Yang Liu

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Personal Statement

My name is Yang Liu, a final-year PhD candidate in Communication and Information System at Chinese Academy of Sciences(CAS). My advisor is professor Yang Yang. My project involves mobile interaction, embedded system, wireless localization. Currently, my work focuses on novel mobile interaction technologies using wireless signals, especially acoustic signals. I'm not only focusing on optimizing prior works in more complex ways, but also analyzing the gap between theory and practice, and then proposing novel methods inspired by imperceptible phenomena during practical experiments for addressing some daunting problems.

Education

- **University of Chinese Academy of Sciences** Shanghai,China
  Ph.D candidate in Communication and Information System; Sep. 2016 – Present
- **Georgia Institute of Technology** Beijing, China
  M.S. in Software Engineering; Sep. 2013 – Jun. 2016
- **Anhui University** Hefei, China
  B.S. in Microelectronics; Sep. 2008 – July. 2012

Research Area

- **Mobile sensing and computing**:   human health monitoring, such as walk, fall down and breathing.
- **Mobile interaction**: Motion based interaction for mobile user, gesture recognition using inertial sensors, wireless signals and millimeter waves.
- **Location Based Services**: Fine-grained (dm-level and cm-level) indoor localization using wireless signals, such as sound, Wi-Fi and RFID; SLAM based robot navigation.

Projects

- **QuantSoftware Toolkit**: Open source python library for financial data analysis and machine learning for finance, demo link.
- **Github Visualization**: Data Visualization of Git Log data using D3 to analyze project trends over time.
- **Recommendation System**: Music and Movie recommender systems using collaborative filtering on public datasets, demo link.
- **Mac Setup**: Book that gives step by step instructions on setting up developer environment on Mac OS, demo link.

Skills

- **Programming language**

  Good knowledge of C/C++, Matlab/Simulink;
  Basic knowledge of C#, Verilog, Linux Shell, java, assembly language, Python.

- **Equipment**

  Hands-on experience with common experimental equipment, such as Vector Network Analyzer, Spectrum Analyzer, Programmable Signal Generators, Oscilloscopes, NFC and Wi-Fi Test System.

- **Development platforms and tools**

  Hands-on experience with rapid system prototyping to verify theoretical simulations: Android applications (Android Studio), Windows applications (Visual Studio), FPGA (Modelsim, Quartus II), IoT devices (IAR, MPLAB, SW4STM32, STM32CubeMX, and Keil), Wi-Fi devices (OpenWRT).

Publications

1. **Yang Liu**, Wuxiong Zhang, Yang Yang, Weidong Fang, Fei Qin, Xuewu Dai, PAMT: Phase-based Acoustic Motion Tracking in Multipath Fading Environments. IEEE Conference on Computer Communications (INFOCOM19) (acceptance rate: 19.7).

2. **Yang Liu**, Wuxiong Zhang, Yang Yang, Weidong Fang, Fei Qin, and Xuewu Dai, RAMTEL: Robust Acoustic Motion Tracking using Extreme Learning Machine for Smart Cities, IEEE Internet of Things Journal (to be appeared).

3. **Yang Liu**, Yang Yang, Weidong Fang, Wuxiong Zhang, Demo: Phase-based Acoustic Localization and Motion Tracking for Mobile Interaction. ACM multimedia conference (ACM MM18).

4. **Yang Liu**, Yubing Wang, Weiwei Gao, Wuxiong Zhang, Yang Yang. A Novel Low-Cost Real-Time Power Measurement Platform for LoWPAN IoT Devices. Mobile Information Systems. 2017. 1-14.

5. Weidong Fang, Wuxiong Zhang, Yang Yang, **Yang Liu**, Wei Chen. A resilient trust management scheme for defending against reputation time-varying attacks based on BETA distribution. Science China Information Sciences, 2017, 60(4):040305.

Patents

1. China Patent *No.*2018103618786: Yang Liu, Wuxiong Zhang, Weidong Fang, Weiwei Gao, and Yang Yang, A ranging method, a ranging system and a three-dimensional positioning system based on acoustic phase, filed, Mar. 2018.

2. China Patent *No.*2018111199483: Yang Liu, Wuxiong Zhang, Yang Yang, and Weidong Fang. A method and a device for mitigating multipath effect of acoustic signals, filed, Nov. 2018.

Awards

- **ACM SIGMM Student Travel Grant**: ACM Multimedia (ACM MM), 2018
- **Second prize award**: National Post-Graduate Mathematical Contest in Modeling, China,2018
- **Academic Performance Scholarship**: Anhui University, 2009