

# Haidong Wang

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## Education

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### Beihang University

*M. Eng. in Information and Communication Engineering*

Beijing, China

*Sept. 2016 - Present*

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

### Beihang University

*B. Eng. in Electronic and Information Engineering*

Beijing, China

*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

## Publications

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- [1] Haidong Wang, Li Cong and Honglei Qin, “FM-Aided Heuristic Drift Reduction for Pedestrian Dead Reckoning Systems,” *IEEE Sensors Journal*, 2018. (Accepted, DOI: 10.1109/JSEN.2018.2883502)
  - Designed a random forest classifier to recognize turning and straight-line walking with FM and sensor data. Achieved overall classification accuracy of 96.5%.
  - Devised a deviation elimination method for straight-line headings. Improved accuracy and stability of heading estimation.
  - Improved  $3\sigma$  positioning error by 52.1% than state-of-the-art method.
- [2] Li Cong, Haidong Wang and Honglei Qin, “An Environmentally Adaptive Positioning Method Based on Integration of GPS/DTMB/FM,” *Sensors*, vol. 18, no. 12, pp. 4292, 2018. (DOI: 10.3390/s18124292)
  - Integrated GPS, digital TV and FM signal to improve positioning accuracy in complex environment.
  - Devised an adaptive mode selection method with fuzzy logic for optimal integration mode in tough environment.
  - Improved  $3\sigma$  error by 68.2% and 21.3% compared to GPS alone and GPS+DTMB correspondingly.

## Research

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### Communication, Navigation and Test Laboratory, Beihang University

*Research Assistant*

Beijing, China

*Dec. 2015 - Present*

- Designed an indoor fingerprint positioning method by fusing WiFi and FM fingerprint. Reduced average error by at least 15.0% than either alone.
- Implemented an Android pedestrian positioning app and kept error within 4 m in 5-minute walk.
- Guided a Pakistani Master's student in English for one year on indoor positioning by integrating dead reckoning and WiFi fingerprinting. Completed implementation of PDR and WiFi positioning either alone.

## Projects

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### SignatureAuth Project

Beijing, China

*Team Leader, Contest Project**Mar. 2015 - May 2015*

- Built an identity authentication system using support vector machine based on classification of pens' motion while signing names.
- Second Prize, "Feng Ru Cup" Competition of Academic and Technological Works, Beihang University, 2015.
- My contribution: coordinated team members, individually completed wavelet feature extraction, MATLAB GUI implementation and software debugging, participated in designing algorithm flow.

### Digital Frequency Meter Design

Beijing, China

*Team Member, Contest Project**Aug. 2015*

- Designed and implemented a digital frequency meter with LCD display and ability of measuring frequency, period, interval and duty cycle.
- Second Prize, National Undergraduate Electronic Design Contest (Beijing Division), Beijing Municipal Commission of Education, 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

*Individual, Course Project**Jun. 2015*

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

## Honors & Awards

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- **Outstanding Bachelor's Thesis Award**, Beihang University 2016
- **Third Prize**, National English Competition for College Students, Advisory Board for College Foreign Language Teaching, China 2015 & 2013
- **Excellent Student Award**, Beihang University 2013
- **First Prize**, Scholarship for Excellent Academic Performance, Beihang University 2013

## Skills

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- **Programming:** Java, MATLAB, Python, C, C++,  $\text{\LaTeX}$ .
- **Tools:** MATLAB, Android Studio, Linux.