Curriculum Vitae – Yunfei Ma

Personal Information

Yunfei Ma
Email: yunfei.ma@alibaba-inc.com

Current position

Senior Engineer
Alibaba Group (U.S.) Inc. (2018-present)
525 Almanor Avenue
Sunnyvale, CA 94085

Education

Postdoctoral fellow
MIT Media Lab (2016-2018).
Signal Kinetics Group
Ph.D. in Electrical and Computer Engineering
Cornell University (2010-2016).
GPA:4.21/4.3
B.S. in Electrical Engineering
University of Science and Technology of China (USTC) (2006-2010).
GPA:4.00/4.3

Selected honors and awards

Covered by IEEE Signal Processing Magazine Special Report, 2018
ACM SIGCOMM research paper highlights, 2018
China Young Scientist Computing Association Rising Star, 2018
Qualcomm QualStar Award, 2015
International Microwave Symposium Best Student Paper Award, 2015
Irwin and Joan Jacobs Scholar, 2011
Best Undergraduate Thesis Award, USTC, 2010
National Scholarship (Top 2%), Ministry of Education, China, 2009
Best Undergraduate Research Project, USTC, 2009.
Outstanding Student Scholarship (Top 5 %), USTC, 2007 & 2008.

Working experiences

Alibaba Group (U.S.) Sunnyvale, CA, Sept. 2018-present
Senior Engineer →
Technology expert in Alibaba global wireless networking infrastructure. My research focues on exploring new architectures of self-driving wireless network, physcial-layer-inspired network design and network automation using robotic techniques.

MIT Media Lab Cambridge, MA, Sept. 2016-Aug. 2018
Postdoctoral Associate→
Internet-of-things (IoT) based human machine interface (HCI). My research focuses on using tools from computer networks, signal processing, machine learning and hardware design to uncover, analyze and engineer the networks of natural and man-made signals that fill our world in order to enhance our abilities in communication, sensing and actuation.

Oracle Sun Microsystems Santa Clara, CA, Jun. 2016-Sept. 2016
Senior Hardware Engineer→
Event-driven mixed-analog IC design for next generation on-chip high speed link (SerDes) in multi-core processors.

Qualcomm San Diego, CA, May 2015-Aug. 2015
Engineering Intern→
RF front-end diplexer IC design for 5G carrier aggregation applications using passive-on-glass (POG) technology.

Cornell University Ithaca, NY, Aug. 2010-May 2016
Research Assistant→
Subcentimeter accuracy real-time 3D indoor localization in passive devices using nonlinear backscatter techniques. Harmonic RFID IC design based on nonlinear transmission lines (NLTLs).

Microwave and Millimeter-wave Center, USTC Hefei, China, 2008-2010
Research Assistant→
Mono-static radar imaging using compressive sensing. Microwave filter design via complementary split ring resonators (CSRRs).

Serve as invited reviewer for

IEEE Transaction on Microwave Theory and Techniques
IEEE Transaction on Mobile Computing
IEEE/ACM Transaction on Networking
IEEE Consumer Electronics Maganine
IET Microwaves, Antennas & Propagation
IEEE INFOCOM 2018

Other services

ACM CoNEXT Technical Program Committee 2018
IEEE INFOCOM (one of the three major computer network conferences)Technical Program Committee 2019
ACM MobiCom Workshop Technical Program Committee 2018
ACM Mobisys Workshop Technical Program Committee 2018
Invited speaker for 2018 Information Theory and Application Workshop
Invited speaker for 2018 China Turing Celebration Meeting

Publications

Z. Luo, Q. Zhang, Y. Ma, M. Singh and F. Adib, *3D backscatter localization for fine-grained robotics*, USENIX NSDI, 2019.
U. Ha, Y. Ma, Z. Zhong, T. Hsu and F. Adib, *Learning food quality and safety from wireless stickers*, ACM HotNets, 2018.
Y. Ma, Z. Luo, C. Steiger, G. Traverso and F. Adib, *Enabling deep-tissue networking for miniature medical devices*, ACM SIGCOMM, 2018. (acceptance rate: 40/222=18%) *Featured on Technology Review, Boston Herald, Engadget and other media outlets*
Y. Ma, N. Selby and F. Adib, *Minding the billions: ultra-wideband localization in deployed RFID tags*, ACM MobiCom, 2017.(acceptance rate: 35/186 = 19%)
Y. Ma, N. Selby and F. Adib, *Drone relays for battery-free networks*, ACM SIGCOMM, 2017. (acceptance rate: 36/250 = 14%) *Featured as Spotlight on MIT homepage, IEEE Spectrum, The Verge, Sina, Sohu and other media outlets*
Y. Ma, N. Selby, M. Singh, and F. Adib, *Demo: fine-grained RFID localization via ultra-wideband emulation*, ACM SIGCOMM, 2017.

X. Hui, Y. Ma and E. C. Kan, *Code division multiple access in centimeter accuracy harmonic RFID locating systems*, IEEE Journal of Radio Frequency Identification, 2017.
X. Hui, Y. Ma and E. C. Kan, *Real-time code-division multi-tag localization with centimeter accuracy*, accepted to IEEE International Conference on RFID, 2017.
Y. Ma, X. Hui and E. C. Kan, *3D real-time indoor localization via broadband nonlinear backscatter in passive devices with centimeter precision*, ACM MobiCom, 2016.(acceptance rate: 32/226 = 14%)
X. Hui, Y. Ma and E. C. Kan, *Real-time 3D robotic arm tracking in indoor environment by RF nonlinear backscattering*, ACM S^3, 2016.
Y. Ma and E. C. Kan, *Ubiquitous tagless object locating via ambient harmonic tags*, IEEE INFOCOM, 2016. (acceptance rate: 300/1644 = 18%)
Y. Ma, X. Hui and E. C. Kan, *Harmonic-WISP: a broadband harmonic RFID platform*, IEEE MTT-S International Microwave Symposium, 2016.
Y. Ma and E. C. Kan, *Passive ranging by low directivity antenna with quality estimates*, IEEE MTT-S International Microwave Symposium 2015.*Best student paper award in IMS 2015*
Y. Ma, H. Rong and E. C. Kan, *Millimeter accuracy passive tag ranging via second harmonics RF backscattering against body movement interference*, IEEE GLOBECOM, 2014.
Y. Ma and E. C. Kan, *Accurate indoor ranging by broadband harmonic generation in passive NLTL backscatter tags*, IEEE Trans. Microwave Theory Tech., 2014.
Y. Ma and E. C. Kan, *Accurate indoor ranging by broadband passive NLTL tags*, IEEE MTT-S International Microwave Symposium, 2013.
Y. Ma and E. C. Kan, *Multi-path interference reduction in passive NLTL RFID tags*, IEEE International Wireless Symposium, 2013.
F. Yu, Y. Ma and E. C. Kan, *A passive wireless sensor with reflective nonlinear transmission lines for capacitive signal transduction*, IEEE Radio and Wireless Symposium, 2012.
F. Yu, Y. Ma and E. C. Kan, *Reflective nonlinear transmission lines for single-antenna non-self-jamming RFID*, IEEE MTT-S International Microwave Symposium, 2011.
H. Xu, K. Liu, Y. Ma, D. Wang and W. Chen, *An improved IPCP detector of UWB radar signals based on adaptive searching window*, IEEE international conference on ultra-wideband, 2010.
H. Xu, Y. Ma, J. Tao, D. Wang and W. Chen, *The Detection of range extended target based on adaptive searching and twofold sliding windows*, IEEE International conference on electrical and control engineering, 2010.
S. Zhang, F. Liu, and Y. Ma, *Novel compact ultra wideband low-pass filters using complementary split ring resonators (CSRRs)*, Chinese Research & Progress of Solid State Electronics, 2009.

Patents

Y. Ma, C. Zuo, D. Berdy, D. Kim, C. Yun, J. Lan, M. Velez, N. Mudakatte, R. Mikulka and J. Kim, *RF multiplexer with integrated directional couplers*, US Patent 10,171,112 B2, Jan. 2019.
Y. Ma, C. Zuo, D. Berdy, D. Kim, C. Yun, J. Lan, M. Velez, N. Mudakatte, R. Mikulka and J. Kim, *Tunable matching network*, US Patent 10,187,031 B2, Jan. 2019.
C. Yun, C. Zuo, D. Kim, M. Velez, N. Mudakatte, J. Lan, D. Berdy, Y. Ma,

R. Mikulka and J. Kim, *Encapsulation of acoustic resonator devices*, US Patent 10,069,474 B2, Sept. 2018.
E. C. Kan and Y. Ma, *RFID device, methods and applications*, US Patent 9,645,234 B2, May 2017.
Y. Ma, N. Selby and F. Adib, *Methods and apparatus for wideband localization*, US Patent App. 15/936,078, Mar. 2017.
Y. Ma, N. Selby and F. Adib, *Methods and apparatus for analog relays*, US Patent App. 15/894,901, Jan. 2017.
M. Velez, N. Mudakatte, C. Yun, D. Kim, D. Berdy, J. Kim, Y. Ma and C. Zuo, *Solenoid inductor*, US Patent App. 15/345,312, Nov. 2016.
M. Velez, D. Kim, N. Mudakatte, D. Berdy, C. Yun, J. Kim, C. Zuo, Y. Ma, R. Mikulka, *Two-dimensional structure to form an embedded three-dimensional structure*, US Patent App. 15/192,802, Jun. 2016.

Teaching experiences

Guest Lecturer, Cornell ECE 5990 (RFID Systems), 2013.
Teaching Assistant, Cornell ECE 2300 (Digital Logic and Computer Organization), 2011.

Students Mentoring:
Hongqian Rong (now at Oracle), Sameed Shafi (now at SanDisk), Minji Kim (now Ph.D. student at Cornell), Rex Chen (now at Motorola), Kevin Wang (now at Apple), Nick Selby (now at MIT), Zhihong Luo (now at MIT), Tzu-Ming Hsu (now at MIT)

Media Coverage

The Verge, IEEE Spectrum, MIT News(front page), International Business Times, Boston Herald, Technology Review, Digital Trends, Geek, Inverse, Engadget, UPI, RFID Journal, Cornell News, ScienceDaily, Sina(Chinese), Sohu(Chinese), IT Home(Chinese), The Drive, Material Handling and Logistics, RF Global Net, Computer Welt(Austrians), Electronics360, Quartz, New Atlas, Design Products and Applications.

Language skills

English, Chinese