

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, 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

For an imcomplete list of projects, please refer to [Projects](#).

Expertise Area: Augmented Reality, Medical Robotics, Computer Vision, Real-Time Systems, Deep Learning

Programming Language: C/C++, Python, C#, Java, Javascript, Matlab, Latex, Verilog, Solidity, Shell etc.

Packages: OpenCV, PyTorch, FFmpeg, ROS, Boost, Eigen, 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

For a full list of publications, please refer to [Google Scholar](#).

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