

Ngai WONG

Academic Qualifications and Memberships

2003 Ph.D., Department of Electrical and Electronic Engineering, The University of Hong Kong

1999 BEng., Department of Electrical and Electronic Engineering, The University of Hong Kong

Senior Member, IEEE

2025 – Now Director, AVNET-HKU Emerging Microelectronics & Ubiquitous Systems (EMUS) Lab

2016 Co-Founder, IEEE Council on Electronic Design Automation (CEDA) HK Chapter

Work Experience

Nov 2010 – Now, Associate Professor (with Tenure), Department of Electrical and Electronic Engineering, HKU.

Dec 2003 – Oct 2010, Assistant Professor, Department of Electrical and Electronic Engineering, HKU.

Jan 2003 – Sep 2003, Visiting Scholar, Purdue University, IN, USA.

Grants/Awards

2004 – Now, 12 GRFs and 1 TRS (2022/23 “ReRACE: ReRAM AI Chips on the Edge”, HKD32.258mil)

2010 & 2024, Best Teacher Award, Faculty of Engineering, HKU

2025, Society for Information Display International Symposium (SID), Distinguished Paper

2022, Association for Computational Linguistics (ACL) 2022, Outstanding Paper

2019, WU WENJUN Artificial Intelligence Science and Technology Award (3rd Prize)

Professional Services

2025 – Now, Co-opted Member of Sector-specific Task Force for Micro-Electronics Centre (MEC)

2016 – Now, Member & Past Chair of IEEE CEDA HK

2021, 2023, 2024, 2025, Track Chair of ICCAD (Track 2.7 CAD for Analog/Mixed-Signal/RF and Multi-Domain Modeling)

2025, 2026, Track Chair of ASP-DAC (Track 5 Hardware Systems and Architectures for AI)

2014 – 2022, 2026 – Now, Associate Editor of IEEE TCAD

Research Interests

Efficient AI, Compute-in-Memory Chips, Electronic Design Automation (EDA), Tensor Algebra

See <https://www.eee.hku.hk/~nwong/pubs.html> for the latest research outputs.

TEN selected relevant publications in recent 5 years

1. Z. Liu, Z. Wang, C. Ding, B. Lin, J. Tang, B. Gao, **N. Wong**, and H. Wu, "Privacy-preserving data analysis using a memristor chip with colocated authentication and processing," *Science Advances*, vol. 12, no. 6, p. eady5485, Feb. 2026.
2. C. Ding, Y. Ren, Z. Liu, **N. Wong**, "Transforming memristor noises into computational innovations," *Communications Materials* (6) 149, Jul 2025.
3. B. Li, Z. Ai, B. Jiang, B. Huang, J. C. K. Li, J. Liu, Z. Tu, G. Wang, D. Yu, **N. Wong**, "BDLUT: Blind Image Denoising with Hardware-Optimized Look-Up Tables", *Journal of the Society for Information Display*, vol. 33, no. 5, pp. 628-643, May 2025. (**Cover-Featured Article**)
4. J. Xiong, G. Liu, L. Huang, C. Wu, T. Wu, Y. Mu, Y. Yao, H. Shen, Z. Wan, J. Huang, C. Tao, S. Yan, H. Yao, L. Kong, H. Yang, M. Zhang, G. Sapiro, J. Luo, P. Luo, **N. Wong**,

- "Autoregressive Models in Vision: A Survey," *Transactions on Machine Learning Research (TMLR)*, Apr 2025.
5. S. Li, C. Yang, T. Wu, C. Shi, Y. Zhang, X. Zhu, Z. Cheng, D. Cai, M. Yu, L. Liu, J. Zhou, Y. Yang, **N. Wong**, X. Wu, W. Lam, "A Survey on the Honesty of Large Language Models," *Transactions on Machine Learning Research (TMLR)*, Mar 2025.
 6. Z. Liu, J. Mei, J. Tang, M. Xu, B. Gao, K. Wang, S. Ding, Q. Liu, Q. Qin, W. Chen, Y. Xi, Y. Li, P. Yao, H. Zhao, **N. Wong**, H. Qian, B. Hong, T.-P. Jung, D. Ming, H. Wu, "A memristor-based adaptive neuromorphic decoder for brain-computer interfaces," *Nature Electronics*, Feb. 2025.
 7. C. Tao, R. Lin, Q. Chen, Z. Zhang, P. Luo and **N. Wong**, "FAT: Frequency-Aware Transformation for Bridging Full-Precision and Low-Precision Deep Representations," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 35, no. 2, pp. 2640-2654, Feb. 2024.
 8. C. Zhang, W. Bu, Z. Ren, Z. Liu, Y. C. Wu, N. Wong, "Nonparametric Teaching for Graph Property Learners," in *Proc. International Conference on Machine Learning (ICML)*, Jul. 2025. (**Spotlight**).
 9. S. Yang, B. Huang, Y. Zhang, D. Yu, Y. Yang, **N. Wong**, "DnLUT: Ultra-Efficient Color Image Denoising via Channel-Aware Lookup Tables," in *Proc. IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)*, Jun. 2025.
 10. C. Tao, L. Hou, W. Zhang, L. Shang, X. Jiang, Q. Liu, P. Luo, and **N. Wong**, "Compression of Generative Pre-trained Language Models via Quantization," in *Proc. Association for Computational Linguistics (ACL)*, May 2022, (**Outstanding Paper**).

TEN selected relevant publications beyond the recent five-year period

11. C-Y. Ko, C. Chen, Y. Zhang, K. Batselier and **N. Wong**, "Deep Model Compression and Inference Speedup of Sum-Product Networks on Tensor Trains," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 31, no. 7, Jul. 2020, pp. 2665-2671.
12. C-Y. Ko, K. Batselier, L. Daniel, W. Yu and **N. Wong**, "Fast and Accurate Tensor Completion with Total Variation Regularized Tensor Trains," *IEEE Trans. Image Processing (TIP)*, vol. 29, May 2020, pp. 6918-6931.
13. Z. Chen, K. Batselier, J. A. K. Suykens and **N. Wong**, "Parallelized tensor train learning of polynomial classifiers," *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, vol. 29, no. 10, pp. 4621-4632, Oct 2018.
14. K. Batselier and **N. Wong**, "Matrix output extension of the tensor network Kalman filter with an application in MIMO Volterra system identification", *Automatica*, vol. 95, Sep 2018, pp. 413-418.
15. K. Batselier, C. Y. Ko and **N. Wong**, "Tensor network subspace identification of polynomial state space models", *Automatica*, vol. 95, Sep 2018, pp. 187-196.
16. K. Batselier, W. Yu, L. Daniel and **N. Wong**, "Computing low-rank approximations of large-scale matrices with the Tensor Network randomized SVD", *SIAM Journal on Matrix Analysis and Applications*, vol. 39, no. 3, Aug 2018, pp. 1221-1244.
17. Z. Zhang, K. Batselier, H. Liu, L. Daniel and **N. Wong**, "Tensor computation: a new framework for high-dimensional problems in EDA," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 36, no. 4, pp. 521-536, Apr 2017. (**Keynote Paper**)
18. K. Batselier, Z. Chen and **N. Wong**, "Tensor Network alternating linear scheme for MIMO Volterra system identification," *Automatica*, vol. 84, pp. 26-35, Oct 2017.
19. K. Batselier, Z. Chen and **N. Wong**, "A Tensor Network Kalman filter with an application in recursive MIMO Volterra system identification," *Automatica*, vol. 84, pp. 26-35, Oct 2017.
20. K. Batselier and **N. Wong**, "A constructive arbitrary-degree Kronecker product decomposition of tensors," *Numerical Linear Algebra with Applications*, vol. 24, no. 5, pp. e2097, Mar 2017.