Wei Bao

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University of Sydney

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Research Interests

Edge and Cloud Computing, Distributed Machine Learning, AI for Networked Systems, Mobile Networks, and Network Optimization.

Education

Ph.D. in Electrical and Computer Engineering,   09/2011–12/2015
  University of Toronto, Toronto, Canada
  Supervisor: Ben Liang
  Thesis Committee: Wei Yu, Jorg Liebeherr, and Jianping Pan (University of Victoria)
M.A.Sc in Electrical and Computer Engineering,   09/2009–08/2011
  University of British Columbia (UBC), Vancouver, Canada
  Supervisors: Vincent Wong and Victor Leung
B.Eng in Communications Engineering,   09/2005–08/2009
  Beijing University of Posts and Telecommunications (BUPT), Beijing, China
  Ranking: 3rd out of 588.

Academic Experience

Senior Lecturer at the University of Sydney.   01/2020–Present
Lecturer at the University of Sydney.   02/2016–01/2020
Topics: Edge and Cloud Computing, Mobile Networks, Network Optimisation, and Distributed Machine Learning.

Research assistant in Communications Group in the University of Toronto.   09/2011–12/2015
Thesis: Stochastic analysis and design of heterogeneous broadband wireless networks.

Research assistant in Data Communications Group in UBC (Canada).   09/2009–08/2011
Thesis: Modeling, analysis, and enhancement of transmission control protocol.

Industrial Experience

Researcher at Bell Labs, Alcatel-Lucent.   06/2014–08/2014
Topic: Context-aware and location-aware mobile video streaming.
Collaborator: Stefan Valentin

Honors & Awards

Distinguished TPC member of INFOCOM'24.   2024
Distinguished TPC member of INFOCOM'23.   2023
Distinguished TPC member of INFOCOM'22.   2022
Distinguished TPC member of INFOCOM'21.   2021
Distinguished TPC member of INFOCOM'20.   2020
Best Paper (top 1) of ACM MSWiM'19 [CORE rank: A].   2019
Best Paper Finalist (top 6) of ACM MobiHoc'18 [CORE rank: A].   2018
Best Paper Runner-up (top 3) of ACM MSWiM'17 [CORE rank: A].   2017
Best Paper Award (top 1) of IEEE NCA'16 [CORE rank: A].   2016
Best-in-Session Presentation Award of IEEE INFOCOM'16 [CORE rank: A*].   2016

Chinese Government Award for Outstanding Students Abroad.	2015
IEEE INFOCOM'15 Travel Grant [CORE rank: A*].	2015
Best Paper Award (top 1) of ACM MSWiM'13 [CORE rank: A].	2013
Ontario Trillium Scholarship (best 75 doctoral students in Ontario).	2011–2015
National Scholarship Sponsored by P.R.China Ministry of Education (top 1.7%).	2007

Grants

Wei Bao, Zhiyong Wang, Bing Zhou, and Zizhao Wang. 2024–2027
Australian Research Council (ARC)/Linkage Projects (LP),
High Quality-of-Experience Real-Time Video for Smart Online Shopping, 395K from ARC, 165K from industrial partner.

Wei Bao. Adeline Group Pty Ltd, 2023–2027
Sydney Economic and Computing (Philanthropy), 150K.

Wei Bao. Link Group Pty. Ltd., 2023–2027
Online Optimisation for Smart Shopping in Cloud and Edge Computing Systems, 84K.

Wei Bao, Dong Yuan, Tongliang Liu. 2023
The University of Sydney/Industry Collaboration Program and Link Group Pty. Ltd.,
AI-enhanced Online Shopping, 50K.

Wei Bao, Nguyen Tran, Bing Zhou. 2023
The University of Sydney/Linkage Seed Fund and Link Group Pty. Ltd.,
AI-enhanced Real-Time Video System for Smart Shopping, 44K.

Wei Bao. Bubble Buffalo Pty. Ltd., 2023
Privacy Reserving Federated Recommendation Systems, 4K.

Wei Bao and Liming Ge. Toronto Mobility Scheme, 2022
Machine Learning in Networks and Distributed Systems, 5K.

Wei Bao, Tongliang Liu, Dong Yuan, Nguyen Tran, and Bing Zhou. 2022
The University of Sydney/Provost's Capital Equipment and Contingency Fund,
AI Infrastructure for Real-time Video Enhancement, 50K.

Dong Yuan, Jing Qiu, **Wei Bao**, Bing Zhou. 2021–2024
AUSF International Education PTY LTD,
Blockchain based Tamperproof and Authentication Mechanisms for Information Systems, 120K.

Jing Qiu, Dong Yuan, **Wei Bao**, Bing Zhou. 2020–2022
BCU World Pty Ltd,
A Blockchain Based Energy Trading Platform, 80K.

Bing Zhou, **Wei Bao**, Nguyen Tran, and Dong Yuan. 2020–2024
Australian Research Council (ARC)/Discovery Projects (DP),
Edge-Accelerated Deep Learning, 390K.

Dong Yuan, **Wei Bao**, Wanli Ouyang, Jing Qiu. 2019–2022
Chur Technologies Pty Ltd,
Indoor Localisation through Deep Learning, 84K.

Albert Zomaya, **Wei Bao** and Javid Taheri. 2019–2021
Australian Research Council (ARC)/Discovery Projects (DP),
Software-defined provisioning of IoT applications in fog computing systems, 425K.

Wei Bao. University of Sydney FEIT Early Career Researcher Development Scheme, 2019
Adaptive Deep Neural Network Partition for Acceleration in Edge and Cloud Computing Environment, 41K

Dong Yuan, **Wei Bao**, Bing Bing Zhou, and Branka Vucetic 2018
NSW Industry and Community Engagement SEED Program,
Edge Computing-Based Seamless Handover Mechanism between Access Points for Mobile IoT Applications, 170K.

Albert Zomaya and **Wei Bao**, 2018
University of Sydney DVC Research/Bridging Support Grant,
Robust Internet of Things: Algorithms and Systems, 30K.

Kanchana Thilakarathna, Suranga Seneviratne, **Wei Bao**, Ralph Holz, Vincent Gramoli, Bing Bing Zhou, 2018

Publications

Refereed Journal Articles

J37 Zhengjie Yang, Sen Fu, **Wei Bao**, Dong Yuan, Albert Y. Zomaya, "Hierarchical federated learning with momentum acceleration in multi-tier networks," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 34, no. 10, pp. 2629–2641, Oct. 2023. [Impact factor: 5.3, Q1, CORE A*]

J36 Zhengjie Yang, Sen Fu, **Wei Bao**, Dong Yuan, and Albert Y. Zomaya, "FastSlowMo: Federated learning with combined worker and aggregator momenta," in *IEEE Transactions on Artificial Intelligence*, vol. 4, no. 5, pp. 1041–1050, Oct. 2023. [Q1]

J35 Yanli Li, Dong Yuan, Abubakar Sadiq Sani, and **Wei Bao**, "Enhancing federated learning robustness in adversarial environment through clustering Non-IID features," in *Computers and Security*, vol. 132, Sep. 2023. [Impact factor: 5.6, Q1]

J34 Huanghuang Liang, Qianlong Sang, Chuang Hu, Dazhao Cheng, Xiaobo Zhou, Dan Wang, **Wei Bao**, and Yu Wang "DNN Surgery: Accelerating DNN inference on the edge through layer partitioning," in *IEEE Transactions on Cloud Computing*, vol. 11, no. 3, pp. 3111–3125, Jul.–Sep. 2023. [Impact factor: 6.5, Q1]

J33 Xiuwen Gong, Dong Yuan, and **Wei Bao**, "Discriminative metric learning for partial label learning," in *IEEE Transactions on Neural Networks and Learning Systems*, vol. 34, no. 8 pp. 4428–4439, Aug. 2023. [Impact factor: 10.4, Q1, CORE A*]

J32 Xiuwen Gong, Dong Yuan, **Wei Bao**, and Fulin Luo, "A unifying probabilistic framework for partially labeled data learning," in *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 45, no. 7, pp. 8036–8048, Jul. 2023. [Impact factor: 23.6, Q1, CORE A*]

J31 Weiyu Ju, Dong Yuan, **Wei Bao**, Liming Ge, and Bing B. Zhou, "Dynamic path learning in decision trees using contextual bandits," in *World Wide Web, Special Issue on Decision Making in Heterogeneous Network Data Scenarios and Applications*, vol. 26, pp. 271–296, Jan. 2023. [Impact factor: 3.7, Q1]

J30 Shizhe Zang, **Wei Bao**, Phee Lep Yeoh, Branka Vucetic, and Yonghui Li, "SOAR: Smart online aggregated reservation for mobile edge computing brokerage services," in *IEEE Transactions on Mobile Computing*, vol. 22, no. 1, pp. 527-540, Jan. 2023. [Impact factor: 7.9, Q1, CORE A*]

J29 MohammadReza HoseinyFarahabady, Javid Taheri, Albert Y. Zomaya, Zahir Tari, and **Wei Bao**, "Enhancing disk input output performance in consolidated virtualized cloud platforms using a randomized approximation scheme," in *Concurrency and Computation Practice and Experience*, vol. 34, no. 2, 2022. [Impact factor: 2]

J28 Xiuwen Gong, Jiahui Yang, Dong Yuan, and **Wei Bao**, "Generalized large margin kNN for partial label learning," in *IEEE Transactions on Multimedia*, vol. 24, pp. 1055-1066, 2022. [Impact factor: 7.3, Q1, CORE A*]

J27 Zhengjie Yang, **Wei Bao**, Dong Yuan, Nguyen H. Tran, and Albert Y. Zomaya, "Federated learning with Nesterov accelerated gradient," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 13, no. 12, pp. 4863–4873, Dec. 2022. [Impact factor: 5.3, Q1, CORE A*]

J26 Canh T. Dinh, Nguyen H. Tran, Tuan Dung Nguyen, **Wei Bao**, Amir Rezaei Balef, Bing B. Zhou, and Albert Y. Zomaya, "DONE: Distributed approximate newton-type method for federated edge learning," in *IEEE Transactions on Parallel and Distributed Systems*, vol. 33, no. 11, pp. 2648-2660, Nov. 2022. [Impact factor: 5.3, Q1, CORE A*]

J25 Xiuwen Gong, Dong Yuan, and **Wei Bao**, "Top-k partial label machine," in *IEEE Transactions on Neural Networks and Learning Systems*, vol. 33, no. 11, pp. 6775-6788, Nov. 2022. [Impact factor: 10.4, Q1, CORE A*]

J24 Nan Yang, Dong Yuan, Yuning Zhang, Yongkun Deng, and **Wei Bao**, "Asynchronous semi-supervised federated learning with provable convergence in edge computing," *IEEE Networks*, vol. 36, no. 5, pp. 136–143, Sep.–Oct. 2022. [Impact factor: 9.3, Q1]

J23 Weiyu Ju, Dong Yuan, **Wei Bao**, Liming Ge, Bing B. Zhou, "eDeepSave: Saving DNN inference using early exit during handovers in mobile edge environment," in *ACM Transactions on Sensor Networks*, vol. 17, no. 3, pp. 1-28, Jun. 2021. [Impact factor: 4.1, Q1]

J22 Canh T. Dinh, Nguyen H. Tran, Minh N. H. Nguyen, Choong Seon Hong, **Wei Bao**, Albert Y. Zomaya, Vincent Gramoli, "Federated learning over wireless networks: Convergence analysis and resource allocation," in *IEEE/ACM Transactions on Networking*, vol. 29, no. 1, pp. 398-409, Feb. 2021. [Impact factor: 3.7, Q1, CORE A*]

J21 Abubakar Sadiq Sani, Dong Yuan, **Wei Bao**, Zhao Y. Dong, "A universally composable key exchange protocol for advanced metering infrastructure in the energy Internet," in *IEEE Transactions on Industrial Informatics*, vol. 17, no. 1, pp. 534-546, Jan. 2021. [Impact factor: 12.3, Q1]

J20 Zizhao Wang, **Wei Bao**, Dong Yuan, Liming Ge, Nguyen H. Tran, and Albert Y. Zomaya, "Accelerating on-device DNN inference during service outage through scheduling early exit," in *Elsevier Computer Communications*, vol. 162, pp. 69-82, Oct. 2020. [Impact factor: 6, Q1]

J19 **Wei Bao**, Dong Yuan, Bing B. Zhou, and Albert Y. Zomaya, "Prune and Plant: Efficient placement and parallelism of virtual network functions," in *IEEE Transactions on Computers*, vol. 69, no. 6, pp. 800-811, Jun. 2020. [Impact factor: 3.7, Q1, CORE A*]

J18 Abubakar Sadiq Sani, Dong Yuan, **Wei Bao**, Zhao Y. Dong, Branka Vucetic, and Elisa Bertino, "Universally composable key bootstrapping and secure communication protocols for the energy Internet," in *IEEE Transactions on Information Forensics and Security*, vol. 14, no. 8, pp. 2113-2127, Aug. 2019. [Impact factor: 6.8, Q1]

J17 Shizhe Zang, **Wei Bao**, Phee Lep Yeoh, Branka Vucetic and Yonghui Li, "Filling two needs with one deed: Combo plans for computing-intensive multimedia applications," in *IEEE Journal on Selected Areas in Communications*, vol. 37, no. 7, pp. 1518-1533, Jul. 2019. [Impact factor: 16.4, Q1]

J16 Hazem Ibrahim, **Wei Bao**, and Uyen Trang Nguyen, "Data rate utility analysis for uplink two-hop Internet-of-Things networks," in *IEEE Internet of Things Journal*, vol. 6, no. 2, pp. 3601 - 3619, Apr. 2019. [Impact factor: 10.6, Q1]

J15 Shizhe Zang, **Wei Bao**, Phee Lep Yeoh, Branka Vucetic and Yonghui Li, "Managing vertical handovers in millimeter wave heterogeneous networks," in *IEEE Transactions on Communications*, vol. 67, no. 2, pp. 1629-1644, Feb. 2019. [Impact factor: 8.3, Q1]

J14 He Chen, Rana Abbas, Peng Cheng, Mahyar Shirvanimoghaddam, Wibowo Hardjawana, **Wei Bao**, Yonghui Li, and Branka Vucetic, "Ultra-reliable low latency cellular networks: Use cases, challenges and approaches," in *IEEE Communications Magazine*, vol. 56, no. 12, pp. 119-125, Dec. 2018. [Impact factor: 11.2, Q1]

J13 Chuang Hu, **Wei Bao**, Dan Wang, Yi Qian, Muqiao Zheng, and Shi Wang, "sTube+: An IoT communication sharing architecture for smart after-sales maintenance in buildings," in *ACM Transactions on Sensor Networks*, vol. 14, no. 3-4, pp. 1-29, Nov. 2018. [Impact factor: 4.1, Q1]

J12 Dan Wang, **Wei Bao**, Chuang Hu, Yi Qian, Muqiao Zheng, and Shi Wang, "sTube: An architecture for IoT communication sharing," *IEEE Communications Magazine*, vol. 56, no. 7, pp. 96-101, Jul. 2018. [Impact factor: 11.2, Q1]

J11 **Wei Bao** and Ben Liang, "Optimizing cluster size through handoff analysis in user-centric cooperative wireless networks," *IEEE Transactions on Wireless Communications*, vol. 17, no. 2, pp. 766-778, Feb. 2018. [Impact factor: 10.4, Q1]

J10 Yucen Nan, Wei Li, **Wei Bao**, Flavia C. Delicato, Paulo F. Pires, and Albert Y. Zomaya, "A dynamic tradeoff data processing framework for delay-sensitive applications in Cloud of Things systems," *Elsevier Journal of Parallel and Distributed Computing*, vol. 112, no. 1, pp. 53-66, Feb. 2018. [Impact factor: 3.8, Q1]

J9 **Wei Bao**, He Chen, Yonghui Li, and Branka Vucetic, "Joint rate control and power allocation for non-orthogonal multiple access systems," *IEEE Journal on Selected Areas in Communications*, vol. 35, no. 12, pp. 2798-2811, Dec. 2017. [Impact factor: 16.4, Q1]

J8 **Wei Bao**, Dong Yuan, Zhengjie Yang, Shen Wang, Wei Li, Bing B. Zhou, and Albert Y. Zomaya, "Follow Me Fog: Towards seamless handover timing schemes in fog computing environment," *IEEE Communications Magazine*, vol. 55, no. 11, pp. 72-78, Nov. 2017. [Impact factor: 11.2, Q1]

J7 Yucen Nan, Wei Li, **Wei Bao**, Flavia C. Delicato, Paulo F. Pires, Yong Dou, and Albert Y. Zomaya, "Adaptive energy-aware computation offloading for Cloud of Things systems," *IEEE Access*, vol. 5, pp. 23947-23957, Oct. 2017. [Impact factor: 3.9, Q1]

J6 **Wei Bao** and Ben Liang, "Rate maximization through structured spectrum allocation and user association in heterogeneous cellular networks," *IEEE Transactions on Communications*, vol. 63, no. 11, pp. 4510-4524, Nov. 2015. [Impact factor: 8.3, Q1]

J5 **Wei Bao** and Ben Liang, "Stochastic analysis of uplink interference in two-tier femtocell networks: open versus closed access," *IEEE Transactions on Wireless Communications*, vol. 14, no. 11, pp. 6200-6215, Nov. 2015. [Impact factor: 10.4, Q1]

J4 **Wei Bao** and Ben Liang, "Stochastic geometric analysis of user mobility in heterogeneous wireless networks," *IEEE Journal on Selected Areas in Communications*, vol. 33, no. 10, pp. 2212-2225, Oct. 2015. [Impact factor: 16.4, Q1]

J3 Yicheng Lin, **Wei Bao**, Wei Yu, and Ben Liang, "Optimizing user association and spectrum allocation in HetNets: a utility perspective," *IEEE Journal on Selected Areas in Communications*, vol. 33, no. 6, pp. 1025-1039, Jun. 2015. [Impact factor: 16.4, Q1]

J2 **Wei Bao** and Ben Liang, "Uplink interference analysis for two-tier cellular networks with diverse users under random spatial patterns," *IEEE Transactions on Wireless Communications*, vol. 14, no. 3, pp. 1252-1265, Mar. 2015. [Impact factor: 10.4, Q1]

J1 **Wei Bao** and Ben Liang, "Insensitivity of user distribution in multicell networks under general mobility and session patterns," *IEEE Transactions on Wireless Communications*, vol. 12, no. 12, pp. 6244-6254, Dec. 2013. [Impact factor: 10.4, Q1]

Fully Refereed Conference Proceedings

C57 Binghan Wu, Wei Bao, and Bing Bing Zhou, "Competitive analysis of online facility open problem," *International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)*, Auckland, New Zealand, May 2024.

C56 Liming Ge, David Z. Jiang, and Wei Bao, "3RE-Net: Joint loss-REcovery and super-REsolution neural network for REal-time video," *Australasian Joint Conference on Artificial Intelligence (AJCAI)*, Brisbane, Australia, Dec. 2023.

C55 Ruoyu Wu, **Wei Bao**, Liming Ge, and Bing Bing Zhou, "ASRSR: Adaptive Sending Resolution and Super-resolution for Real-time video streaming," *ACM International Symposium on QoS and Security for Wireless and Mobile Networks (Q2SWinet)*, Montreal, Canada, Oct. 2023.

C54 Yanli Li, and Laicheng Zhong, Dong Yuan, Huaming Chen, and **Wei Bao**, "ICB FL: Implicit Class Balancing towards Fairness in Federated Learning," *Australasian Computer Science Week*, Melbourne, Australia, Jan. 2023.

C53 Xiaobo Xia, Jiankang Deng, Wei Bao, Yuxuan Du, Bo Han, Shiguang Shan and Tongliang Liu, "Holistic label correction for noisy multi-label classification," *International Conference on Computer Vision (ICCV)*, Paris, France, Oct. 2023. **CORE Rank: A*.**

C52 Yuning Zhang, Zao Zhang, **Wei Bao**, and Dong Yuan, "ITIF: Integrated transformers inference framework for multiple tenants on GPU," *International Conference on Parallel Processing (ICPP)*, Salt Lake City, USA, Aug. 2023. **CORE Rank: A.**

C51 Ruoyu Wu, **Wei Bao**, and Liming Ge, "Online task assignment with controllable processing time," *International Joint Conference on Artificial Intelligence (IJCAI)*, Macao SAR, Aug. 2023. **CORE Rank: A*.**

C50 Zhengjie Yang, Sen Fu, **Wei Bao**, Dong Yuan, and Bing. B. Zhou, "Hierarchical federated learning with adaptive momentum in multi-Tier networks," *IEEE International Conference on Distributed Computing Systems (ICDCS)*, Hong Kong SAR, Jul. 2023. **CORE Rank: A.**

C49 Zao Zhang, Dong Yuan, Yu Zhang, and **Wei Bao**, "Trajectory alignment based multi-scaled temporal attention for efficient video transformer," *IEEE International Conference on Multimedia and Expo (ICME)*, Brisbane, Australia, Jul. 2023. **CORE Rank: A.**

C48 Liming Ge, **Wei Bao**, Xinyi Sheng, Dong Yuan, and Bing B. Zhou, "Real-time night surveillance video retrieval through calibrated denoising and super-resolution," *International Joint Conference on Neural Networks (IJCNN)*, Gold Coast, Australia, Jun. 2023.

C47 Tung Anh Nguyen, Jiayu He, Long Tan Le, **Wei Bao**, and Nguyen H. Tran, "Federated PCA on Grassmann manifold for anomaly detection in IoT networks," *IEEE International Conference on Computer Communications (INFOCOM)*, New York City, USA, May 2023. **CORE Rank: A*.**

C46 Zao Zhang, Yuning Zhang, Dong Yuan, and **Wei Bao**, "A two-level architecture for deep learning applications in mobile edge computing," *Workshop on Mobility in the Evolving Internet Architecture (MobiArch)*, Sydney, Australia, Oct. 2022.

C45 Yifei Zhu, **Wei Bao**, Dan Wang, and Jiangchuan Liu, "A Stackelberg queuing model and analysis for the emerging connection-based pricing in IoT markets," *IEEE International Conference on Mobile Ad-Hoc and Smart Systems (MASS)*, Denver, USA, Oct. 2022.

C44 Liming Ge, Zizhao Wang, **Wei Bao**, Dong Yuan, Nguyen H. Tran, Bing B. Zhou, and Albert Y. Zomaya, "Semi-online multi-machine with restart scheduling for integrated edge and cloud computing systems," *International Conference on Parallel Processing (ICPP)*, Bordeaux, France, Aug. 2022. **CORE Rank: A.**

C43 Xiuwen Gong, Dong Yuan, and **Wei Bao**, "Partial label learning via label influence function," *International Conference on Machine Learning (ICML)*, Baltimore, USA, Jul. 2022. **CORE Rank: A*.**

C42 Binghan Wu, **Wei Bao**, Dong Yuan, and Bing B. Zhou, "Competitive analysis for multi-commodity ski-rental problem," *International Joint Conference on Artificial Intelligence (IJCAI)*, Vienna, Austria, Jul. 2022. **CORE Rank: A*.**

C41 Xiuwen Gong, Dong Yuan, and **Wei Bao**, "Partial multi-label learning via large margin nearest neighbour embeddings," *AAAI Conference on Artificial Intelligence (AAAI)*, Virtual Conference, Feb. 2022. **CORE Rank: A*.**

C40 Xiuwen Gong, Dong Yuan, and **Wei Bao**, "Understanding partial multi-label learning via mutual information," *Conference on Neural Information Processing Systems (NeurIPS)*, Virtual Conference, Dec. 2021. **CORE Rank: A*.**

C39 Weiyu Ju, **Wei Bao**, Liming Ge, and Dong Yuan, "Dynamic early exit scheduling for deep neural network inference through contextual bandits," *International Conference on Information and Knowledge Management (CIKM)*, Virtual Conference, Nov. 2021. **CORE Rank: A.**

C38 Xiuwen Gong, Dong Yuan, and **Wei Bao**, "Fast multi-label learning," *International Joint Conference on Artificial Intelligence (IJCAI), Virtual Conference*, Aug. 2021. **CORE Rank: A*.**

C37 Binghan Wu, **Wei Bao**, Dong Yuan, and Bing B. Zhou, "Online hedge reservation for diverse plans and competitive analysis," *International Conference on Automated Planning and Scheduling (ICAPS)*, Guangzhou, China, Aug. 2021. **CORE Rank: A*.**

C36 Weiyu Ju, **Wei Bao**, Dong Yuan, Liming Ge, and, Bing B. Zhou, "Learning early exit for deep neural network inference on mobile devices through multi-armed bandits," *IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid)*, Virtual Conference, May 2021. **CORE Rank: A.**

C35 Binghan Wu, **Wei Bao**, and Dong Yuan, "Competitive analysis for two-level ski-rental problems," *AAAI Conference on Artificial Intelligence (AAAI)*, Virtual Conference, Feb. 2021. **CORE Rank: A*.**

C34   Canh T. Dinh, Nguyen H. Tran, Tuan Dung Nguyen, **Wei Bao**, Albert Y. Zomaya, and Bing B. Zhou, "Federated learning with proximal stochastic variance reduced gradient algorithms," *International Conference on Parallel Processing (ICPP)*, Edmonton, Canada, Aug. 2020. **CORE Rank: A.**

C33   M. Reza HoseinyFarahabady, Ali Jannesari, Javid Taheri, **Wei Bao**, Albert Y. Zomaya, and Zahir Tari, "Q-Flink: A QoS-Aware controller for Apache Flink," *IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing (CCGrid)*, Melbourne, Australia, May 2020. **CORE Rank: A.**

C32   Xiuwen Gong, Dong Yuan, and **Wei Bao**, "Online metric learning for multi-label classification," *AAAI Conference on Artificial Intelligence (AAAI)*, New York, USA, Feb. 2020. **CORE Rank: A*.**

C31   Zizhao Wang, **Wei Bao**, Dong Yuan, Liming Ge, Nguyen H. Tran, and Albert Y. Zomaya, "SEE: Scheduling early exit for mobile DNN inference during service outage," *ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM)*, Miami, USA, Nov. 2019. **CORE Rank: A.**

C30   Weiyu Ju, Dong Yuan, **Wei Bao**, Liming Ge and Bing B. Zhou, "DeepSave: Saving DNN inference during handovers on the edge," *ACM/IEEE Symposium on Edge Computing (SEC)*, Washington, DC, USA, Nov. 2019.

C29   Abubakar Sadiq Sani, Dong Yuan, **Wei Bao**, Phee Lep Yeoh, Zhaoyang Dong, Branka Vucetic, and Elisa Bertino, "Xyreum: A high-performance and scalable blockchain for IIoT security and privacy," *IEEE International Conference on Distributed Computing (ICDCS)*, Dallas, USA, Jul. 2019. **CORE Rank: A.**

C28   Chuang Hu, **Wei Bao**, Dan Wang, and Fengming Liu, "Dynamic adaptive DNN surgery for inference acceleration on the edge," *IEEE International Conference on Computer Communications (INFOCOM)*, Paris, France, Apr.–May 2019. **CORE Rank: A*.**

C27   Nguyen H. Tran, **Wei Bao**, Minh N.H. Nguyen, Choong Seon Hong, and Albert Y. Zomaya, "Federated learning over wireless networks: Optimization model design and analysis," *IEEE International Conference on Computer Communications (INFOCOM)*, Paris, France, Apr.–May 2019. **CORE Rank: A*.**

C26   **Wei Bao**, Dong Yuan, Zhengjie Yang, Shen Wang, Bing B. Zhou, Stewart Adams, and Albert Zomaya, "sFog: Seamless fog computing environment for mobile IoT applications," *ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM)*, Montreal, Canada, Oct. 2018. **CORE Rank: A.**

C25   Shizhe Zang, **Wei Bao**, Phee Lep Yeoh, Branka Vucetic, and Yonghui Li, " Paying less for more? Combo plans for edge-computing services," *USENIX Workshop on Hot Topics in Edge Computing (HotEdge)*, Boston, USA, Jul. 2018.

C24   **Wei Bao**, Yonghui Li, and Branka Vucetic, "User mobility analysis in disjoint-clustered cooperative wireless networks," *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, Los Angeles, USA, Jun. 2018 **(Best Paper Finalist)**. **CORE Rank: A.**

C23   **Wei Bao**, Dong Yuan, Keqi Shi, Weiyu Ju, and Albert Zomaya, "Ins and Outs: Optimal caching and re-caching policies in mobile networks," *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, Los Angeles, USA, Jun. 2018. **CORE Rank: A.**

C22   Abubakar Sadiq Sani, Dong Yuan, Phee Lep Yeoh, **Wei Bao**, Shiping Chen, and Branka Vucetic, "A lightweight security and privacy-enhancing key establishment for Internet of Things applications," *International Conference on Communications (ICC)*, Kansas City, USA, May 2018.

C21   Chuang Hu, **Wei Bao**, and Dan Wang, "IoT communication sharing: Scenarios, algorithms and implementation," *IEEE International Conference on Computer Communications (INFOCOM)*, Honolulu, USA, Apr. 2018. **CORE Rank: A*.**

C20   **Wei Bao**, Wei Li, Flavia C. Delicato, Paulo F. Pires, Dong Yuan, Bing Zhou, and Albert Y. Zomaya, "Cost-effective processing in fog-integrated Internet of Things ecosystems," *ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM)*, Miami, USA, Nov. 2017 **(Best Paper Runner-up)**. **CORE Rank: A.**

C19   Chuang Hu, **Wei Bao**, Dan Wang, Qian Yi, Muqiao Zheng, and Shi Wang, "sTube+: An IoT communication sharing architecture for smart after-sales maintenance in buildings," *ACM International Conference on Systems for Energy-Efficient Built Environments (BuildSys)*, Delft, Netherlands, Nov. 2017. **CORE Rank: A.**

C18   Abubakar Sadiq Sani, Dong Yuan, **Wei Bao**, and Zhao Y. Dong, "Towards secure energy Internet communication scheme: An identity-based key bootstrapping protocol supporting unicast and multicast," *IEEE International Symposium on Network Computing and Applications (NCA)*, Cambridge, USA, Oct. 2017. **CORE Rank: A.**

C17   Nor A. Muhammad, He Chen, **Wei Bao**, Yonghui Li, and Branka Vucetic, "Multi-cell coordination via disjoint clustering in dense millimeter wave cellular networks," *IEEE International Conference on Communications (ICC)*, Paris, France, May 2017.

C16   Yucen Nan, Wei Li, **Wei Bao**, Flavia C. Delicato, Paulo F. Pires, and Albert Y. Zomaya, "Cost-effective processing for delay-sensitive applications in cloud of things systems," *IEEE International Symposium on Network Computing and Applications (NCA)*, Cambridge, USA, Dec. 2016 **(Best Paper Award)**. **CORE Rank: A.**

C15   **Wei Bao** and Ben Liang, "Stochastic geometric analysis of handoffs in user-centric cooperative wireless networks," *IEEE International Conference on Computer Communications (INFOCOM)*, San Francisco, USA, Apr. 2016. **CORE Rank: A*.**

C14   **Wei Bao** and Ben Liang, "Handoff rate analysis in heterogeneous wireless networks with Poisson and Poisson cluster patterns," *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, Hangzhou, China, Jun. 2015. **CORE Rank: A.**

C13 **Wei Bao** and Stefan Valentin, "Bitrate adaptation for mobile video streaming based on buffer and channel state", *International Conference on Communications (ICC)*, London, UK, Jun. 2015.

C12 **Wei Bao** and Ben Liang, "Radio resource allocation in heterogeneous wireless networks: a spatial-temporal perspective," *IEEE International Conference on Computer Communications (INFOCOM)*, Hong Kong, China, Apr. 2015. **CORE Rank: A*.**

C11 **Wei Bao** and Ben Liang, "Handoff rate analysis in heterogeneous cellular networks: a stochastic geometric approach," *ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM)*, Montreal, Canada, Sep. 2014. **CORE Rank: A.**

C10 **Wei Bao** and Ben Liang, "Near-optimal spectrum allocation in multi-tier cellular networks with random inelastic traffic," *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Florence, Italy, Apr. 2014.

C9 **Wei Bao** and Ben Liang, "Structured spectrum allocation and user association in heterogeneous cellular networks," *International Conference on Computer Communications (INFOCOM)*, Toronto, Canada, Apr. 2014. **CORE Rank: A*.**

C8 **Wei Bao** and Ben Liang, "Understanding the benefits of open access in femtocell networks: stochastic geometric analysis in the uplink," *ACM International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM)*, Barcelona, Spain, Nov. 2013 **(Best Paper Award)**. **CORE Rank: A.**

C7 **Wei Bao** and Ben Liang, "Uplink interference analysis for two-tier cellular networks with diverse users under random spatial patterns," *IEEE/CIC International Conference on Communications in China (ICCC)*, Xi'an, China, Aug. 2013 (Invited Paper).

C6 **Wei Bao** and Ben Liang, "On the insensitivity of user distribution in multicell networks under general mobility and session patterns," *IEEE International Conference on Computer Communications (INFOCOM)*, Turin, Italy, Apr. 2013. **CORE Rank: A*.**

C5 **Wei Bao**, Vahid Shah-Mansouri, Vincent Wong, and Victor Leung, "TCP VON: joint congestion control and online network coding for wireless networks," *IEEE Global Communications Conference (Globecom)*, Anaheim, USA, Dec. 2012.

C4 **Wei Bao**, Yifei Hao, and Tong Wang, "XOR in hexagram: on the performance of cooperative network coding in polling-based wireless networks," *IEEE Wireless Communications and Networking Conference (WCNC)*, Cancun, Mexico, Mar. 2011.

C3 **Wei Bao**, Vincent Wong, and Victor Leung, "A model for steady state throughput of TCP CUBIC," *IEEE Global Communications Conference (Globecom)*, Miami, USA, Dec. 2010.

C2 **Wei Bao**, Wenbo Wang, Hongmei Liu, and Mugen Peng, "Outage probability analysis of linear block network coding (LBNC) in wireless relay networks," *IEEE Global Communications Conference (Globecom)*, Honolulu, USA, Dec. 2009.

C1 Hongmei Liu, Gang Chuai, **Wei Bao**, Mugen Peng, and Wenbo Wang, "On performance of multi-timeslots network coding (MTNC) in wireless relay networks," *IEEE Global Communications Conference (Globecom)*, Honolulu, USA, Dec. 2009.

Refereed Demos

D3 Zhongzheng Lai, Dong Yuan, Huaming Chen, Yu Zhang, **Wei Bao**, "WirelessDT: A digital twin platform for real-time evaluation of wireless software applications," *IEEE/ACM International Conference on Software Engineering (ICSE) (Demo)*, Melbourne, Australia, May 2022.

D2 Liming Ge, **Wei Bao**, Dong Yuan, and Bing B. Zhou , "Edge-assisted deep video denoising and super-resolution for real-time surveillance at night," *ACM Mobicom 2022 (Demo)*, Sydney, Australia, Oct. 2022.

D1 Zhongzheng Lai, Dong Yuan, **Wei Bao**, Yu Zhang, Bing B. Zhou, "DeepWiSim: A wireless signal simulator for automatic deep learning," *ACM SIGCOMM 2022 (Demo)*, Amsterdam, the Netherlands, Aug. 2022.

Industrial Collaborators

Adeline Group Pty Ltd, 2023–Present
Topic: Economic and Computing.

Link Group Pty Ltd, 2019–Present
Topic: Smart online shopping.

Bubble Buffalo Pty Ltd, 2022–2023
Topic: Social networks.

Chur Technology Pty Ltd, 2018–2022
Topic: Mobility management for edge computing.

Teachings

University of Sydney (Lecturing)

COMP 5416, 2023-S2, Advanced Network Technologies
COMP 9121, 2023-S2, Design of Networks and Distributed Systems
COMP 5416, 2022-S2, Advanced Network Technologies
COMP 9121, 2022-S2, Design of Networks and Distributed Systems
COMP 5416, 2021-S2, Advanced Network Technologies
COMP 5416, 2020-S2, Advanced Network Technologies
COMP 9121, 2020-S2, Design of Networks and Distributed Systems
COMP 5416, 2019-S2, Advanced Network Technologies
COMP 9121, 2019-S2, Design of Networks and Distributed Systems
COMP 5416, 2018-S2, Advanced Network Technologies
COMP 9121, 2018-S2, Design of Networks and Distributed Systems
COMP 5416, 2017-S2, Advanced Network Technologies
COMP 9121, 2017-S2, Design of Networks and Distributed Systems
COMP 5416, 2016-S2, Advanced Network Technologies
COMP 9121, 2016-S2, Design of Networks and Distributed Systems
University of Toronto (Teaching Assistantship)
ECE 361, Spring-2015, Computer Networks
ECE 461, Fall-2014, Internetworking
CSC 358, Spring-2014, Introduction to Computer Networks
ECE 297, Spring-2014, Communication and Design
ECE 361, Fall-2013, Computer Networks
ECE 345, Fall-2012, Algorithms and Data Structures

HDR Student Supervision (Lead Supervisor)

In progress
Zhiqian Zhao (MPhil, 2024–Present)
Yichen Guo (MPhil, 2024–Present)
Xinyi Sheng (PhD, 2024–Present)
Ruoyu Wu (PhD, 2023–Present)
Sen Fu (PhD, 2021–Present)
Yuxuan Feng (M.Phil, 2021–Present)
Binghan Wu (Ph.D., 2021–Present)
Liming Ge (Ph.D., 2020–Present)
Completed
Zhengjie Yang (Ph.D., 2019–2023)
   First job: Research Fellowship at City University of Hong Kong.
Zizhao Wang (Ph.D., 2019–2022)
   Best paper award of ACM MSWiM 2019
   University of Sydney Completion Tuition Scholarship
   First Job: Link Group Pty. Ltd., Research Lead

HDR Student Supervision (Co-Supervisor)

In Progress
Laicheng Zhong (MPhil, 2021–Present, co-supervise with Dong Yuan)
Le Long (PhD, 2021–Present, co-supervise with Nguyen H. Tran)
Yu Zhang (Ph.D., 2020–Present, co-supervise with Dong Yuan)
Completed
Nan Yang (Ph.D., 2020–2023, co-supervise with Dong Yuan)
   First job: Postdoc at USYD.

Yuning Zhang (MPhil, 2021–2023, co-supervise with Dong Yuan)

Zhongzheng Lai (Ph.D., 2019–2022, co-supervise with Dong Yuan)
> *First job: Chur Pty. Ltd., VP of Engineering and Co-Founder*

Xiuwen Gong (Ph.D., 2019–2022, co-supervise with Dong Yuan)
> *First job: Postdoc at UTS.*

The Canh Dinh (Ph.D., 2019–2022, co-supervise with Nguyen H. Tran)
> *First job: Machine learning scientist at Canva.*

Weiyu Ju (Ph.D., 2018–2021, co-supervise with Dong Yuan)
> *First job: Mathematician at Scientific Games Corporation.*

Shizhe Zang (Ph.D., 2016–2020, co-supervise with Yonghui Li)
> *First job: Huawei.*

Chuang Hu (Ph.D., 2016–2019, external, co-supervise with Dan Wang)
> *First job: Research Assistant Professor at the Hong Kong Polytechnic University.*

Yucen Nan (M.Phil, 2016–2017, co-supervise with Albert Y. Zomaya)
> *First job: PhD at USYD.*

Honours Student Supervision

Completed

Zhiqian Zhao (Honours Research Project, 2023)

Yicheng Guo (Honours Research Project, 2023)

Junhao Liu (Honours Research Project, 2023)

Jiansong Zhao (Honours Project, 2022)

Xinyi Sheng (Honours Project, 2022)

Junrong Wu (Honours Project, 2022)

Weijia Ai (Honours Project, 2021–2022)

Sen Fu (Honours Research Project, 2019–2020)

Liming Ge (Honours Research Project, 2019)

James Koungoulos (Honours Research Project, 2018)

Sergio Mesina (Honours Research Project, 2018)

Seung Jun Lee (Honours Research Project, 2018)

Research Pathway Student Supervision

In Progress

Yinsheng Song (Master Research Pathway Project, 2023)

Jinyi Wang (Master Research Pathway Project, 2023)

Completed

Ruoyu Wu (Master Research Pathway Project, 2022)

Rong Zhu (Master Research Pathway Project, 2022)

David Dai (Master Research Pathway Project, 2022)

Da Xie (Master Research Pathway Project, 2021)

Yuxuan Feng (Master Research Pathway Project, 2021)

Chun Shen (Master Research Pathway Project, 2017–2018)

Zhengjie Yang (Master Research Pathway Project, 2017)

Shen Wang (Master Research Pathway Project, 2017)

Summer & Winter Research Student Supervision

Completed

Duc Minh Do (Winter Research Project, 2023)

Ruoxia Wang (Summer Research Project, 2022–2023)

Ruoyu Wu (Summer Research Project, 2022–2023)

Xinyi Sheng (Winter Research Project, 2021; Summer Research Project, 2021–2022)

Binghan Wu (Winter Research Project, 2020)

Liming Ge (Summer Research Project, 2018–2019, 2019–2020)

Ruoyu Zhuang (Summer Research Project, 2017–2018)

Zhengjie Yang (Summer Research Project, 2016–2017)

Invited Presentation and Panelist

Panelist, Australasian Symposium on Parallel and Distributed Computing (AusPDC)	2024
Invited presentation, Macquarie University	2024
Joint Algorithm and System Design for Distributed Machine Learning	
Invited presentation, Monash University	2024
Efficient Distributed Machine Learning: Joint Algorithm and System Approach	
Invited presentation, Wuhan University	2024
Towards Efficient Distributed Machine Learning: A Joint Algorithm and System Approach	
Panelist, Mobile Cloud	2022
Invited presentation, Huazhong University of Science and Technology	2020
Machine Learning in Edge Computing	
Invited presentation, Peking University	2019
Optimal Caching and Re-caching Policies in Mobile Networks	

Journal, Conference, Grant, and Thesis Services

Local chair, APNet	2024
TPC track chair, IEEE ICA3PP	2023
TPC chair, IEEE MobileCloud	2022
TPC chair, EAI ADHOCNETS	2021
TPC chair, EAI QShine	2021
TPC member, Session chair (Network Modeling), IEEE INFOCOM	2020
Guest Editor, IEEE Network, Special Issue in Internet of Things for Smart Cities: Technologies and Applications	2018
Guest Editor, Springer CCF Transactions on Networking, Special Issue in Edge Computing and Networking	2018
TPC Chair, IEEE World Forum on Internet of Things, Wireless Access Technologies and Architectures for IoT Workshop	2018
Local Arrangement Chair, Passive and Active Measurement Conference	2017
Publication Chair, Australasian Symposium on Parallel and Distributed Computing	2017

Technical Program Committee (TPC) member:

- ICDCS 2024
- INFOCOM 2020–2024
- IWQoS 2021
- ICCCN 2020
- PIcom, 2017 and 2018.
- IEEE Journal on Selected Areas in Communications, Special Issue in Recent Advances in Heterogeneous Cellular Networks, 2014.
- WCNC 2009, 2010, and 2013.

Grant assessor:

- Australian Research Council/Discovery Projects, 2019, 2021.
- Australian Research Council/ Discovery Early Career Researcher Awards, 2019, 2020.
- Australian Research Council/ Linkage Projects, 2020.

Thesis Examiner:

- University Technology of Sydney, PhD thesis examiner, 2024
- Macquarie University, Master of Research thesis examiner, 2023
- University Technology of Sydney, PhD thesis examiner, 2023
- Swinburne University of Technology, PhD thesis examiner, 2022

Reviewer:

- Reviewer for numerous journals (30+) and conferences (20+)

University Services

Program Director of Master of Computer Science	2023–Present
Degree design working group of Master of Internet of Things	2021
Deputy Program Director of Master of Information Technology and Master of Information Technology Management	2018–Present
ACM International Collegiate Programming Contest Director of South Pacific Divisional Contest in Sydney Coach of the University of Sydney	2017
Curriculum design working group of Bachelor of Advanced Computing	2017