

Long Qian

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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, “Augmented Reality X-Ray Vision for Laparoscopic Surgery using Optical See-Through Head-Mounted Display,” accepted to *International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2019*. [Oral]
2. **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]
3. **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.
4. **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.
5. **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]
6. 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.
7. 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.
8. 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.

9. **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.
10. **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.
11. **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.
12. 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]**
13. 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.
14. **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.
15. **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.
16. **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

- "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	<i>Mar. 2017</i>
Second Place , NASA Space Apps Challenge at Washington D.C.	<i>Apr. 2016</i>
Outstanding Graduate , Tsinghua University (Top 10%)	<i>Sept. 2015</i>
Second Place , Mathematical Contest in Modeling, Tsinghua University	<i>May 2014</i>
Meritorious Winner , Mathematical Contest in Modeling, COMAP	<i>Apr. 2014</i>
Overseas Research Training Program , Tsinghua University	<i>Jul. 2014</i>
Outstanding Visiting Undergraduate , China Scholarship Council	<i>Aug. 2013</i>
Kuok Scholarship , Tsinghua University	<i>Oct. 2014</i>
SOAR Scholarship , Tsinghua University	<i>Oct. 2013</i>
EMC Scholarship , Tsinghua University	<i>Oct. 2012</i>
Freshmen Scholarship , Tsinghua University (“Gaokao” Top 10 in Shanghai)	<i>Oct. 2012</i>

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.