Baoqian Wang

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Birth Date: Aug. 1995

Education

- **University of California-San Diego & San Diego State University** — California, USA
  Ph.D. in Electrical and Computer Engineering; Overall GPA: 3.85 — *Aug. 2019 – present*
- **Texas A&M University-Corpus Christi** — Texas, USA
  M.S. in Computer Science; Overall GPA: 3.83 — *Aug. 2017 – Aug. 2019*
- **Yangtze University** — Wuhan, China
  B.E. in Prospecting Technology and Engineering; Overall GPA: 3.9 — *Aug. 2013 – Jul. 2017*

Research Experience

- **Texas A&M University-Corpus Christi** — Corpus Christi, Texas
  Research Assistant — *Aug. 2017 - Aug. 2019*
  - **Develop an Open Networked Airborne Computing Platform**: In this project, we aim to develop an Unmanned Aerial Systems (UAS)-based networked airborne computing platform. We choose Jetson TX2 as the onboard computing unit for the airborne computing platform and adopt virtualization techniques to manage computing resources and to increase system security.
  - **Multi-resolution Modeling Framework for Large-Scale Dynamical Systems**: In this project, we explore a hybrid trajectory modeling framework for small UAS, which combines data-based models with traditional physical models to capture the dynamics of UAS efficiently and accurately using small amount of real data.
- **San Diego State University** — San Diego, CA
  Research Assistant — *Sep. 2019 - present*
  - **Coded Distributed Computing Over Heterogeneous Computing Cluster**: In this project, we developed a new coded distributed computing framework for heterogeneous computing clusters, which can increase the robustness of the distributed computing system and accelerate the computation. Currently, we are exploring the real applications of the coded distributed computing framework in distributed object detection, distributed image stitching and so on. The data privacy and security problems will also be considered in the coded distributed computation.
  - **Reinforcement Learning-Based UAV Trajectory Planning in Unknown Environment**: In this project, we investigate reinforcement learning algorithms for small UAVs trajectory planning in unknown environment under wind disturbances. We also extend the algorithm to enable autonomous driving for ground robotics.
- **University of California San Diego** — San Diego, CA
  Research Assistant — *Sep. 2019 - present*
  - **Coding for Distributed Multi-agent Reinforcement Learning**: In this project, we investigate coded computation to mitigate the straggler effects in distributed multi-agent reinforcement learning framework.

Advising Activity

- **2020 IEEE/ASME International Conference on Advanced Intelligent Mechatronics**

  Advisor April. 2020 - June. 2020
  - **Undergraduate Competition:**: Our project **"Vision-based Autonomous Driving Robot Capable of Navigating in Unknown and Dynamic Rural Environments"** wins the **Special Track on Networked Computer on the Edge Award**. In this project, we developed a modular, intelligent, and autonomous driving robot that is not only capable of navigating in a known urban environment, but also in an unknown and dynamic rural environment with unpaved roads.

Teaching Experience

- **San Diego State University** — San Diego, CA
  Teaching Assistant — *Aug. 2019 - Jan. 2020*
  - **EE600 Seminar: Machine Learning-2019 Fall**: Help grade the assignments, projects, exams. Teach two lectures for the course.

Publications

1. J. Xie, Y. Wan, B. Wang, S. Fu, K. Lu,"A Comprehensive 3-Dimensional Random Mobility Modeling Framework for Airborne Networks", *IEEE Access*, Vol.6, pp. 22849-22862, 2018.

2. B. Wang, J. Xie, S. Li, Y. Wan, S. Fu, K. Lu,"Enabling High-Performance Onboard Computing with Virtualization for Unmanned Aerial Systems" in *Proceedings of 2018 International Conference on Unmanned Aircraft Systems (ICUAS)*, Dallas, TX, June 2018.

3. B. Wang, J. Xie, Y. Wan, G. A. G. Reyes, L. R. G. Carrilo,"3-D Trajectory Modeling for Unmanned Aerial Vehicles" in *Proceedings of AIAA Scitech*, San Diego, CA, January 2019.

4. B. Wang, J. Xie, S. Li, Y. Wan, Y. Gu, S. Fu, K. Lu, "Computing in the Air: An Open Airborne Computing Platform", accepted by *IET Communications*, 2019

5. B. Wang, J. Xie, K. Lu, Y. Wan, Coding for Heterogeneous UAV-based Networked Airborne Computing, in *Proceedings of the IEEE GLOBECOM Workshop on Computing-Centric Drone Networks*, Waikoloa, HI, 2019

5. B. Wang, J. Xie, Data-Driven Multi-UAV Navigation in Large-ScaleDynamic Environment Under Wind Disturbances, accepted by *2021 AIAA Scitech Forum*

6. B. Wang, J. Xie, K. Lu, Y. Wan, S. Fu, "On Batch-Processing Based Coded Computing for Heterogeneous Distributed Computing Systems", *arXiv preprint arXiv:1912.12559*.

Presentations

1. "Enabling High-Performance Onboard Computing with Virtualization for Unmanned Aerial Systems", *presented at 2018 International Conference on Unmanned Aircraft Systems (ICUAS)*, Dallas, TX, June 2018.

2. "Enabling High-Performance Onboard Computing with Virtualization for Unmanned Aerial Systems", *presented at 15th Annual Pathways Student Research Symposium*, Canyon, TX, November 2018.

3. "3-D Trajectory Modeling for Unmanned Aerial Vehicles", *presented at AIAA Scitech*, San Diego, CA, January 2019.

4. "Coding for Heterogeneous UAV-based Networked Airborne Computing", *presented at IEEE Globecom Workshop*, Waikoloa, HI, December, 2019.

Review Activities

- Reviewer of Journal
  - *IEEE Access*
- Reviewer of Conferences
  - *2018 International Conference of on Unmanned Aircraft Systems (ICUAS)*
  - *2018 International Conference on Data Intelligence and Security (ICDIS)*
  - *2019 American Control Conference (ACC)*
  - *2020 American Control Conference (ACC)*
  - *2020 International Conference on Automation and Control (ICCA)*

Awards and Scholarships

- **SDSU Graduate Travel Fund ($1000)** *Oct. 2019*
- **President's International Excellence Scholarship Award ($3000)**: The first class scholarship for international students in Texas A&M University-Corpus Christi *Sep. 2018*
- **National Scholarship ($1140)**: A scholarship given to top 1% students in each university in China for their great academic performance *Oct. 2016*

- **Wang Tao Talent Scholarship ($1430)** *Oct. 2015*
- **China National Petroleum Corporation Scholarship ($860)** *Oct. 2014*

Skills

- **Programming**: Python, Matlab, C/C++, Latex, Android Java
- **Small UAS pilot**: Got the license from Federal Aviation Administration

Languages

- Chinese
- English