integration of GPS/DTMB/FM, 2018. (In preparation)
   - Utilized DTMB signal to enhance GPS positioning, and employed FM fingerprint positioning to correct positioning results of GPS.
   - Devised an adaptive mode selection method with fuzzy inference system to decide the optimal integration mode of GPS, DTMB and FM in different positioning environment.
   - Reduced 3σ positioning error by 68% compared to GPS alone.

PROJECTS

SignatureAuth Project Beijing, China
Team Leader *Mar. 2015 - May 2015*

- Built an identity authentication system based on motion classification of the signing pens using support vector machine.
- Got second prize of Beihang's "Feng Ru Cup" Competition of Academic and Technological Works in 2015.
- My contribution: individually completed wavelet feature extraction, MATLAB GUI implementation and software debugging, participated in design of algorithm flow.

Digital Frequency Meter Beijing, China
Team Member *Aug. 2015*

- Designed and implemented a digital frequency meter with LCD display and ability to measure frequency, period, interval and duty cycle.
- Got second prize of National Undergraduate Electronic Design Contest (Beijing Division) in 2015.
- My contribution: individually implemented display control with ARM board, participated in system design and implementation of communication between ARM and FPGA.

Digital Image Processing Beijing, China
Course Project *Jun. 2015*

- Implemented with MATLAB image transformation, compression, restoration, segmentation, edge detection and feature extraction.

Simulation of a Digital Communication System Beijing, China
Course Project *Jun. 2015*

- Simulated a digital communication system with MATLAB and validated bit error rate curve.

AWARDS

- Outstanding Undergraduate Thesis, Beihang University 2016
- Excellent Student of Beihang University 2013
- First Prize, Scholarship for Excellent Academic Performance, Beihang University 2013

SKILLS

- **Programming:** Java, MATLAB, Python, C, C++, LaTeX.
- **Tool:** MATLAB, Android Studio, Linux.
- **Language:** Chinese (Native), English (TOEFL: 103)