

Jianan (Jason) Zhu

Irvine, California (Open to Relocation) | 949-266-7683 | jiananz1@uci.edu

www.linkedin.com/in/jianan-jason-zhu

SUMMARY OF QUALIFICATIONS

- Strong algorithm skills in localization, mapping, state estimation, navigation, Bayesian filtering, etc.
- Hands-on experience with developing efficient real-time software systems with strict time constraints (< 10 ms)
- Proficient in C++ (with more than 5-year experience) and object-oriented programming
- Having an engineering mindset by solving real-world problems and eager to learn new knowledge

EDUCATION

University of California, Irvine | Irvine, CA Aug. 2020

Ph.D., in Mechanical and Aerospace Engineering,

- Research Area: Localization, Navigation, Bayesian Filtering, SLAM, State Estimation, Sensor Integrity, UWB Signal Processing and Communication

University of California, Irvine | Irvine, CA June 2016

M.Sc., in Mechanical and Aerospace Engineering

Tsinghua University | Beijing China July 2012

B.Sc., in Industrial Engineering

TECHNICAL SKILLS

- Coding: C/C++, Python, MATLAB
- Technologies/Environment: Windows, Linux, ROS, OpenCV, TensorFlow

RESEARCH EXPERIENCE

Cooperative Systems Laboratory, University of California, Irvine | Irvine, CA Sept. 2016-present

Graduate Research Assistant

- Developed novel distributed localization algorithms for networked multi-agent systems under GNSS-denied environments which resulted in consistent estimation with better accuracy and less communication cost
- Devised real-time software/hardware systems for mobile agents (robots and pedestrian) with variety of sensing technologies (IMU, camera, and UWB)
- Collaborated with 3 university faculties and 5 graduate students from 3 different laboratories
- Mentored 3 undergraduate students on different localization related research projects and one of the students won UCI UROP grant
- Deliverables: 2 peer reviewed journal papers, 5 conference proceeding articles, 3 conference/symposium posters, 1 article conditionally accepted and 1 manuscript currently in preparation

RESEARCH PROJECTS

Sensor Integrity of GNSS and INS Cooperative Localization System for UAVs Dec. 2019-present

- Building sensor integrity simulation tools in C++ with a variety of aerial vehicle motion models
- Investigating methods in information theory and statistics and their potential implementation on measurement fault detection and isolation of GNSS measurements
- Developing novel fault detection and isolation algorithms to achieve better accuracy

Ultimate Navigation Chip (uNavChip): Chip-Scale Personal Navigation System Integrating July 2017-July 2020

Deterministic Localization, Probabilistic Signals of Opportunity and Cooperative Localization

- Proposed novel cooperative localization algorithms with distributed architecture which only have constant complexity
- Devised a portable real-time IMU/UWB localization system in C++ which has sub-meter accuracy on embedded devices
- Designed a UWB embedded system based on MCU which is capable of ranging (error < 10 cm) and communication

Jianan (Jason) Zhu

Irvine, California (Open to Relocation) | 949-266-7683 | jjiananz1@uci.edu
www.linkedin.com/in/jianan-jason-zhu

Jianan Zhu-Page 2

- Created novel UWB measurement bias compensation methods that is easy to apply and has no need of prior training comparing to off-the-shelf methods
- Accomplished a data-driven collision-free wireless communication protocol for UWB which is data packet collision-free and energy efficient

Distributed Cooperative Localization System for a Team of TurtleBots using Vision Sensors Sept. 2016-July, 2017

- Developed a real-time multi-robot cooperative localization testbed empowered by ROS which is easy to be reused for testing different localization algorithms
- Assembled and calibrated different sensors including Kinect, wheel-encoder, and IMU on TurtleBots
- Created a vision-based ground truth system using overhead camera and ArUco markers with OpenCV which resulted in centimeter-level accuracy in real time

AWARDS/GRANTS/FELLOWSHIPS

National Institute of Standards and Technology (NIST) Research Award 2017-2020
UCI Associated Graduated Students Travel Grants 2018-2019

TEACHING EXPERIENCE

University of California, Irvine | Irvine CA Sept. 2014-June 2016

Teaching Assistant

- Courses: Mechanics of Structure, Electrical Circuits, Dynamics, Composite Materials
- Led weekly discussion sessions/office hours, advised class experiments/projects, and graded homework/ examinations for more than 500 students in total

PROFESSIONAL EXPERIENCE

SAIC Motor Co., Ltd | Shanghai China Sept. 2012-Sept. 2013

Logistics Engineer

- Planned logistics strategies for distribution and transportation of automobile parts from suppliers to factory
- Designed part packages and planned factory warehouse layouts
- Maintained company-level logistics and ordering system

SELECTED PUBLICATIONS

- Jianan Zhu and Solmaz S. Kia, "Cooperative localization under limited connectivity", *IEEE Transactions on Robotics*, 35(6), 2019.
- Jianan Zhu and Solmaz S. Kia, "Bias compensation for UWB ranging for pedestrian geolocation applications", *IEEE Sensors Letters*, 3(9), 2019.
- Jianan Zhu and Solmaz S. Kia, "A loosely-coupled cooperative localization augmentation to improve human geolocation in indoor environments", in *proceedings of Indoor Positioning and Indoor Navigation Conference*, (Nantes, France), 2018.