

:: objective

Research and explore disruptive innovations in computing, communication, sensing, computer vision, machine learning, and robotics. Strong interest in entrepreneurship and Asia development.

:: education

Massachusetts Institute of Technology

Ph.D., Electrical Engineering 2015 | M.Eng. EE 2007 | S.B. Physics 2007 | S.B. EE 2006

:: skills

Human Languages	English, Chinese, basic level German
Computer Languages	Python, JavaScript (front and back-end), C, C++, Java (Android), Octave/Matlab, HTML5, CSS3, LaTeX
Frameworks	TensorFlow, ROS, OpenCV, Flask, Django, Elasticsearch, MongoDB, Neo4j, MySQL
Theoretical	Signals and systems, Quantum Optics, Stochastic Processing, Game Theory, Computation Structures
Experimental	Nonlinear optics, robotics, general DIY hacking and prototyping
Other	Cinematography, photography, UI and graphic design

:: experience & leadership

Co-founder, Robby Technologies | Palo Alto, CA, USA | 2016-present

Building autonomous delivery robots that travel on sidewalks for last-mile delivery. Participated in the Y Combinator summer 2016 batch.

Co-founder, Virtulus | Cambridge, MA, USA | 2015-2016

Created a smart, location-based search engine for mobile. Pivoted in 2016 to robotics.

Research Assistant, MIT RLE Optical and Quantum Communications Group | Cambridge, MA, USA | 2007-2014

Ph.D. research in single photon imaging and quantum sensing. Jointly developed a novel imaging paradigm recently featured in Science.

Technology Director, MIT-China Innovation and Entrepreneurship Forum | Cambridge, MA, USA | 2011-2012

Founding team member and board member. Responsible for technical infrastructure and logistics, marketing materials, cinematography.

Website and Marketing Director, MIT Sustainability Summit | Cambridge, MA, USA | 2010-present

Built a database-backed, mobile-friendly website and designed all conference materials. Eliminated the necessity for printed programs.

Officer, Tzu Chi Collegiate Association | Cambridge, MA, USA | 2010-present

Youth delegate at the 2010 UN Youth Assembly, on-site disaster relief team experience in Haiti, New York, and Springfield.

Operations Officer, Ashdown House Executive Committee | Cambridge, MA, USA | 2010-2012

Elected twice to the executive committee. Initiated numerous environmental and technical projects in a new 550-student residence.

Intern, ETHZ Quantum Electronics Group | Zurich, Switzerland | Summer 2007

Explored photoluminescence excitation and polarisation of quantum dots.

Intern, Trumpf-Laser GmbH + Co. KG | Schramberg, Germany | Summer 2005

Helped develop high-power pulsed lasers over continuous-wave lasers as a technology for material processing.

Intern, A-STAR Institute of Bioengineering and Nanotechnology | Singapore | Summer 2004

Used laser Doppler vibrometry to perform frequency analysis of human ear components.

:: interests

DIY Electronics | Photography | Travelling | Piano | Nature | Cycling | Sustainability | Culture & History

:: selected research publications

A. Kirmani, D. Venkatraman, D. Shin, A. Colaco, F.N.C. Wong, J.H. Shapiro, V.K. Goyal, "First-Photon Imaging", Science 1246775 (2013). **Featured on** BBC, Nature, Scientific American, Slashdot, Mashable, Sina, Xinhuanet, 36Kr

D. Shin, F. Xu, D. Venkatraman, R. Lussana, F. Villa, F. Zappa, V.K. Goyal, F.N.C. Wong, J.H. Shapiro. "Photon-efficient imaging with a single-photon camera," Nature Communications 7, 12046 (2016).

J.H. Shapiro, D. Venkatraman, F.N.C. Wong, "Classical Imaging with Undetected Photons," Nature Scientific Reports 5, 10329 (2015).

J.H. Shapiro, D. Venkatraman, F.N.C. Wong, "Ghost Imaging without Discord," Nature Scientific Reports 3, 1849 (2013).

D. Venkatraman, Nicholas D. Hardy, Franco N. C. Wong, and Jeffrey H. Shapiro, "Classical far-field phase-sensitive ghost imaging," Opt. Lett. 36, 3684-3686 (2011).

J. Le Gouët, D. Venkatraman, Franco N. C. Wong, and J. H. Shapiro, "Experimental realization of phase-conjugate optical coherence tomography," Opt. Lett. 35, 1001-1003 (2010).

J. Le Gouët, D. Venkatraman, Franco N. C. Wong, and J. H. Shapiro, "Classical low-coherence interferometry based on broadband parametric fluorescence and amplification," Opt. Express 17, 17874-17887 (2009).

:: awards and honors

2nd Place, MIT Energy Hackathon, 2015

1st Place, Pitch to ZhenFund contest, 2014

Finalist, Qualcomm Innovation Fellowship, 2014

Recipient, Avery Ashdown Award for leadership, 2009 and 2010

Recipient, ThinkSwiss Research Scholarship, 2007

National Finalist, Hertz Foundation Fellowship, 2007

2nd Place and Engineering Design Award, Mobile Autonomous Systems Laboratory (MASlab), 2005

Recipient, MIT International Science and Technology Initiatives (MISTI) Anthony Sun Fellowship, 2005

National Finalist and Scholarship Recipient, Intel (formerly Westinghouse) Science Talent Search, 2002

:: selected personal DIY projects

Attopedia: Wikipedia for smart watches

A Wikipedia client for Android Wear smart watches. Implemented a 2-dimensional, intuitive way of navigating large amounts of content on a small screen. Featured on PC Magazine, Gigaom, Yahoo! News, Engadget, Android Police, and more.

Photography project: China's drastic changes in urbanization

Collected photos from the past 100 years in China and retook them from exactly the same angle and focal length to show the incredible changes over a short time. Featured on Business Insider, Wired, China Central Television, ThePaper.cn.

"Okay Google, Open Sesame"

Opened my apartment door by saying this simple command into an Android Wear device. Featured on Time Magazine.

quack.space

No-fuss, no-login, location-based file sharing without the need to install any apps.

FooPlot

Open-source, internationalised, Javascript and HTML5-based graphing calculator. Attracted the attention of thousands of schools worldwide in 2007 and achieved a quarter million monthly active users.

Computational Photography

Continually exploring noise reduction algorithms for high-ISO photographs that surpass those present in state-of-the-art cameras. Using multiple techniques inspired by compressed sensing. Recently began exploring the use of deep learning to reduce noise.