

Wenchao Ding

<https://wenchaoding.github.io/>

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EDUCATION

- **Hong Kong University of Science and Technology** Hong Kong, China
Ph.D. in Electronic and Computer Engineering, HKUST Sept. 2015 – June. 2020 (Expected)
GPA: 4.18/4.3; Hong Kong PhD Fellowship Supervisor: Prof. Shaojie Shen
- **Huazhong University of Science and Technology** Hubei, China
Bachelor of Electronics and Information Engineering, HUST Sept. 2011 – June. 2015
GPA: 92.81/100; Ranked 1st Supervisor: Prof. Wei Liu

RESEARCH

- **Planning and Decision-Making for Autonomous Vehicles**
HKUST Aerial Robotics Group Oct. 2017 - Present
 - **Prediction:** Interaction-aware accurate prediction of vehicle behaviors in a long horizon using learning-based methods; Online hierarchical prediction framework for modeling multimodal behaviors and contextual factors in complex urban environments.
 - **Motion planning:** Safe and unified motion planning framework for modeling numerous semantic elements in complex urban environments based on spatiotemporal information.
 - **Behavior planning:** Uncertainty-aware safe behavior planning framework to deal with uncertainties from control/perception/planning perspectives.
- **Planning for Micro Aerial Vehicles**
HKUST Aerial Robotics Group Dec. 2016 - Oct. 2017
 - **Trajectory planning for monocular vision-based quadrotors:** Efficient trajectory replanning framework for onboard autonomous flight in unknown indoor and outdoor environments with only one camera and one IMU.
- **Online Caching for Wireless Communication**
With Prof. Vincent Lau, HKUST Sept. 2015 - Dec. 2016
 - **Online caching:** Mixed-Timescale online physical layer caching for MIMO cooperative networks.

PUBLICATIONS

- **Published or Accepted:**
 1. **Wenchao Ding**, Jing Chen, and Shaojie Shen. “Predicting Vehicle Behaviors Over an Extended Horizon Using Behavior Interaction Network.” In *IEEE International Conference on Robotics and Automation (ICRA)*, Montreal, Canada, 2019. [Paper] [Video]
 2. **Wenchao Ding**, and Shaojie Shen. “Online Vehicle Trajectory Prediction using Policy Anticipation Network and Optimization-based Context Reasoning.” In *IEEE International Conference on Robotics and Automation (ICRA)*, Montreal, Canada, 2019. [Paper] [Video]
 3. **Wenchao Ding**, Wenliang Gao, Kaixuan Wang, and Shaojie Shen. “Trajectory Replanning for Quadrotors Using Kinodynamic Search and Elastic Optimization.” In *IEEE International Conference on Robotics and Automation (ICRA)*, Brisbane, Australia, 2018. [Paper] [Video]
 4. Kaixuan Wang, **Wenchao Ding**, and Shaojie Shen. “Quadtree-accelerated Real-time Monocular Dense Mapping.” In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Madrid, Spain, 2018. [Paper] [Video]
- **Pre-prints:**

1. **Wenchao Ding**, Wenliang Gao, Kaixuan Wang, and Shaojie Shen. “An Efficient B-spline-Based Kinodynamic Replanning Framework for Quadrotors.” Conditionally Accepted by *IEEE Transactions on Robotics (T-RO)*, 2019. [Video]
2. Wenliang Gao, Kaixuan Wang, **Wenchao Ding**, Fei Gao, Tong Qin, and Shaojie Shen. “Autonomous Aerial Robot Using Dual-fisheye Cameras.” Submitted to *Journal of Field Robotics*, 2019.
3. **Wenchao Ding**, Lu Zhang, and Shaojie Shen. “Safe Trajectory Generation For Complex Urban Environments Using Spatio-temporal Semantic Corridor.” Submitted to *IEEE Robotics and Automation Letters (RA-L)* with IROS, 2019. [Code] [Video]

HONORS AND AWARDS

• Graduate - Hong Kong University of Science and Technology (HKUST):

Hong Kong PhD Fellowship	<i>Sept. 2015 - Present</i>
Conference Travel Award: ICML 2018, Stockholm, Sweden	<i>July 2018</i>
Conference Travel Award: ICRA 2018, Brisbane, Australia	<i>May 2018</i>
Conference Travel Award: RSS 2017, Massachusetts, USA	<i>July 2017</i>

• Undergraduate - Huazhong University of Science and Technology (HUST):

ChangJiang Student (20 awardees in all 2015 graduates in Hubei province , China)	<i>June 2015</i>
BaoGang Outstanding Scholarship (25 awardees from Nationwide election, China)	<i>Nov. 2014</i>
Outstanding Winner in Mathematical Contest in Modeling (MCM, 13/6755, USA)	<i>2014</i>
Frank Giordano Award, MCM, USA	<i>2014</i>
Outstanding Undergraduate Student in HUST	<i>2015</i>
National Scholarship (Top 2%) & School Merit Student (Top 3%), China	<i>2014</i>
National Scholarship (Top 2%) & School Merit Student (Top 3%), China	<i>2013</i>
National Scholarship (Top 2%) & School Merit Student (Top 3%), China	<i>2012</i>
Excellent Student of Qiming School, HUST (Top 5%)	<i>2012</i>
First Prize in Mathematical Modeling Contest, Huazhong Region, China	<i>2013</i>

TEACHING

Teaching Assistant: ELEC2600 Probability and Random Process, HKUST	<i>Spring 2016</i>
Teaching Assistant: ELEC4100 Digital Communications and Wireless Systems, HKUST	<i>Summer 2016</i>

EXPERIENCE

Internship: DJI Ltd (Shenzhen, China)	<i>June 2018 - Oct 2018</i>
Summer Internship: Texas Instruments (TI, Shanghai, China)	<i>Aug. 2013</i>
Summer Camp: Microsoft Research Asia (MSRA, Beijing, China)	<i>Aug. 2014</i>

USEFUL LINKS

- Follow my Google Scholar: <https://scholar.google.com.hk/citations?user=44f1ubYAAAAJ&hl=en>
- Follow me on Github: <https://github.com/WenchaoDing> for open source packages.
- Subscribe my channel on Youtube: [Wenchao Ding](#) for experimental results.