John S. Ho

I work at the intersection of hardware and software, humans and technology. My expertise is in the areas of sensors, machine learning, and wearable technology. I worked in academia in the field of bioelectronics. I am currently in industry developing sensors and algorithms to digitize and represent humans.

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INDUSTRY EMPLOYMENT

2022-Present Research Scientist
Antennas Group, Meta Platforms, California
Developing sensors and algorithms for codec avatars.

2021 External Consultant
Medical Devices Group, Cambridge Consultants, Cambridge, UK
Prototyped solutions for connected biosensors and medical devices.

ACADEMIC EMPLOYMENT

2022-Present Associate Professor
Department of Electrical and Computer Engineering,
Institute for Health Innovation and Technology (affiliate faculty)
The N.1 Institute for Health (affiliate faculty)
National University of Singapore, Singapore

2015-2022 Assistant Professor
National University of Singapore, Singapore

EDUCATION

2015 PhD, Electrical Engineering, Stanford University, USA
Thesis titled "Wireless Powering for Bioelectronics" (Advisor: Ada S Y Poon)
2012 MS, Electrical Engineering, Stanford University, USA

AWARDS

2020 Young Scientist Award, Singapore National Academy of Science
2020 IES Engineering Achievement Award
2017 MIT Technology Review: Innovator Under 35 Asia
2017 Forbes 30 Under 30 Asia: Healthcare
2017 National Research Foundation Fellowship
2016 NUS Young Investigator Award
2012 National Defense Engineering & Science Graduate Fellowship (USA)

SELECTED PUBLICATIONS

Published >50 papers in top venues in electrical engineering, physics, biomedical engineering, and materials science that have been cited >8000 times. Link to Google Scholar.

J5 R. Lin*, H. Kim*, S. Achavananthadith, S. A. Kurt, S. C. C. Tan, H. Yao, B. C. K. Tee, J. L. W. Lee, J. S. Ho, "Wireless battery-free body sensor networks using near-field-enabled clothing," *Nature Communications*, 11, 444 (2020). [Listed as a Top 50 Physics Article of 2020. Press coverage.]

J4 Z. Dong, Z. Li, F. Yang, C. W. Qiu, J. S. Ho, "Sensitive readout of implantable microsensors using a wireless system locked to an exceptional point," *Nature Electronics*, 2, 335-342 (2019). [Featured in News & Views. Press coverage.]

J3 X. Tian*, P. M. Lee*, Y. J. Tan, T. L. Y. Wu, H. Yao, M. Zhang, Z. Li, K. A. Ng, B. C. K. Tee, J. S. Ho, "Wireless body sensor networks based on metamaterial textiles", *Nature Electronics*, 2, 242-251 (2019). [Featured on the cover and in News & Views. Press coverage.]

J2 A. Bansal, F. Yang, X. Tian, Z. Yong, J. S. Ho, "In vivo wireless photonic photodynamic therapy," *PNAS*, 115 (7), 1469-1474 (2018).

J1 D. R. Agrawal, Y. Tanabe, D. Weng, S. Liao, Z. Zhen, Z. Zhu, C. Sun, Z. Dong, F. Yang, H. F. Tse, A. S. Y. Poon, and J. S. Ho, "Conformal phased surfaces for wireless powering of bioelectronic microdevices," *Nature Biomedical Engineering*, 1, 0043 (2017). [Featured in Editorial and News & Views.]

SELECTED PATENTS

Inventor on 3 granted patents and 4 pending patents, 4 of which are licensed.

P5 *International Patent Pending PCT/SG2019/050515.* "Radio-Wave Confinement On Metamaterial Textiles For Wireless Sensor Networking". Filed Nov 21, 2018.

P4 *International Patent Pending PCT/SG2019/050037*. J. S. Ho, Y. Zhang, A. Bansal, F. Yang, "Photodynamic Therapy Devices, Systems and Methods". Filed Feb 2, 2018. [Licensed to Incando Therapeutics]

P3 *US Patent No. 10,594,166.* "Efficient wireless power transfer with flat, flexible lens". Filed Sep 28, 2015; issued Mar 17, 2020. [Licensed to Boston Scientific (2016–2017) and Neuspera Medical (2017–Present), >$35k licensing revenue]

P2 *US Patent No. 10,434,329.* "Autofocus wireless power transfer to implantable devices in freely moving animals". Filed Mar 25, 2015; issued Oct 8, 2019. [Licensed to MapLight Therapeutics (2019–Present)]

P1 *US Patent No. 9,687,664.* "Wireless midfield systems and methods". Filed Sep 16, 2014; issued Jun 27, 2017. [Licensed to Neuspera Medical (2014–Present), 6 continuations granted and 5 pending, >$130k licensing revenue]

PROFESSIONAL SERVICE

2020-Present FDA Network of Digital Health Experts (NoDEx)

2015-Present Reviewer for *Nature* series journals, *Science* series journals, *Physical Review* series journals, *Advanced Materials* series journals, *PNAS*, *IEEE Transactions on Antennas and Propagation*, *IEEE Microwave Theory and Techniques*, *IEEE Transactions on Biomedical Circuits and Systems*, *The Lancet Digital Health*, *ACS Nano*, and others.

2015-Present Served in an organizing role in the following conferences: ICBME2015, AWPT2017, IEEE APCAP2017, ICBME2019, IEEE APMC2019, IEEE WPTC 2020, IEEE AP-S/URSI 2021, IEEE BHI/BSN 2021, IEEE WPW 2022, IEEE IMBioC 2022.

SELECTED GRANTS

I was the principal investigator on grants totaling over USD$3.5 million.

2017-2022 "Small-scale Wireless Devices for Bioelectronic Therapies"
National Research Foundation Fellowship (USD$1.8M)

2017-2022 "Remote-controlled Photo-Therapy with Small-scale Wireless Bioelectronics", Ministry of Education, Tier 3 Grant (USD$900k)