Long Qian

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, GPA: 3.91

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

- Visiting scholar, T Stone Robotics Institute

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*

Professional Skills

Programming Language: C/C++, Python, C#, Java, Javascript, Matlab, Latex, Verilog, Solidity, Shell etc.
Packages: OpenCV, FFmpeg, Boost, Eigen, ROS, ARToolKit, QT, .NET etc.
Software: Unity, Unreal Engine, Visual Studio, Linux, ROS, Microsoft Office, Solidworks etc.
Language: Chinese (Native), English (Fluent), Spanish (Limited, DELE A2)

Code Samples

HoloLensARToolKit — https://github.com/qian256/HoloLensARToolKit

- Fiducial tracking based on the front-facing camera of HoloLens
- Achieves low-latency 30-fps tracking with the widest field-of-view (1344×768)

dVRK-XR — https://github.com/jhu-dvrk/dvrk-xr

- Mixed-reality extension to da Vinci Research Kit (dVRK)
- Real-time communication between a robot and a mixed reality client
- Facilitates mixed reality research in the medical robotics community

Selected Publications

1. **Long Qian**, Jie Ying Wu, Simon DiMaio, Nassir Navab, Peter Kazanzides, "A Review of Augmented Reality in Robotic-Assisted Surgery," accepted to *IEEE Transactions on Medical Robotics and Bionics (TMRB)*.
2. **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]**
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. **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.
8. **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.
9. 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]**
10. **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.

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 *International Journal of Computer Assisted Radiology and Surgery (IJCARS)*

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*

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*
Outstanding Graduate, Tsinghua University (Top 10%) *Sept. 2015*
Meritorious Winner, Mathematical Contest in Modeling, COMAP *Apr. 2014*
Freshmen Scholarship, Tsinghua University ("Gaokao" Top 10 in Shanghai) *Oct. 2012*