Wei Shen, Ph.D.

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Short Bio

Wei Shen is a professor at the Institute of Artificial Intelligence, School of Computer Science, Shanghai Jiao Tong University. He received NSFC Excellent Young Scientists Fund. He was an Assistant Research Professor at the Department of Computer Science, Johns Hopkins University, worked with Bloomberg Distinguished Professor Alan Yuille. He has over 100 peer-reviewed publications in computer vision and machine learning related areas, including IEEE Trans. PAMI, IJCV, IEEE Trans. Medical Imaging, NeurIPS, ICML, ICCV, CVPR, ECCV and MICCAI. He served as an Area Chair for multiple top-tier international conferences, such as ICCV, CVPR, NeurIPS and ICML. He is an Associate Editor for Pattern Recognition and SCIENCE CHINA Information Sciences. He received the MICCAI Young Scientist Award in 2023 and CSIG Young Scientist Award in 2025.

Work Experience

May 2025 – Present	**Professor.** School of Computer Science Shanghai Jiao Tong University.
Jul 2024 – Apr 2025	**Professor.** School of Electronic Information and Electrical Engineering Shanghai Jiao Tong University.
Oct 2020 – Jun 2024	**Associate Professor.** School of Electronic Information and Electrical Engineering Shanghai Jiao Tong University.
Nov 2018 – Aug 2020	**Assistant Research Professor.** Department of Computer Science Johns Hopkins University.
May 2016 – Oct 2018	**Visiting Assistant/Associate Professor.** Department of Computer Science Johns Hopkins University. (Hosted by Prof. Alan Yuille)
Jul 2012 – Oct 2018	**Lecturer/Associate Professor.** School of Communications and Information Engineering Shanghai University.
Apr 2011 – Nov 2011	**Intern.** Visual Computing Group Microsoft Research Asia. (Supervised by Prof. Zhuowen Tu)

Education

Sep 2007 – Jun 2012	**Ph.D., Huazhong University of Science and Technology** Information and Communication Engineering.
Sep 2003 – Jun 2007	**B.S., Huazhong University of Science and Technology** Communication Engineering.

Selected Publications

Journal

1 Z. Peng, Z. Xu, C. Wen, Y. Huang, Y. Wang, X. Yang, and **W. Shen**✉, "Hyperclip++: fine-tuning clip for open-vocabulary semantic segmentation in hyperbolic space", **IEEE Trans. Pattern Analysis and Machine Intelligence** (2026).

2 C. Si, Z. Shi, S. Zhang, X. Yang, H. Pfister, and **W. Shen**✉, "Task-specific directions: definition, exploration, and utilization in parameter efficient fine-tuning", **IEEE Trans. Pattern Analysis and Machine Intelligence 48**, 6754–6770 (2026).

3 T. Guan, Y. Cai, H. Wang, Z. Hu, **W. Shen**✉, and X. Yang, "Bpe-level visual-textual alignment for multi-scene text retrieval", **IEEE Trans. Image Processing 35**, 9661–9674 (2026).

4 Z. Peng, G. Wang, Z. Xu, X. Yang, and **W. Shen**✉, "Difficulty-adapted masked transformer for semi-supervised medical image segmentation", **IEEE Journal of Biomedical and Health Informatic 30**, 5167–5180 (2026).

5 J. Cen, J. Fang, Z. Zhou, C. Yang, L. Xie, X. Zhang, **W. Shen**✉, and Q. Tian, "Segment anything in 3d with radiance fields", **International Journal of Computer Vision 133**, 5138–5160 (2025).

6 T. Guan, **W. Shen**✉, and X. Yang, "Ccdplus: towards accurate character to character distillation for text recognition", **IEEE Trans. Pattern Analysis and Machine Intelligence 47**, 3546–3562 (2025).

7 C. Yang, S. Li, jiemin Fang, R. Liang, L. Xie, X. Zhang, **W. Shen**✉, and Q. Tian, "Gaussianobject: high-quality 3d object reconstruction from four views with gaussian splatting", **ACM Trans. Graphics 43** (2024).

8 C. Yang, K. Wang, Y. Wang, Q. Dou, X. Yang, and **W. Shen**✉, "Efficient deformable tissue reconstruction via orthogonal neural plane", **IEEE Trans. Medical Imaging 43**, 3211–3223 (2024).

9 **W. Shen**, Z. Peng, X. Wang, H. Wang, J. Cen, D. Jiang, L. Xie, X. Yang, and Q. Tian, "A survey on label-efficient deep segmentation: bridging the gap between weak supervision and dense prediction", **IEEE Trans. Pattern Analysis and Machine Intelligence 45**, 9284–9305 (2023).

10 Y. Xu, L. Xie, C. Xie, W. Dai, J. Mei, S. Qiao, **W. Shen**, H. Xiong, and A. Yuille, "Batch normalization with enhanced linear transformation", **IEEE Trans. Pattern Analysis and Machine Intelligence 45**, 9225–9232 (2023).

11 M. Antonelli, A. Reinke, S. Bakas, K. Farahani, AnnetteKopp-Schneider, B. A. Landman, G. Litjens, B. Menze, O. Ronneberger, R. M.Summers, B. van Ginneken, M. Bilello, P. Bilic, P. F. Christ, R. K. G. Do, M. J. Gollub, S. H. Heckers, H. Huisman, W. R. Jarnagin, M. K. McHugo, S. Napel, J. S. G. Pernicka, K. Rhode, C. Tobon-Gomez, E. Vorontsov, H. Huisman, J. A. Meakin, S. Ourselin, M. Wiesenfarth, P. Arbelaez, B. Bae, S. Chen, L. Daza, J. Feng, B. He, F. Isensee, Y. Ji, F. Jia, N. Kim, I. Kim, D. Merhof, A. Pai, B. Park, M. Perslev, R. Rezaiifar, O. Rippel, I. Sarasua, **W. Shen**, J. Son, C. Wachinger, L. Wang, Y. Wang, Y. Xia, D. Xu, Z. Xu, Y. Zheng, A. L. Simpson, L. Maier-Hein, and M. J. Cardoso, "The medical segmentation decathlon", **Nature Communications 13** (2022).

12 Y. Zhou, D. Dreizin, Y. Wang, F. Liu, **W. Shen**, and A. Yuille, "External attention assisted multi-phase splenic vascular injury segmentation with limited data", **IEEE Trans. Medical Imaging 41**, 1346–1357 (2022).

13 Y. Wang, P. Tang, Y. Zhou, **W. Shen**✉, E. K. Fishman, and A. L. Yuille., "Learning inductive attention guidance for partially supervised pancreatic ductal adenocarcinoma prediction", **IEEE Trans. Medical Imaging 40** (2021).

14 **W. Shen**, Y. Guo, Y. Wang, K. Zhao, B. Wang, and A. L. Yuille, "Deep differentiable random forests for age estimation", **IEEE Trans. Pattern Analysis and Machine Intelligence 43**, 404–419 (2021).

15 P. Tang, X. Wang, S. Bai, **W. Shen**, X. Bai, W. Liu, and A. L. Yuille, "PCL: proposal cluster learning for weakly supervised object detection", **IEEE Trans. Pattern Analysis and Machine Intelligence 42**, 176–191 (2020).

16 Y. Wang, Y. Zhou, **W. Shen**, S. Park, E. K. Fishman, and A. L. Yuille, "Abdominal multi-organ segmentation with organ-attention networks and statistical fusion", **Medical Image Analysis 55**, 88–102 (2019).

17 **W. Shen**, K. Zhao, Y. Jiang, Y. Wang, X. Bai, and A. L. Yuille, "Deepskeleton: learning multi-task scale-associated deep side outputs for object skeleton extraction in natural images", **IEEE Trans. Image Processing 26**, 5298–5311 (2017).

18 **W. Shen**, K. Deng, X. Bai, T. Leyvand, B. Guo, and Z. Tu, "Exemplar-based human action pose correction", **IEEE Trans. Cybernetics 44**, 1053–1066 (2014).

19 **W. Shen**, X. Bai, X. Yang, and L. J. Latecki, "Skeleton pruning as trade-off between skeleton simplicity and reconstruction error", **Science China Information Science 56**, 1–14 (2013).

Conference

1 J. Hu, J. Guo, J. Cen, C. Yang, S. Li, and **W. Shen**✉, "Worldact: activating monolithic 3d worlds into interactive-ready object-centric scenes", in **NeurIPS** (2026).

2 C. Wen, Y. Wang, Z. Peng, Y. Huang, Y. Wang, X. Yang, and **W. Shen**✉, "See to believe: segmentation by reasoning with visual evidence", in **NeurIPS** (2026).

3 T. Guan, Z. Yang, J. Wan, M. Yang, Z. Guo, Z. Hu, R. Luo, R. Chen, S. Jiang, P. Wang, **W. Shen**✉, J. Lin, and X. Yang, "Codepercept: code-grounded visual stem perception for mllm", in **CVPR** (2026).

4 Z. Peng, Z. Xu, Q. Liu, X. Yang, and **W. Shen**✉, "Hyperet: efficient training in hyperbolic space for multi-modal large language models", in **NeurIPS** (2025).

5 J. Cen, X. Zhou, J. Fang, C. Wen, L. Xie, X. Zhang, **W. Shen**✉, and Q. Tian, "Tackling view-dependent semantics in 3d language gaussian splatting", in **ICML** (2025).

6 Z. Peng, Z. Xu, Z. Zeng, C. Wen, Y. Huang, M. Yang, F. Tang, and **W. Shen**✉, "Understanding fine-tuning clip for open-vocabulary semantic segmentation in hyperbolic space", in **CVPR** (2025).

7 J. Cen, J. Fang, C. Yang, L. Xie, X. Zhang, **W. Shen**✉, and Q. Tian, "Segment any 3d gaussians", in **AAAI** (2025).

8 Z. Peng, Z. Xu, Z. Zeng, L. Xie, Q. Tian, and **W. Shen**✉, "Parameter efficient fine-tuning via cross block orchestration for segment anything model", in **CVPR** (2024).

9 J. Cen, Z. Zhou, J. Fang, C. Yang, **W. Shen**✉, L. Xie, D. Jiang, X. Zhang, and Q. Tian, "Segment anything in 3d with nerfs", in **NeurIPS** (2023).

10 Z. Peng, G. Wang, L. Xie, D. Jiang, **W. Shen**✉, and Q. Tian, "Usage: a unified seed area generation paradigm for weakly supervised semantic segmentation", in **ICCV** (2023).

11 D. Tu, W. Sun, G. Zhai, and **W. Shen**✉, "Agglomerative transformer for human-object interaction detection", in **ICCV** (2023).

12 T. Guan, **W. Shen**✉, X. Yang, Q. Feng, Z. Jiang, and X. Yang, "Self-supervised character-to-character distillation for text recognition", in **ICCV** (2023).

13 C. Yang, K. Wang, Y. Wang, X. Yang, and **W. Shen**✉, "Neural lerplane representations for fast 4d reconstruction of deformable tissues", in **MICCAI**, **Young Scientist Award** (2023).

14 T. Guan, C. Gu, J. Tu, X. Yang, Q. Feng, Y. Zhao, and **W. Shen**✉, "Self-supervised implicit glyph attention for text recognition", in **CVPR** (2023).

15 D. Chen, Y. Bai, **W. Shen**, Q. Li, L. Yu, and Y. Wang, "Magicnet: semi-supervised multi-organ segmentation via magic-cube partition and recovery", in **CVPR** (2023).

16 Y. Bai, D. Chen, Q. Li, **W. Shen**, and Y. Wang, "Bidirectional copy-paste for semi-supervised medical image segmentation", in **CVPR** (2023).

17 D. Tu, W. Sun, X. Min, G. Zhai, and **W. Shen**✉, "Video-based human-object interaction detection from tubelet tokens", in **NeurIPS** (2022).

18 F. Wang, H. Wang, C. Wei, A. Yuille, and **W. Shen**✉, "Cp^2: copy-paste contrastive pretraining for semantic segmentation", in **ECCV** (2022).

19 D. Tu, X. Min, H. Duan, G. Guo, G. Zhai, and **W. Shen**✉, "Iwin: human-object interaction detection via transformer with irregular windows", in **ECCV** (2022).

20 X. Wang, K. Zhao, R. Zhang, S. Ding, Y. Wang, and **W. Shen**✉, "Contrastmask: contrastive learning to segment every thing", in **CVPR** (2022).

21 D. Tu, X. Min, H. Duan, G. Guo, G. Zhai, and **W. Shen**✉, "End-to-end human-gaze-target detection with transformers", in **CVPR** (2022).

22 J. Zhou, C. Wei, H. Wang, **W. Shen**, C. Xie, A. Yuille, and T. Kong, "Ibot: image bert pre-training with online tokenizer", in **ICLR** (2022).

23 Q. Yu, Y. Xia, Y. Bai, Y. Lu, A. Yuille, and **W. Shen**✉, "Glance-and-gaze vision transformer", in **NeurIPS** (2021).

24 H. Ding, S. Qiao, A. L. Yuille, and **W. Shen**✉, "Deeply shape-guided cascade for instance segmentation", in **CVPR** (2021).

25 C. Wei, H. Wang, **W. Shen**✉, and A. L. Yuille, "Co2: consistent contrast for unsupervised visual representation learning", in **ICLR** (2021).

26 Y. Li, Q. Yu, M. Tan, J. Mei, P. Tang, **W. Shen**, A. L. Yuille, and C. Xie, "Shape-texture debiased neural network training", in **ICLR** (2021).

27 Y. Wang, X. Wei, F. Liu, J. Chen, Y. Zhou, **W. Shen**✉, E. K. Fishman, and A. L. Yuille, "Deep distance transform for tubular structure segmentation in CT scans", in **CVPR** (2020), pp. 3832–3841.

28 Y. Xia, Y. Zhang, F. Liu, **W. Shen**✉, and A. L. Yuille, "Synthesize then compare: detecting failures and anomalies for semantic segmentation", in **ECCV** (2020), pp. 145–161.

29 **W. Shen**, Y. Guo, Y. Wang, K. Zhao, B. Wang, and A. L. Yuille, "Deep regression forests for age estimation", in **CVPR** (2018), pp. 2304–2313.

30 Z. Zhang, S. Qiao, C. Xie, **W. Shen**, B. Wang, and A. L. Yuille, "Single-shot object detection with enriched semantics", in **CVPR** (2018), pp. 5813–5821.

31 S. Qiao, C. Liu, **W. Shen**, and A. L. Yuille, "Few-shot image recognition by predicting parameters from activations", in **CVPR** (2018), pp. 7229–7238.

32 S. Qiao, **W. Shen**, Z. Zhang, B. Wang, and A. L. Yuille, "Deep co-training for semi-supervised image recognition", in **ECCV** (2018), pp. 142–159.

33 **W. Shen**, K. Zhao, Y. Guo, and A. L. Yuille, "Label distribution learning forests", in **NIPS** (2017), pp. 834–843.

34 **W. Shen**, B. Wang, Y. Jiang, Y. Wang, and A. L. Yuille, "Multi-stage multi-recursive-input fully convolutional networks for neuronal boundary detection", in **ICCV** (2017), pp. 2410–2419.

35 Y. Zhou, L. Xie, **W. Shen**, Y. Wang, E. K. Fishman, and A. L. Yuille, "A fixed-point model for pancreas segmentation in abdominal CT scans", in **MICCAI** (2017), pp. 693–701.

36 **W. Shen**, K. Zhao, Y. Jiang, Y. Wang, Z. Zhang, and X. Bai, "Object skeleton extraction in natural images by fusing scale-associated deep side outputs", in **CVPR** (2016), pp. 222–230.

37 Z. Zhang, C. Zhang, **W. Shen**, C. Yao, W. Liu, and X. Bai, "Multi-oriented text detection with fully convolutional networks", in **CVPR** (2016), pp. 4159–4167.

38 **W. Shen**, X. Wang, Y. Wang, X. Bai, and Z. Zhang, "Deepcontour: A deep convolutional feature learned by positive-sharing loss for contour detection", in **CVPR** (2015), pp. 3982–3991.

39 Z. Zhang, **W. Shen**, C. Yao, and X. Bai, "Symmetry-based text line detection in natural scenes", in **CVPR** (2015), pp. 2558–2567.

40 **W. Shen**, K. Deng, X. Bai, T. Leyvand, B. Guo, and Z. Tu, "Exemplar-based human action pose correction and tagging", in **CVPR** (2012), pp. 1784–1791.

Book Chapters

1 Y. Zhou, Q. Yu, Y. Wang, L. Xie, **W. Shen**, E. K. Fishman, and A. L. Yuille, "2d-based coarse-to-fine approaches for small target segmentation in abdominal CT scans", in *Deep learning and convolutional neural networks for medical imaging and clinical informatics*, edited by L. Lu, X. Wang, G. Carneiro, and L. Yang, Advances in Computer Vision and Pattern Recognition (Springer, 2019), pp. 43–67.

2 Y. Li, Z. Zhu, Y. Zhou, Y. Xia, **W. Shen**, E. K. Fishman, and A. L. Yuille, "Volumetric medical image segmentation: A 3d deep coarse-to-fine framework and its adversarial examples", in *Deep learning and convolutional neural networks for medical imaging and clinical informatics*, edited by L. Lu, X. Wang, G. Carneiro, and L. Yang, Advances in Computer Vision and Pattern Recognition (Springer, 2019), pp. 69–91.

3 **W. Shen**, K. Zhao, Y. Jiang, Y. Wang, Z. Zhang, and X. Bai, "Skeletonization in natural images and its application to object recognition", in *Skeletonization: theory, methods, and applications*, edited by P. Saha, G. Borgefors, and G. S. di Baja (Academic Press, 2017), pp. 259–285.

Teaching

2026 Fall	Computer Vision (Shanghai Jiao Tong University, undergraduate)
2026 Spring	Deep Learning (Shanghai Jiao Tong University, undergraduate)
2025 Fall	Computer Vision (Shanghai Jiao Tong University, undergraduate)
2025 Spring	Deep Learning (Shanghai Jiao Tong University, undergraduate)
2024 Fall	Computer Vision (Shanghai Jiao Tong University, undergraduate)
2024 Spring	Artificial Intelligence: Interdisciplinary Applications (Shanghai Jiao Tong University, undergraduate)
	Deep Learning and Its Applications (Shanghai Jiao Tong University, undergraduate)
2023 Fall	Computer Vision (Shanghai Jiao Tong University, undergraduate)
2023 Spring	Deep Learning and Its Applications (Shanghai Jiao Tong University, undergraduate)
2022 Fall	Computer Vision (Shanghai Jiao Tong University, undergraduate)
	Deep Learning and Its Applications (Shanghai Jiao Tong University, undergraduate)
2021 Fall	Computer Vision (Shanghai Jiao Tong University, undergraduate)
	Deep Learning and Its Applications (Shanghai Jiao Tong University, undergraduate)
2020 Spring	Computer Vision (Johns Hopkins University, undergraduate & graduate)
2019 Fall	Computer Vision (Johns Hopkins University, graduate)
2015 Winter	Foundation of Analog Electronic Circuit (Shanghai University, undergraduate)
2015 Fall	Multimedia and Communication (Shanghai University, undergraduate)
2015 Spring	Foundation of Computer Vision (Shanghai University, graduate)
2014 Winter	Foundation of Analog Electronic Circuit (Shanghai University, undergraduate)
2014 Fall	Multimedia and Communication (Shanghai University, undergraduate)
	Digital Image Processing (Shanghai University, graduate)
2013 Winter	Foundation of Analog Electronic Circuit (Shanghai University, undergraduate)

Award

- 2026 Huawei Spark Award
- 2025 CSIG Young Scientist Award
- 2023 First Class Prize of Shanghai Municipal Science and Technology Progress Award (6/13)
- MICCAI Young Scientist Award

Grants

- 2026 - 2029 The Space Analysis Theory of Parameter-Efficient Fine-Tuning with Applications to Visual Dense Prediction Tasks, **National Natural Science Foundation of China** No. 62576207. (PI)
- 2024 - 2026 Shape Guided Image Segmentation, **National Natural Science Foundation of China** No. 62322604. (PI)
- 2022 - 2025 Deep sequential decision trees with applications to visual recognition, **National Natural Science Foundation of China**, No. 62176159. (PI)
- 2021 - 2024 Deep differentiable random forests with applications to visual recognition, **Natural Science Foundation of Shanghai**. No. 21ZR1432200. (PI)
- 2017 - 2020 Object proposal detection by deep shape feature extraction in natural images, **National Natural Science Foundation of China**, No. 61672336. (PI)
- 2016 - 2018 Contour detection by deep convolutional neural networks, **"Chen Guang" project supported by Shanghai Municipal Education Commission and Shanghai Education Development Foundation**, No. 15CG43. (PI)
- 2014 - 2016 Research on skeleton extraction and object recognition in natural images by supervised learning, **National Natural Science Foundation of China**, No. 61303095. (PI)
- Symmetry based object representation and recognition in natural images **Innovation Program of Shanghai Municipal Education Commission**, No. 14YZ018. (PI)
- Symmetry based object localization in natural images, **Research Fund for the Doctoral Program of Higher Education of China**, No. 20133108120017. (PI)

Academic Service

- Conference Area Chair: ICML 2027, CVPR 2027, ICLR 2027, AAAI 2027, ECCV 2026, ICML 2026, CVPR 2026, NeurIPS 2025, ICML 2025, ICCV 2025, NeurIPS 2024, NeurIPS 2023, CVPR 2023, CVPR 2022
- Journal Associate Editor: SCIENCE CHINA Information Sciences, Pattern Recognition, Neurocomputing, Image and Vision Computing
- Conference Reviewer: ECCV 2016, AAAI 2017, CVPR 2017, ICCV 2017, AAAI 2018, CVPR 2018, ECCV 2018, AAAI 2019, CVPR 2019, ICML 2019, ICCV 2019, NeurIPS 2019, CVPR 2020, ECCV 2020, CVPR 2021, ICCV 2021
- Journal Reviewer: IEEE Transactions on Pattern Analysis and Machine Intelligence
  IEEE Transactions on Image Processing
  IEEE Transactions on Information Forensics and Security
  IEEE Transactions on Circuits and Systems for Video Technology
  IEEE Transactions on Cybernetics
  IEEE Transactions on Knowledge and Data Engineering
  IEEE Transactions on Multimedia
  Pattern Recognition, Neurocomputing

Academic Service (continued)

Workshop Organizer	🔖	CVPR 2017 Workshop Challenge: PASCAL in Detail; ICCV 2017 Workshop challenge: Detecting Symmetry in the Wild