Long Qian

Address: 3101 Wyman Park Dr, Baltimore, MD 21218, United States

Email: long.qian@jhu.edu

Homepage: http://longqian.me

EDUCATION

Johns Hopkins University, Baltimore, US — *Aug. 2015 - Jun. 2020 (expected)*

- PhD candidate, Computer Science
- Advisors: Prof. Peter Kazanzides and Prof. Nassir Navab
- Laboratory for Computational Sensing and Robotics (LCSR)

Tsinghua University, Beijing, China — *Aug. 2011 - Jul. 2015*

- Bachelor of Engineering, Electronics Engineering

Chinese University of Hong Kong, Hong Kong — *Jun. 2018 - Sept. 2018*

- Visiting scholar, T Stone Robotics Institute

KTH Royal Institute of Technology, Stockholm, Sweden — *Aug. 2013 - Jan. 2014*

- Exchange student, Information and Communication Technology

RESEARCH INTERESTS

Augmented reality, medical robotics, head-mounted displays, real-time systems, clinical and translational research, especially the "see-through surgery"

PUBLICATIONS

1. **Long Qian**, Xiran Zhang, Anton Deguet, Peter Kazanzides, "ARAMIS: Augmented Reality Assistance for Minimally Invasive Surgery Using a Head-Mounted Display," *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, pp. 74-82. Springer. 2019 **[Oral Presentation]**
2. Rafa Rahman, Matthew Wood, **Long Qian**, Carrie Price, Alex Johnson, Greg Osgood, "Head-Mounted Display Use in Surgery: A Systematic Review," *Surgical Innovation (SRI)*. 2019
3. **Long Qian**, Anton Deguet, Peter Kazanzides, "dVRK-XR: Mixed Reality Extension for da Vinci Research Kit," *Hamlyn Symposium on Medical Robotics (HSMR)*, pp. 93-94. 2019. **[Best Paper Award, Second Place]**
4. **Long Qian**, Anton Deguet, Zerui Wang, Yun-hui Liu, Peter Kazanzides, "Augmented Reality Assisted Instrument Insertion and Tool Manipulation for the First Assistant in Robotic Surgery," *IEEE International Conference on Robotics and Automation (ICRA)*, pp. 5173-5179. IEEE. 2019.
5. **Long Qian**, Alexander Plopski, Nassir Navab, Peter Kazanzides, "Restoring the Awareness in the Occluded Visual Field for Optical See-Through Head-Mounted Displays," *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, Volume 24, Issue 11, pp. 2936-2946. IEEE. 2018.
6. **Long Qian**, Anton Deguet, Peter Kazanzides, "ARssist: Augmented Reality on a Head-Mounted Display for the First Assistant in Robotic Surgery," *Healthcare Technology Letters (HTL)*, Volume 5, Issue 5, pp. 194-200. IET. 2018. **[Outstanding Paper Award]**
7. Gerard Deib, Alex Johnson, Mathias Unberath, Kevin Yu, Sebastian Andress, **Long Qian**, Gregory Osgood, Nassir Navab, Ferdinand Hui, Philippe Gailloud, "Image Guided Percutaneous Spine Procedures using an Optical See-Through Head Mounted Display: Proof of Concept and Rationale," *Journal of Neurointerventional Surgery (JNIS)*, Volume 10, Issue 12, pp. 1187-1191. British Medical Journal Publishing Group. 2018.
8. Ehsan Azimi, Alexander Winkler, Emerson Tucker, **Long Qian**, Manyu Sharma, Jayfus Doswell, Nassir Navab, Peter Kazanzides, Evaluation of Optical See-Through Head-Mounted Displays in Training for Critical Care and Trauma," *IEEE Virtual Reality (VR)*, pp. 1-9. IEEE. 2018.
9. Ehsan Azimi, Alexander Winkler, Emerson Tucker, **Long Qian**, Jayfus Doswell, Nassir Navab, Peter Kazanzides, "Can Mixed-Reality Improve the Training of Medical Procedures?," *Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, pp. 4065-4068. IEEE. 2018.

10. **Long Qian**, Alexander Barthel, Alex Johnson, Greg Osgood, Peter Kazanzides, Nassir Navab, Bernhard Fuerst, "Comparison of Optical See-Through Head-Mounted Displays for Surgical Interventions with Object-Anchored 2D-Display," *International Journal of Computer Assisted Radiology and Surgery (IJCARS)*, Volume 12, Issue 6, pp. 901-910. Springer. 2017.
11. **Long Qian**, Ehsan Azimi, Nassir Navab, Peter Kazanzides, "Alignment of the Virtual Scene to the Tracking Space of a Mixed Reality Head-Mounted Display," *arXiv* 1703.05834. 2017.
12. **Long Qian**, Mathias Unberath, Kevin Yu, Bernhard Fuerst, Alex Johnson, Nassir Navab, Greg Osgood, "Towards Virtual Monitors for Image Guided Interventions Real-Time Streaming to Optical See-Through Head-Mounted Displays," *arXiv*, 1710.00808. 2017.
13. Ehsan Azimi, **Long Qian**, Peter Kazanzides, Nassir Navab, "Robust Optical See-Through Head-Mounted Display Calibration: Taking Anisotropic Nature of User Interaction Errors into Account," *IEEE Virtual Reality (VR)*, pp. 219-220. IEEE. 2017. **[Best Poster Award, Honorable Mention]**
14. Jianren Wang, **Long Qian**, Ehsan Azimi, Peter Kazanzides, "Prioritization and Static Error Compensation for Multi-Camera Collaborative Tracking in Augmented Reality," *IEEE Virtual Reality (VR)*, pp. 335-336. IEEE. 2017.
15. **Long Qian**, Alexander Winkler, Bernhard Fuerst, Peter Kazanzides, Nassir Navab, "Modeling Physical Structure as Additional Constraints for Stereoscopic Optical See-Through Head-Mounted Display Calibration," *IEEE International Symposium on Mixed and Augmented Reality (ISMAR-Adjunct)*, pp. 154-155. IEEE. 2016.
16. **Long Qian**, Alexander Winkler, Bernhard Fuerst, Peter Kazanzides, Nassir Navab, "Reduction of Interaction Space in Single Point Active Alignment Method for Optical See-Through Head-Mounted Display Calibration," *IEEE International Symposium on Mixed and Augmented Reality (ISMAR-Adjunct)*, pp. 156-157. IEEE. 2016.
17. **Long Qian**, Zihan Chen, Peter Kazanzides, "An Ethernet to FireWire Bridge for Real-Time Control of the da Vinci Research Kit (dVRK)," *IEEE Conference on Emerging Technologies & Factory Automation (ETFA)*, pp. 1-7. IEEE. 2015.

Presentations and Demonstrations

- "ARAMIS: Augmented Reality Assistance for Minimally Invasive Surgery using a Head-Mounted Display," Presentation at *2019 MICCAI, Shenzhen* *Oct. 2019*
- "Teleporting the Expert Surgeon into your OR," Demo at *2019 Medical Augmented Reality Summer School, Zurich* **[Audience Award]** *Aug. 2019*
- "AR for da Vinci and Laparoscopic Surgery," Presentation at *2019 Medical Augmented Reality Summer School, Zurich* *Aug. 2019*
- "dVRK-XR: Mixed Reality Extension for da Vinci Research Kit," Demo and presentation at *2019 Hamlyn Symposium on Medical Robotics, London* *Jun. 2019*
- "ARssist: Augmented Reality for the First Assistant in da Vinci Surgery," Demo at *2019 ICRA, Montreal, Canada* *May 2019*
- "Augmented Reality on a Head-Mounted Display in Robotic Surgery," Presentation at *FANUC America Corporation, Rochester Hills* *May 2019*
- "ARssistX: X-Ray Vision for Laparoscopic Surgery," Presentation at *LCSR Seminar, Baltimore* *Apr. 2019*
- "ARssist: Augmented Reality on a Head-Mounted Display for the First Assistant in Robotic Surgery," Demo at *2019 LCSR Industry Day, Baltimore* *Mar. 2019*
- "ARssist: Augmented Reality on a Head-Mounted Display for the First Assistant in Robotic Surgery," Demo and presentation at *2019 Intuitive Surgical Research Symposium, Sunnyvale* *Jan. 2019*
- "Towards See-Through Surgery with Head-Mounted Display," Presentation at *GBO, Baltimore* *Dec. 2018*
- "Restoring the Awareness in the Occluded Visual Field for Optical See-Through Head-Mounted Displays," Presentation at *2018 ISMAR, Munich* and *LCSR Seminar, Baltimore* *Oct. 2018*
- "ARssist: Augmented Reality on a Head-Mounted Display for the First Assistant in Robotic Surgery," Presentation at *2018 AECAI Workshop, Granada, Spain* *Sept. 2018*
- "How to write a smart contract?" Presentation at *2018 ImVis Workshop, Lake Faak, Austria* *May 2018*

- "Augmented Reality with Head-Mounted Displays (HMD) in the Operating Room," Presentation at *T Stone Robotics Institute, Chinese University of Hong Kong* *May 2018*
- "A Virtual da Vinci Research Kit (dVRK) on Head-Mounted Displays," Demo at *2018 LCSR Industry Day, Baltimore* *Mar. 2018*
- "Augmented Reality and the Applications for Medical Procedures," Presentation at *Department of Control Science and Engineering, Tongji University, Shanghai* *Sept. 2016*
- "Accuracy Improvement for Optical See-Through HMD Calibration by Reducing User Interaction Error," Presentation at *LCSR Seminar, Baltimore* *Apr. 2016*
- "Calibration of Optical See-Through Head-Mounted Display," Demo and presentation at *2016 LCSR Industry Day, Baltimore* *Mar. 2016*
- "An Ethernet to FireWire Bridge for Real-time Control of the da Vinci Research Kit (dVRK)," Presentation at *LCSR Seminar, Baltimore* *Sept. 2014*

Professional Service

- Reviewer for *IEEE Conference on Virtual Reality and 3D User Interfaces (VR)*
- Reviewer for *IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*
- Reviewer for *IEEE International Conference on Robotics and Automation (ICRA)*
- Reviewer for *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*
- Reviewer for *ACM Virtual Reality Software and Technology (VRST)*
- Reviewer for *ACM CHI Conference on Human Factors in Computing Systems (CHI)*
- Reviewer for *International Journal of Computer Assisted Radiology and Surgery (IJCARS)*
- Reviewer for *IET Healthcare Technology Letters (HTL)*
- Reviewer for *IET Image Processing*
- Reviewer for *ASME Manufacturing Science and Engineering Conference (MSEC)*
- Reviewer for *Chinese Optics Letters*

Teaching Experience

Augmented Reality, EN.601.454/654 by Prof. Nassir Navab

- Guest Lecturer on "Head-Mounted Display" *Spring 2019, 2018*
- Project Supervisor *Spring 2019, 2018, 2017*

Computer-Integrated Surgery II, EN.601.456/656 by Prof. Russel Taylor

- Project Supervisor *Spring 2019, 2018*

Robot Devices, Kinematics, Dynamics, and Control, ME.530.646 by Prof. Noah Cowan

- Teaching Assistant *Fall 2016*

Intro Programming for Scientists & Engineers, EN.600.112 by Prof. Joanne Selinski

- Teaching Assistant *Fall 2015*

Industrial Experience

Google Inc. Daydream VR, Software Development Engineer Intern, *California* *Jul. 2017 - Sept. 2017*

Intuitive Surgical Inc., Applied Research Engineer Intern, *California* *Apr. 2017 - Jun. 2017*

Accenture Inc., Data Analyst and Consultant Intern, *Beijing* *Oct. 2014 - Mar. 2015*

Awards and Honors

Audience Award, Medical Augmented Reality Summer School *Aug. 2019*
MICCAI Graduate Student Travel Grant, MICCAI 2019 *Aug. 2019*
Intuitive Clinical Research Grant, Johns Hopkins University *Jul. 2019*
Best Paper Award, Second Place, Hamlyn Symposium on Medical Robotics *Jun. 2019*
Outstanding Paper Award, AE-CAI Workshop *Sept. 2018*
Intuitive Technology Research Grant, Johns Hopkins University *Jan. 2018*
Best Poster Award, Honorable Mention, IEEE Virtual Reality *Mar. 2017*
Second Place, NASA Space Apps Challenge at Washington D.C. *Apr. 2016*
Outstanding Graduate, Tsinghua University (Top 10%) *Sept. 2015*
Second Place, Mathematical Contest in Modeling, Tsinghua University *May 2014*
Meritorious Winner, Mathematical Contest in Modeling, COMAP *Apr. 2014*
Overseas Research Training Program, Tsinghua University *Jul. 2014*
Outstanding Visiting Undergraduate, China Scholarship Council *Aug. 2013*
Kuok Scholarship, Tsinghua University *Oct. 2014*
SOAR Scholarship, Tsinghua University *Oct. 2013*
EMC Scholarship, Tsinghua University *Oct. 2012*
Freshmen Scholarship, Tsinghua University ("Gaokao" Top 10 in Shanghai) *Oct. 2012*

SKILLS

Language: Chinese (Native), English (Fluent), Spanish (Limited, DELE A2)
Programming Language: C/C++, Python, C#, Java, Javascript, Matlab, Latex, Verilog, Solidity, Shell etc.
Software: Unity, Unreal Engine, Visual Studio, Linux, ROS, Microsoft Office, Solidworks etc.
Sports: Tennis, Swimming, Soccer etc.