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Biography

Dr. Man-Wai Mak joined the Department of Electronic and Information Engineering (EIE) at The Hong Kong Polytechnic University in 1993 as a Lecturer and is currently a Professor of EIE. Dr. Mak has been the leader of various subject areas, such as deep neural networks and deep learning, human-computer interaction, speech processing and recognition, distributed systems, and cloud computing. Dr. Mak has successfully supervised several Ph.D. students and researchers who have become scientists or postdocs in major research labs and renowned universities. Some examples are Microsoft, Tencent, National University of Singapore, Princeton University, University of Pennsylvania, and St. Jude Children's Research Hospital in Memphis, USA. He has authored more than 200 technical articles and books in speaker recognition, machine learning, bioinformatics, and biomedical engineering, including "Biometric Authentication: A Machine Learning Approach," Prentice-Hall, 2005; "Machine Learning for Protein Subcellular Localization Prediction," De Gruyter, 2015; and "Machine Learning for Speaker Recognition," Cambridge University Press, 2020. Dr. Mak served as a member of the IEEE Machine Learning for Signal Processing Technical Committee in 2005-2007 and a Technical Committee Member, IEEE Computation Intelligence Society, Intelligent Systems Applications in 2008. He has served as an associate editor of IEEE Trans. on Audio, Speech and Language Processing. Dr. Mak is currently an editorial board member of the Journal of Signal Processing Systems and IEEE Biometrics Compendium. He has also served as the Programme Co-Chair of ISCSLP and Area Chair of Interspeech 2014. He is currently the Interim Head of the department. His research interest includes speaker recognition, machine learning, biomedical engineering, and bioinformatics.

Qualifications

Higher Diploma in Electrical Engineering, Hong Kong Polytechnic

Bachelor of Engineering, Newcastle Upon Tyne Polytechnic

Doctor of Philosophy, University of Northumbria at Newcastle

31 Dec 2015 → ... Senior Member of the Institution of Electrical and Electronics Engineers, Senior Member of the Institution of Electrical and Electronics Engineers

2015 → ... Senior Member, Institution of Electrical and Electronics Engineers

13 Dec 2000 → ... Chartered Engineer, Chartered Engineer

13 Dec 2000 → ... Member of the Institution of Engineering and Technology, Member of the Institution of Engineering and Technology

31 Dec 1996 → ... Member of the Institution of Electrical and Electronics Engineers, Member of the Institution of Electrical and Electronics Engineers

Employment

Professor

Professor

Department of Electrical and Electronic Engineering

The Hong Kong Polytechnic University

1 Sept 2006 → present

Associate Director of RIQT

Professor

PolyU Academy for Interdisciplinary Research

The Hong Kong Polytechnic University

1 Jan 2024 → present

Research outputs

DITA: DETR with improved queries for end-to-end temporal action detection
Lu, C. & Mak, M. W., 1 Sept 2024, In: *Neurocomputing*. 596, p. 1-12 11 p., 127914.

Contrastive Self-Supervised Speaker Embedding With Sequential Disentanglement
Tu, Y., Mak, M. W. & Chien, J. T., 16 May 2024, In: *IEEE/ACM Transactions on Audio Speech and Language Processing*. 32, p. 2704-2715 12 p., 10531230.

Asymmetric Clean Segments-Guided Self-Supervised Learning for Robust Speaker Verification
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Dual Parameter-Efficient Fine-Tuning for Speaker Representation Via Speaker Prompt Tuning and Adapters
Li, Z., Mak, M.-W. & Meng, H.M.-L., Apr 2024, *2024 IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2024 - Proceedings*. p. 10751-10755 5 p. 10447795. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings).

Physics-Aware Analytic-Gradient Training of Photonic Neural Networks
Zhan, Y., Zhang, H., Lin, H., Chin, L. K., Cai, H., Karim, M. F., Poenar, D. P., Jiang, X., Mak, M. W., Kwek, L. C. & Liu, A. Q., Apr 2024, In: *Laser and Photonics Reviews*. 18, 4, 2300445.

Promoting Independence of Depression and Speaker Features for Speaker Disentanglement in Speech-Based Depression Detection
Zuo, L., Mak, M.-W. & Tu, Y., Apr 2024, *ICASSP 2024-2024 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE, p. 10191-10195 5 p. 10448231

Deep Segment-Attentive Network for Altered-Engine Recognition
Gan, C. X., Mak, M. W., Ho, I. W. H. & Lee, S. W. C., Feb 2024, *2023 IEEE 26th International Conference on Intelligent Transportation Systems, ITSC 2023*. Institute of Electrical and Electronics Engineers Inc., p. 669-674 6 p. 10422665. (IEEE Conference on Intelligent Transportation Systems, Proceedings, ITSC).

Automatic selection of spoken language biomarkers for dementia detection
Ke, X., Mak, M. W. & Meng, H. M., Jan 2024, In: *Neural Networks*. 169, p. 191-204 14 p.

Speaker-turn aware diarization for speech-based cognitive assessments
Xu, S. S., Ke, X., Mak, M. W., Wong, K. H., Meng, H., Kwok, T. C. Y., Gu, J., Zhang, J., Tao, W. & Chang, C., Jan 2024, In: *Frontiers in Neuroscience*. 17, 1351848.

Cross-Domain adaptation in Distance Space for Speaker Verification
Yi, L. & Mak, M. W., Nov 2023, *2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2023*. Institute of Electrical and Electronics Engineers Inc., p. 2238-2243 6 p. 10317589. (2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2023).

Jointly Modelling Transcriptions and Phonemes with Optimal Features to Detect Dementia from Spontaneous Cantonese
Ke, X., Mak, M. W. & Meng, H. M., Nov 2023, *2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2023*. Institute of Electrical and Electronics Engineers Inc., p. 2267-2273 7 p. 10317278. (2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2023).

Modeling Suprasegmental Information Using Finite Difference Network for End-to-End Speaker Verification
Li, J., Mak, M. W., Yan, N. & Wang, L., Nov 2023, *2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2023*. Institute of Electrical and Electronics Engineers Inc., p. 119-124 6 p. 10317476. (2023 Asia Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2023).

Avoiding dominance of speaker features in speech-based depression detection

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Integrated and Enhanced Pipeline System to Support Spoken Language Analytics for Screening Neurocognitive Disorders

Meng, H., Mak, B., Mak, M. W., Fung, H., Gong, X., Kwok, T., Liu, X., Mok, V., Wong, P., Woo, J., Wu, X., Wong, K. H., Xu, S. S., Zheng, N., Huang, R., Kang, J., Ke, X., Li, J., Li, J. & Wang, Y., Aug 2023, In: Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH. 2023-August, p. 1713-1717 5 p.

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Lin, W., He, C., Mak, M. W. & Tu, Y., Jul 2023, *The International Conference on Machine Learning (ICML)*. Vol. 202. p. 21065-21077 13 p. (Proceedings of Machine Learning Research).

Discriminative Speaker Representation via Contrastive Learning with Class-Aware Attention in Angular Space

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Cluster-Guided Unsupervised Domain Adaptation for Deep Speaker Embedding

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Inter-patient ECG classification with i-vector based unsupervised patient adaptation

Xu, S. S., Mak, M. W. & Chang, C., 30 Dec 2022, In: *Expert Systems with Applications*. 210, p. 1-13 118410.

Deep speaker embedding for robust speaker verification

Mak, M. W., Nov 2022, *Proceedings of 2022 IEEE Region 10 International Conference, TENCON 2022*. Institute of Electrical and Electronics Engineers Inc., p. 40-41 2 p. (IEEE Region 10 Annual International Conference, Proceedings/TENCON; vol. 2022-November).

Speaker Representation Learning via Contrastive Loss with Maximal Speaker Separability

Li, Z. & Mak, M. W., Nov 2022, *Proceedings of 2022 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2022*. Institute of Electrical and Electronics Engineers Inc., p. 962-967 6 p. (Proceedings of 2022 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2022).

A Survey on Text-Dependent and Text-Independent Speaker Verification

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Automatic Selection of Discriminative Features for Dementia Detection in Cantonese-Speaking People

Ke, X., Mak, M. W. & Meng, H. M., Sept 2022, In: Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH. 2022-September, p. 2153-2157 5 p.

UNet-DenseNet for Robust Far-Field Speaker Verification

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Mixture Representation Learning for Deep Speaker Embedding

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Improving Speech Emotion Recognition with Adversarial Data Augmentation Network

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Dual Dropout Ranking of Linguistic Features for Alzheimer's Disease Recognition

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A comparative study of acoustic and linguistic features classification for Alzheimer's disease detection

Li, J., Yu, J., Ye, Z., Wong, S., Mak, M., Mak, B., Liu, X. & Meng, H., Jun 2021, *ICASSP 2021 - 2021 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. Vol. 2021-June. p. 6423-6427 5 p. 9414147. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings).

Short-time spectral aggregation for speaker embedding

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Age-Invariant Speaker Embedding for Diarization of Cognitive Assessments

Xu, S. S., Mak, M. W., Wong, K. H., Meng, H. & Kwok, T. C. Y., 24 Jan 2021, *2021 12th International Symposium on Chinese Spoken Language Processing, ISCSLP 2021*. Hong Kong: Institute of Electrical and Electronics Engineers Inc., 9362084. (2021 12th International Symposium on Chinese Spoken Language Processing, ISCSLP 2021).

Channel Interdependence Enhanced Speaker Embeddings for Far-Field Speaker Verification

Zhao, L. J. & Mak, M. W., 24 Jan 2021, *2021 12th International Symposium on Chinese Spoken Language Processing, ISCSLP 2021*. Hong Kong: Institute of Electrical and Electronics Engineers Inc., 9362108. (2021 12th International Symposium on Chinese Spoken Language Processing, ISCSLP 2021).

Gaussian Models for CSI Fingerprinting in Practical Indoor Environment Identification

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Learning Mixture Representation for Deep Speaker Embedding Using Attention.

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Adversarial separation and adaptation network for far-field speaker verification

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A Framework for Adapting DNN Speaker Embedding across Languages

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Strategies for End-to-End Text-Independent Speaker Verification.

Lin, W., Mak, M.-W. & Chien, J.-T., Oct 2020, *Interspeech*. p. 4308-4312 5 p.

Wav2Spk: A Simple DNN Architecture for Learning Speaker Embeddings from Waveforms

Lin, W. & Mak, M.-W., Oct 2020, *Interspeech 2020*. p. 3211-3215 5 p.

Survey of CSI fingerprinting-based indoor positioning and mobility tracking systems

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Chien, J. T. & Mak, M. W., 1 Aug 2020, In: *Journal of Signal Processing Systems*. 92, 8, p. 775-776 2 p.

Machine Learning for Speaker Recognition

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Variational Domain Adversarial Learning With Mutual Information Maximization for Speaker Verification

Tu, Y., Mak, M. W. & Chien, J.-T., Jun 2020, In: *IEEE/ACM Transactions on Audio Speech and Language Processing*. 28, p. 2013-2024 12 p., 9124672.

Information Maximized Variational Domain Adversarial Learning for Speaker Verification

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Multi-level Deep Neural Network Adaptation for Speaker Verification using MMD and Consistency Regularization

Lin, W., Mak, M. W., Li, N., Su, D. & Yu, D., May 2020, *2020 IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2020 - Proceedings*. p. 6839-6843 9054134. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings).

Multi-Level Deep Neural Network Adaptation for Speaker Verification Using MMD and Consistency Regularization

Lin, W., Mak, M. M., Li, N., Su, D. & Yu, D., May 2020, *2020 IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2020 - Proceedings*. Institute of Electrical and Electronics Engineers Inc., p. 6839-6843 5 p. 9054134. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings; vol. 2020-May).

I-Vector-Based Patient Adaptation of Deep Neural Networks for Automatic Heartbeat Classification

Xu, S., Mak, M. W. & Cheung, C. C., Mar 2020, In: IEEE Journal of Biomedical and Health Informatics. 24, 3, p. 717-727 11 p., 8725515.

Contrastive Adversarial Domain Adaptation Networks for Speaker Recognition

Li, L., Mak, M. W. & Chien, J. T., 2020, (Accepted/In press) In: IEEE Transactions on Neural Networks and Learning Systems.

Adversarial data augmentation network for speech emotion recognition

Yi, L. & Mak, M. W., 18 Nov 2019, *2019 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2019*. Institute of Electrical and Electronics Engineers Inc., p. 529-534 6 p. 9023347. (2019 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA ASC 2019).

Variational domain adversarial learning for speaker verification

Tu, Y., Mak, M. W. & Chien, J. T., 15 Sept 2019, *Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH*. Vol. 2019-September. p. 4315-4319 5 p. (Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH).

Fingerprint quality classification for CSI-based indoor positioning systems

Rocamora, J. M., Ho, I. W. H. & Mak, M. W., 2 Jul 2019, *PERSIST-IoT 2019 - Proceedings of the 2019 ACM MobiHoc Workshop on Pervasive Systems in the IoT Era*. Association for Computing Machinery, p. 31-36 6 p. (Proceedings of the International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)).

Towards End-to-End ECG Classification with Raw Signal Extraction and Deep Neural Networks

Xu, S. S., Mak, M. W. & Cheung, C. C., Jul 2019, In: IEEE Journal of Biomedical and Health Informatics. 23, 4, p. 1574-1584 11 p., 8468972.

Semi-supervised Nuisance-attribute Networks for Domain Adaptation

Lin, W., Mak, M.-W., Tu, Y. & Chien, J.-T., May 2019, *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. p. 6236-6240 5 p.

Patient-Specific Heartbeat Classification Based on I-Vector Adapted Deep Neural Networks

Xu, S. S., Mak, M. W. & Cheung, C. C., 3 Dec 2018, *Proceedings - 2018 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2018*. Schmidt, H., Griol, D., Wang, H., Baumbach, J., Zheng, H., Callejas, Z., Hu, X., Dickerson, J. & Zhang, L. (eds.). Institute of Electrical and Electronics Engineers Inc., p. 784-787 4 p. 8621475. (Proceedings - 2018 IEEE International Conference on Bioinformatics and Biomedicine, BIBM 2018).

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Message from the technical program chairs

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SNR-Invariant Multitask Deep Neural Networks for Robust Speaker Verification

Yao, Q. & Mak, M. W., Nov 2018, In: IEEE Signal Processing Letters. 25, 11, p. 1670-1674 5 p., 8466600.

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Reducing domain mismatch by maximum mean discrepancy based autoencoders.

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Unsupervised Domain Adaptation for Gender-Aware PLDA Mixture Models

Li, L. & Mak, M. W., 15 Apr 2018, *2018 IEEE International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2018 - Proceedings*. Institute of Electrical and Electronics Engineers Inc., p. 5269-5273 5 p. 8461943. (ICASSP, IEEE International Conference on Acoustics, Speech and Signal Processing - Proceedings; vol. 2018-April).

Denoised Senone I-Vectors for Robust Speaker Verification

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DNN-Based Score Calibration with Multitask Learning for Noise Robust Speaker Verification

Tan, Z., Mak, M. W. & Mak, B. K. W., 1 Apr 2018, In: *IEEE/ACM Transactions on Audio Speech and Language Processing*. 26, 4, p. 700-712 13 p., 8249870.

Predicting subcellular localization of multi-location proteins by improving support vector machines with an adaptive-decision scheme

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Xu, S. S., Mak, M. W. & Cheung, C. C., 5 Sept 2017, *2017 IEEE International Conference on Multimedia and Expo Workshops, ICMEW 2017*. IEEE, p. 127-132 6 p. 8026250

Discriminative subspace modeling of SNR and duration variabilities for robust speaker verification

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Discriminative subspace modeling of SNR and duration variabilities for robust speaker verification

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Fast scoring for PLDA with uncertainty propagation via i-vector grouping

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The I4U mega fusion and collaboration for NIST speaker recognition evaluation 2016

Lee, K. A., Hautamäki, V., Kinnunen, T., Larcher, A., Zhang, C., Nautsch, A., Stafylakis, T., Liu, G., Rouvier, M., Rao, W., Alegre, F., Ma, J., Mak, M. W., Sarkar, A. K., Delgado, H., Saeidi, R., Aronowitz, H., Sizov, A., Sun, H. & Nguyen, T. H. & 42 others, Wang, G., Ma, B., Vestman, V., Sahidullah, M., Halonen, M., Kanervisto, A., Le Lan, G., Bahmaninezhad, F., Isadskiy, S., Rathgeb, C., Busch, C., Tzimiropoulos, G., Qian, Q., Wang, Z., Zhao, Q., Wang, T., Li, H., Xue, J., Zhu, S., Jin, R., Zhao, T., Bousquet, P. M., Ajili, M., Kheder, W. B., Matrouf, D., Lim, Z. H., Xu, C., Xu, H., Xiao, X., Chng, E. S., Fauve, B., Sriskandaraja, K., Sethu, V., Lin, W. W., Thomsen, D. A. L., Tan, Z. H., Todisco, M., Evans, N., Li, H., Hansen, J. H. L., Bonastre, J. F. & Ambikairajah, E., 1 Jan 2017, In: Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH. 2017-August, p. 1328-1332 5 p.

Transductive Learning for Multi-Label Protein Subchloroplast Localization Prediction

Wan, S., Mak, M. W. & Kung, S. Y., 1 Jan 2017, In: IEEE/ACM Transactions on Computational Biology and Bioinformatics. 14, 1, p. 212-224 13 p., 7401011.

DNA Microarray, since 2006

Mak, M. W., 2017

FUEL-mLoc, since 2017

Mak, M. W., 2017

GOASVM, since 2014

Mak, M. W., 2017

Gram-LocEN, since 2016

Mak, M. W., 2017

HybridGO-Loc, since 2014

Mak, M. W., 2017

mGOASVM, since 2014

Mak, M. W., 2017

mLASSO-Hum, since 2015

Mak, M. W., 2017

mPLR-Loc, since 2014

Mak, M. W., 2017

PairProSVM, since 2009

Mak, M. W., 2017

PolyU-Loc, since 2015

Mak, M. W., 2017

R3P-Loc, since 2014

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Sound Detection System, since 2014

Mak, M. W., 2017

Speaker Verification System, since 2005

Mak, M. W., 2017

“Speech Signal Analyzer (spana.exe),” Hong Kong, since 1995

Mak, M. W., 2017

The I4U mega fusion and collaboration for NIST speaker recognition evaluation 2016

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Knowledge-Based Systems (Journal)

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2020 → ...

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Mak, M. W. (Technical Co-chair)

2020 → 2021

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Mak, M. W. (Associate editor)

2016 → 2020

Analytical Biochemistry (Journal)

Mak, M. W. (Reviewer)

2015

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Mak, M. W. (Reviewer)

2015

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2015

Molecular BioSystems (Journal)

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BMC Bioinformatics (Journal)

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2014 → 2015

Computers in Biology and Medicine (Journal)

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2014 → ...

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2014 → 2015

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2013

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2012

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2012

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2011 → 2014

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2010

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Prizes

Excellence Award, Tencent AI Lab Rhino-Bird Focused Research Program 2019
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