Binbin Xu

Postdoctoral Fellow, University of Toronto

✆ *+1 (437) 260-5298*
✉ *binbin.xu@utoronto.ca*
⌂ *binbin-xu.github.io/*

Education

Sep 2017–April 2022	**PhD, Department of Computing, Imperial College London.** PhD thesis: Object-level Dynamic SLAM
Supervisors	Dr. Stefan Leutenegger and Prof. Andrew Davison
April 2015–March 2017	**M.Eng., Precision Engineering, University of Tokyo.** Graduated with 4.0/4.0 GPA and Outstanding Master's Thesis Award
Thesis	Optical Flow-based Video Completion for a Moving Spherical Camera
Supervisors	Prof. Atsushi Yamashita and Prof. Hajime Asama
2010–2014	**B.Eng., Information Engineering, South China University of Technology.**
GPA	88.07/100 (Ranking: TOP 6%)

Experience

Sep. 2022–Present	**Postdoctoral Fellow**, Institute for Aerospace Studies, University of Toronto. Supervisor: Prof. Timothy D. Barfoot
Sep 2020–Dec. 2020	**Research Intern**, Surreal Vision Team, Facebook Reality Labs Research. Mentors: Dr. Lingni Ma, Dr. Steven Lovegrove
May – Aug. 2017	**Participant Student**, OpenCV in Google Summer of Code. Mentor: Dr. Gary Bradski
Sep. 2014 – March 2015	**Research Student**, Department of Precision Engineering, University of Tokyo. Supervisors: Prof. Atsushi Yamashita and Prof. Hajime Asama

---
Publications

Google Scholar; {*}: equal contribution

ICRA 2023	Sotiris Papatheodorou, Nils Funk, Dimos Tzoumanikas, Christopher Choi, **Binbin Xu**, Stefan Leutenegger: *Finding Things in the Unknown: Semantic Object-Centric Exploration with an MAV.* IEEE International Conference on Robotics and Automation (ICRA), 2023
IROS 2022	**Binbin Xu**, Andrew J. Davison, Stefan Leutenegger: *Learning to Complete Object Shapes for Object-level Mapping in Dynamic Scenes.* IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022
IROS 2022	Yifei Ren*, **Binbin Xu***, Christopher Choi, Stefan Leutenegger: *Visual-Inertial Multi-Instance Dynamic SLAM with Object-level Relocalisation.* IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2022
arXiv 2021	**Binbin Xu***, Lingni Ma*, Yuting Ye, Tanner Schmidt, Chris Twigg, Steven Lovegrove: *DiForm: Identity-Disentangled Neural Deformation Model for Dynamic Meshes.* arXiv:2109.15299
RA-L 2021 & ICRA2021	**Binbin Xu**, Andrew J. Davison, Stefan Leutenegger: *Deep Probabilistic Feature-metric Tracking.* IEEE Robotics and Automation Letters (RA-L), Vol. 6, No. 1, pp. 223-230, 2021 (presented at ICRA 2021) **Honorable Mention of RA-L 2021 Best Paper Award**
ICRA 2019	**Binbin Xu**, Wenbin Li, Dimos Tzoumanikas, Michael Bloesch, Andrew Davison, Stefan Leutenegger: *MID-Fusion: Octree-based Object-Level Multi-Instance Dynamic SLAM.* IEEE International Conference on Robotics and Automation (ICRA), 2019

RA-L 2017   **Binbin Xu**, Sarthak Pathak, Hiromitsu Fujii, Atsushi Yamashita, Hajime Asama: *Spatio-temporal Video Completion in Spherical Image Sequences.* IEEE Robotics and Automation Letters, Vol. 2, No. 4, pp. 2032-2039, 2017

ROBIO 2016   **Binbin Xu**, Sarthak Pathak, Hiromitsu Fujii, Atsushi Yamashita, Hajime Asama: *Optical Flow-based Video Completion in Spherical Image Sequences.* Proceedings of the 2016 IEEE International Conference on Robotics and Biomimetics, pp.388-395, 2016

ICAM 2015   **Binbin Xu**, Sarthak Pathak, Hiromitsu Fujii, Atsushi Yamashita, Hajime Asama: *Robot Body Occlusion Removal in Omnidirectional Video Using Color and Shape Information.* Proceedings of the 2015 JSME/RMD International Conference on Advanced Mechatronics, pp.49-50, 2015 **(Best Paper Honorable Mention Award)**

ROBIO 2013   Ningjia Yang, Feng Duan, Yudi Wei, Chuang Liu, Jeffrey Too Chuan Tan, **Binbin Xu**, Jin Zhang: *A study of the human-robot synchronous control system based on skeletal tracking technology.* Proceedings of the 2013 IEEE International Conference on Robotics and Biomimetics, pp.2191-2196, 2013

ROBIO 2012   Wenyu Li, Feng Duan, Bo Chen, Jing Yuan, Jeffrey Too Chuan Tan, **Binbin Xu**: *Mobile robot action based on QR code identification.* Proceedings of the 2012 IEEE International Conference on Robotics and Biomimetics, pp.860-865, 2012

ROBIO 2012   Ningjia Yang, Feng Duan, Sicen Liu, Lili Dai, Jeffrey Too Chuan Tan, **Binbin Xu**: *Ankle-angle analysis of drop-foot patients in walking with FES.* Proceedings of the 2012 IEEE International Conference on Robotics and Biomimetics, pp.831-836, 2012

Honors & Awards

2021   **Best Paper Honorable Mention**, IEEE Robotics and Automation Letters

2017–2021   **Imperial College London PhD Scholarship**

2017   **Outstanding Master's Thesis Award**, Department of Precision Engineering, University of Tokyo

2016   **JSME Fellow Award for Outstanding Young Engineers**, The Japan Society of Mechanical Engineers (JSME)

2016 - 2017   **Monbukagakusho Honors Scholarship for Privately-Financed International Students**, Japan Student Services Organization (JASSO)

2015   **Best Paper Honorable Mention**, 2015 JSME/RMD International Conference on Advanced Mechatronics (ICAM 2015)

Skills

Programming   C++, Python, Pytorch, MATLAB with practical experiences.

Language   Chinese Mandarin (Native), English (Proficiency), Japanese (JLPT N1)

Professional Activities

Conference-reviewer   ICRA: 2019/2020/2021/2022/2023; IROS: 2018/2019/2020/2021/2022; CoRL 2020/2021/2022; CASE: 2019; 3DV 2020; BMVC 2020/2021;

Journal review   T-RO, RA-L, JFR, TVCG, ISPRS P&RS, T-MM, T-ASE, IVCJ, TSMC:S

Session chair   IROS 2022

Assoc. editor   IROS 2023

References

Prof. Stefan Leutenegger, TU München, Germany: stefan.leutenegger@tum.de

Prof. Andrew Davison, Imperial College London, UK: a.davison@imperial.ac.uk

Prof. Timothy Barfoot, University of Toronto, Canada: tim.barfoot@utoronto.ca