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Favourite Quote:

"Leave the beaten track behind occasionally and dive into the woods. Every time you do, you will be certain to find something you have never seen before"

- Alexander Graham Bell

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Yong Ping Xu graduated from Nanjing University China and received his PhD in Electronics from University of New South Wales (UNSW), Australia, in 1994. He joined University of South Australia in 1996 as a Lecturer. Since 1998, he has been with the Department of Electrical and Computer Engineering, National University of Singapore and is currently an Associate Professor. Prior to his PhD, he worked for Qingdao Semiconductor Research Institute as a design engineer, R&D manager and Director from 1978 to 1987.

He has been involved in the research of integrated circuit design, currently focusing on applications in biomedical devices and MEMS/sensor interfaces. He has served the International Technical Program Committee of IEEE International Solid-State Circuits Conference (ISSCC) since 2014 and Technical Program Committee of VLSI Circuits Symposium since 2017. He also served Technical Program Committee of IEEE Asian Solid-State Circuits Conference (A-SSCC) from 2009-2013 and Technical Program Committee Co-Chairs of IEEE Symposium on Radio Frequency Integration Technology (RFIT) in 2007 and 2009. He is the Organizing Committee Chair of 2013 IEEE Asian Solid-State Circuits Conference (A-SSCC). He is currently a Distinguished Lecturer of IEEE Solid-State Circuits Society.

Research Interests:

Integrated Circuits for

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Selected Publications

Conference Papers:

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SENSOR-SURVEY.HTML\)](#)

- J. Zhao, X. Wang, Y. Zhao, G.M. Xia, A. Qiu, Y. Su, and Y.P. Xu, "A 0.23 micro-g Bias Instability and 1.6 micro-g/rt(Hz) Resolution Silicon Oscillating Accelerometer with Build-in Sigma-Delta Frequency-to-Digital Converter," *The 2016 Symposium on VLSI Circuits (VLSI)*, Hawaii, USA, 14 - 17 June 2016, pp. 190-191.
- Y. Zhao, X. Wang, J. Zhao, G.M. Xia, A. Qiu, Y. Su, and Y.P. Xu, "A 0.5°/h Bias Instability 0.067°/√h Angle Random Walk MEMS Gyroscope with CMOS Readout Circuit," *2015 IEEE Asian Solid-State Circuits Conference (A-SSCC)*, China, 9 - 11 Nov 2015, pp. 57-60.
- C. Yuan, K.A. Ng, Y.P. Xu, S-C Yen, and N.V. Thakor, "A 1-V 9.8-ENOB 100-kS/s Single-Ended SAR ADC With Symmetrical DAC Switching Technique for Neural Signal Acquisition," *2015 IEEE Asian Solid-State Circuits Conference (A-SSCC)*, China, 9 - 11 Nov 2015, pp. 73-76.
- K.A. Ng and Y.P. Xu, "A multi-channel neural-recording amplifier system with 90dB CMRR employing CMOS-inverter-based OTAs with CMFB through supply rails in 65nm CMOS," *2015 IEEE International Solid-State Circuits Conference (ISSCC)*, San Francisco, California, USA, 22 - 26 February 2015, pp. 206-207.
- X. Wang, J. Zhao, Y. Zhao, G.M. Xia, A. Qiu, Y. Su, and Y.P. Xu, "A 1.2μg/√Hz-resolution 0.4μg-bias-instability MEMS silicon oscillating accelerometer with CMOS readout circuit," *2015 IEEE International Solid-State Circuits Conference (ISSCC)*, San Francisco, California, USA, 22 - 26 February 2015, pp. 476-477.

- L. Yao, J. Zhao, P. Li, R. Xue, Y.P. Xu, and M. Je, "A 20V-compliance implantable neural stimulator IC with closed-loop adaptive control, active charge balancing, and electrode impedance check," *2014 IEEE Asian Solid-State Circuits Conference (A-SSCC)*, Singapore, 10 - 12 Nov 2014, pp.201-204.
- R. Pan, D. Chua, JS Pathmasuntharam, and Y.P. Xu, "A WBAN Based Cableless ECG Acquisition System," *2014 36th International Annual Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, Chicago, Mexico, 26 - 30 August, 2014.
- J. Pathrose, L. Zou, K. Chai, M. Je and Y.P. Xu, "A Temperature-Smart Temperature Sensor without an Explicit Bandgap Reference in SOI CMOS Operating up to 225oC," *2013 IEEE Asian Solid-State Circuits Conference (A-SSCC)*, Singapore, 11 - 13 Nov 2013, pp. 173-176.
- J. Zhao, L. Yao, R. Xue, P. Li, M. Je and Y.P. Xu, "A Wireless Power Management and Data Telemetry Circuit Module for High Compliance Voltage Electrical Stimulation Applications," *2013 IEEE Asian Solid-State Circuits Conference (A-SSCC)*, Singapore, 11 - 13 Nov 2013, pp.253-256.
- K. A. Ng and Y. P. Xu, "A Compact, Low Input Capacitance Neural Recording Amplifier with Cin/Gain of 20fF.V/V," *2012 IEEE Biomedical Circuits and Systems Conference (BioCAS)*, Hsinchu, Taiwan, 28 - 30 Nov 2012
- K. A. Ng, X. Liu, J. Zhao, X. Li, S-C Yen, M. Je, Y. P. Xu, T. C. Tan, "A Inductively Powered CMOS Multichannel Bionic Neural Link for Peripheral Nerve Function Restoration," *2012 IEEE Asian Solid-State Circuits Conference (A-SSCC)*, Kobe, Japan, 12 - 14 Nov 2012, pp.181-184.
- Y. P. Xu, S-C Yen, K.A. Ng, X Liu, T. C. Tan, "A Bionic Neural Link for Peripheral Nerve Repair," *34th International Annual Conference of the IEEE Engineering in Medicine & Biology Society (EMBC)*, San Diego, USA, 28 Aug - 1 Sept, 2012.
- J. Tan, X. Liu, K.H.We, S-C Yen, Y.P. Xu, and T.C.Tan, "A Monolithic Programmable Nerver/Muscle Stimulator," *2011 5th International IEEE EMBS Conference on Neural Engineering*, Cancun, Mexico, 27 April - 2 May, 2011.

- J. Tan, X. Liu, K.H.We, S-C Yen, Y.P. Xu, "A Programmable Muscle Stimulator Based on Dual-Slope Charge Balance," *2011 IEEE Asian Solid-State Circuits Conference (A-SSCC)*. Korea, 14-18 November, 2011, pp.197-200. [HOME \(/ABOUT.HTML\)](#)
- Y.P. Xu, "Silicon Resonant Accelerometer for Inertial Navigation Systems", *The CMOS Emerging Technology Workshop*, Vancouver, Canada, 23 - 25 September 2009 (Invited) [PROFESSIONAL \(/PROFESSIONAL.HTML\)](#)
- K. R. Muthusamy and Y.P. Xu, "A 52 pJ/bit OOK Transmitter With adaptable data rate," *2008 IEEE Asian Solid-State Circuits Conference (A-SSCC)*. Fukuoka, Japan, 3-5 November, 2008, pp.146-147. [PUBLICATIONS \(/PUBLICATIONS.HTML\)](#)
- L. He, Y. P. Xu, and M. Palaniapan, "A CMOS Readout Circuit for Silicon Resonant Accelerometer with 32-ppb bias stability," *The 2007 Symposium on VLSI Circuits (VLSI)*, Kyoto, Japan, 14 - 16 June 2007, pp.146-147. [INERTIAL SENSOR SURVEY \(/INERTIAL-SENSOR-SURVEY.HTML\)](#)
- J. Chen and Y.P. Xu, "A 94dB SFDR 78dB DR 2.2MHz BW Multi-bit Delta-Sigma Modulator with Noise Shaping DAC," *2007 IEEE Custom Integrated Circuits Conference (CICC)*, San Jose, California, USA, 16 - 19 September 2007, pp.69-72. (AMD/CICC Student Scholarship Award for one of the highest rated student papers submitted to CICC'07)
- R. Yu and Y.P. Xu, "A 65-dB DR 1-MHz BW 110-MHz IF Bandpass SD Modulator Employing Electromechanical Loop Filter," *2007 IEEE Custom Integrated Circuits Conference (CICC)*, San Jose, California, USA, 16-19 September 2007, pp.205-208
- J. Chen and Y. P. Xu, "A 94dB SFDR 78dB DR 2.2MHz BW Multi-bit Delta-Sigma Modulator with Noise Shaping," *Design Automation Conference (DAC)*, 2007. (DAC/ISSCC Student Design Contest Winner - Operation category).
- H. Wu and Y.P. Xu, "A 1V 2.3mW Biomedical Signal Acquisition IC," *2006 IEEE International Solid-State Circuits Conference (ISSCC)*. San Francisco, California, USA, 5 - 9 February 2006, pp.58-59.
- Y. Zheng, Y. Tong, C.W. Ang, Y.P. Xu, W.G.Yeoh, F. Lin, and R. Singh, "A CMOS Carrierless UWB Transceiver for WPAN Applications," *2006 IEEE International Solid-State Circuits Conference (ISSCC)*, San Francisco, California, USA, 5 - 9 February 2006, pp.116-117.

- Y.P. Xu, R. Yu, W-T Hsu, and A. R. Brown, "A Silicon Micromechanical Resonator Based CMOS Bandpass Sigma-Delta Modulator," *2006 IEEE Asian Solid-State Circuits Conference (A-SSCC)*, Hongzhou, China, 13 - 15 November 2006, pp.143-146. **ABOUT (/ABOUT.HTML)**
- R. Yu and Y.P. Xu, "A 47.3-MHz SAW Resonator Based CMOS Second-Order Bandpass Sigma-Delta Modulator with 54-dB Peak SNDR," *2005 IEEE Custom Integrated Circuits Conference (CICC)*, San Jose, California, USA, 18 - 21 September 2005, pp. 209-210. **PROFESSIONAL PUBLICATIONS (/PROFESSIONAL.HTML)**
- L. He, Y.P. Xu and A.Qiu, "Folded Silicon Resonant Accelerometer with Temperature Compensation," *Proceedings of IEEE SENSORS/INERTIAL SENSOR SURVEY/INTEGRAL VIENNA*, Austria, 24-27 October 2004, pp. 512-515. **INERTIAL SENSOR SURVEY/INTEGRAL VIENNA (/INERTIAL-SENSOR-SURVEY.HTML)**

Journal Papers:

- J Zhao, X Wang, Y Zhao, GM Xia, AP Qiu, Y Su, YP Xu, "**A 0.23- μ g Bias Instability and 1- μ g/ $\sqrt{\text{Hz}}$ Acceleration Noise Density Silicon Oscillating Accelerometer With Embedded Frequency-to-Digital Converter in PLL** (<https://scholar.google.com.sg/scholar?oi=bibs&cluster=16355599538797352049&btnI=1&hl=en>)," *IEEE Journal of Solid-State Circuits*, Vol.52, No.4, pp. 1053-1065, April 2017.
- X. Wang, J. Zhao, Y. Zhao, G.M. Xia, A. Qiu, Y. Su, and Y.P. Xu, "A 0.4 μ g Bias-Instability and 1.2 μ g/ $\sqrt{\text{Hz}}$ Noise Floor MEMS Silicon Oscillating Accelerometer with CMOS Readout Circuit," *IEEE Journal of Solid-State Circuits*, Vol.52, No.2, pp. 472-482, February 2017.
- J. Zhao, Y. Zhao, X. Wang, G.M. Xia, A. Qiu, Y. Su, and Y.P. Xu, "A System Decomposition Model for Phase Noise in Silicon Oscillating Accelerometers," *IEEE Sensors Journal*, Vol.16, No.13, pp. 5259-5269, July 2016.
- K.A. Ng and Y.P. Xu, "A Low Power, High CMRR Neural amplifier system employing CMOS inverter-based OTAs with CMFB through Supply Rails," *IEEE Journal of Solid-State Circuits*. Vol. 51, No. 3, pp. 724 - 737, March 2016.
- J. Zhao, L.Yao, R. Xue, P. Li, M. Je, and Y.P. Xu, "An Integrated Wireless Power Management and Data Telemetry IC for High-Compliance-

- Voltage Electrical Stimulation Applications”, *IEEE Transaction on Biomedical Circuits and Systems*. Vol. 10, No. 1, pp.110-124, February 2016.
- K. A. Ng, E Greenwald, Y. P. Xu, and N. Thakor, "Implantable Neurotechnologies: A Review of Integrated Circuit Neural Amplifiers," *Medical & Biological Engineering & Computing* (<http://link.springer.com/journal/11517>), January 2016, Vol. 54, No. 1, pp.1-11 (<http://link.springer.com/journal/11517/54/1/page/1>). ABOUT (/ABOUT.HTML)
PROFESSIONAL
PUBLICATIONS
PUBLICATIONS
 - Y. Zhao, J. Zhao, X. Wang, G.M. Xia, A. Qiu, Y. Su, and Y.P. Xu, "A sub- μg Bias Instability and $2\mu\text{g}/\sqrt{\text{Hz}}$ -resolution MEMS SURVEY (INERTIAL-SENSOR-SURVEY.HTML) accelerometer with an Ultra Low Noise readout circuit in CMOS," *IEEE Journal of Solid-State Circuits*, Vol. 50, No. 9, pp. 2113 - 2126, Sept 2015.
 - J. Pathrose, C. Liu, K. T. C. Chai, and Y. P. Xu, "A Time-Domain Bandgap Temperature Sensor in SOI CMOS for High Temperature Applications," *IEEE Transactions on Circuits and Systems II: Express*, vol. 62, pp. 436-440, 2014.
 - J. Pathrose, L. Zou, K. T. C. Chai, M. Je, and Y. P. Xu, "Temperature Sensor Front End in SOI CMOS Operating up to 250 oC," *IEEE Transactions on Circuits and Systems II: Express*, vol. 61, pp. 496-500, 2014.
 - K. A. Ng and Y.P Xu, "A Compact, Low Input Capacitance Neural Recording Amplifier," *IEEE Trans. Biomedical Circuits and Systems*, Vol. 7, No. 5, pp. 610-620, October 2013
 - L. Zou, J. Pathrose, K. T. C. Chai, M. Je, and Y. P. Xu, "Sample-and-Hold Circuit with Dynamic Switch Leakage Compensation," *Electronics Letters*, Vol. 49, pp. 1323-1325, 2013.
 - K. R. Muthusamy, D. Chua and Y.P. Xu, "A 52 pJ/bit 433-MHz Low Power OOK Transmitter," *Analog Integrated Circuit and Signal Processing*, Vol 70, pp.57-67, 2012.
 - L. He, Y.P. Xu, and M. Palanianpan, "A State-Space Phase Noise Model for Nonlinear MEMS Oscillators Employing Automatic Amplitude Control," *IEEE Transactions on Circuits and Systems - I*. Vol.57, No.1, pp.189-199, January 2010.

- A. J. Chen and Y.P. Xu, "Multi-bit Delta-Sigma Modulator with Noise Shaping Dynamic Element Matching," *IEEE Transactions on Circuits and Systems - I*. Vol.56, No.6, pp.1125-1133, June 2009.
- Y. Zheng, J. Yan and Y.P. Xu, "A CMOS VGA with DC Offset Cancellation for Direct-Conversion Receivers," *IEEE Transactions on Circuits and Systems - I*. Vol.56, No.1, pp.103-113, January 2009.
- R. Yu and Y.P. Xu, "Electromechanical Filter Based Bandpass Sigma-Delta Modulator," *IEEE Transactions on Circuits and Systems II Express*. Vol.56, No.7, pp.550-554, July 2009.
- L. He, Y.P. Xu, and M. Palanianpan, "A CMOS Readout for Inertial Sensor Resonant Accelerometer with 4-mg bias stability and 20-mg/Hz^{1/2} resolution," *IEEE Journal of Solid-State Circuits*, Vol. 43, No. 6, pp. 1480-1490, June 2008.
- R. Yu and Y.P. Xu, "Bandpass Sigma-Delta Modulator Employing SAW Resonator as Loop Filter," *IEEE Transactions on Circuits and Systems - I*. Vol.54, No.4, pp.723-735, April 2007.
- J. Chen and Y.P. Xu, "A Novel Noise Shaping DAC for Multi-bit Sigma-Delta Modulator," *IEEE Transactions on Circuits and Systems II - Express*, Vol. 53, No.5, pp. 344-348, May 2006.
- X, Qian, Y.P. Xu, and X.P. Li, "A CMOS Continuous-time Low-pass Notch Filter for EEG Systems," *Analog Integrated Circuit and Signal Processing*, Vol 44, No.3, pp.231-238, September 2005
- X, Qian, X. Li, Y.P. Xu, and Fan, J, "Integrated Driving and Readout Circuits for Orthogonal Fluxgate Sensors," *IEEE Transactions on Magnetics*, Vol. 41, No.10, pp.3715-3717, October 2005.
- X, Qian, Y.P. Xu, and G. Karunasiri, "Self-heating Cancellation Circuits for Microbolometer," *Sensors and Actuators A: Physical*, Vol. 111, No.2, pp.196-202, 2004.

Book chapters:

- Y.P. Xu, "Uncooled Infrared Detectors", Chapter in *Encyclopedia of Sensors*, Vol. 10, pp.375-390, American Scientific Publishers, 2005.

- Y. Zheng, R. Singh, and Y.P. Xu, "Pulse-Based UWB Integrated Transceiver Circuits and Systems," *Ultra Wideband Circuits, Architectures and Systems*, pp. 153-193, Springer US, 2008

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