Jiawang Bian, 边佳旺

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Jiawang Bian is a researcher in computer science and artificial intelligence. His research interests include 3D Computer Vision, Generative AI, and Robotics. His research has significant impact on self-driving cars, virtual/augmented reality, and domestic robots. More specifically, he addressed research problems in feature correspondence, self-supervised learning, monocular depth estimation, visual odometry, neural radiance

Thttps://scholar.google.com.au/citations?user=zeGz5JcAAAAJ&hl=en/



Sep. 2018 — Jan. 2019 📕 Research Intern, TuSimple.

Internship (continued)

Mar. 2016 – Aug. 2017 📕 Research Intern, Advanced Digital Sciences Center.

Supervision

I have unofficially supervised 5 PhD students and 2 master students in different universities, including the University of Oxford, University of Adelaide, Zhejiang University, and UNSW.



Invited Presentations



Peer review

Journal 📕 IJCV, TPAMI, TOG, TRO, TIP, TNNLS, ISPRS, TMM, KBS, PR, Neurocomputing, RA-L, MTA

Conference 📕 NeurIPS, ICLR, SIGGRAPH, CVPR, ICCV, ECCV, AAAI, BMVC, ACCV, ICRA, IROS, WACV, PRCV, CVM

Publication

I have published over 20 technical papers which appeared in international journals and conferences. Among them, I am the first author or joint-first author for 9 papers. The leading conferences in computer vision (ICCV, ECCV, CVPR) and machine learning (NIPS, ICLR) have a low acceptance rate typically below 25%, and publications in their proceedings are considered as important as journal publications. The top journals of the field are the International Journal of Computer Vision (IJCV) and the IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI). Overall, my publications have over 3,800 citations and my h-index is 16, both obtained from Google Scholar.

Journal Articles

- 1 Sun, L., **Bian**, J.-W., Zhan, H., Yin, W., Reid, I., & Shen, C. (2023). Sc-depthv3: Robust self-supervised monocular depth estimation for dynamic scenes. *IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI)*. *O* doi:10.1109/TPAMI.2023.3322549
- Bian, J.-W., Zhan, H., Wang, N., Chin, T.-J., Shen, C., & Reid, I. (2022). Auto-rectify network for unsupervised indoor depth estimation. *IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI).* O doi:10.1109/TPAMI.2021.3136220
- Bian, J.-W., Zhan, H., Wang, N., Li, Z., Zhang, L., Shen, C., ... Reid, I. (2021). Unsupervised scale-consistent depth learning from video. *International Journal on Computer Vision (IJCV)*.
 Ø doi:10.1007/s11263-021-01484-6
- Liu, Y., Cheng, M.-M., Fan, D.-P., Zhang, L., Bian, J.-W., & Tao, D. (2021). Semantic edge detection with diverse deep supervision. *International Journal on Computer Vision (IJCV)*.
 Ø doi:10.1007/s11263-021-01539-8
- Liu, Y., Zhang, X.-Y., Bian, J.-W., Zhang, L., & Cheng, M.-M. (2021). SAMNet: Stereoscopically attentive multi-scale network for lightweight salient object detection. *IEEE Transactions on Image Processing* (*TIP*). *O* doi:10.1109/TIP.2021.3065239
- Wu, Y.-H., Liu, Y., Xu, J., **Bian**, **J.-W.**, Gu, Y., & Cheng, M.-M. (2021). MobileSal: Extremely efficient rgb-d salient object detection. *IEEE Transactions on Pattern Recognition and Machine Intelligence* (*TPAMI*). *IPAMI*. 2021.3134684

- **Bian**, J.-W., Lin, W.-Y., Liu, Y., Zhang, L., Yeung, S.-K., Cheng, M.-M., & Reid, I. (2020). GMS: Grid-based motion statistics for fast, ultra-robust feature correspondence. *International Journal on Computer Vision (IJCV)*. *O* doi:10.1007/s11263-019-01280-3
- 8 Zhang, L., Shi, Z., Zhou, J. T., Cheng, M.-M., Liu, Y., Bian, J.-W., ... Shen, C. (2020). Ordered or orderless: A revisit for video based person re-identification. *IEEE Transactions on Pattern Recognition* and Machine Intelligence (TPAMI). *O* doi:10.1109/TPAMI.2020.2976969
 - Liu, Y., Cheng, M.-M., Hu, X., **Bian**, J.-W., Zhang, L., Bai, X., & Tang, J. (2019). Richer convolutional features for edge detection. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*. *O* doi:10.1109/TPAMI.2018.2878849
- 2 Zhang, L., Shi, Z., Cheng, M.-M., Liu, Y., Bian, J.-W., Zhou, J. T., ... Zeng, Z. (2019). Nonlinear regression via deep negative correlation learning. *IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI)*. *O* doi:10.1109/TPAMI.2019.2943860

Conference Proceedings

- Bian, J.-W., Bian, W., Prisacariu, V. A., & Torr, P. H. (2024). PoRF: Pose Residual Field for Accurate Neural Surface Reconstruction. In International Conference on Learning Representations (ICLR). Retrieved from *O* https://porf.active.vision/
- 2 Chen, S., Bhalgat, Y., Li, X., Bian, J.-W., Li, K., Wang, Z., & Prisacariu, V. A. (2024). Neural refinement for absolute pose regression with feature synthesis. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. Retrieved from *O* https://nefes.active.vision/
- Bian, W., Wang, Z., Li, K., Bian, J.-W., & Prisacariu, V. A. (2023). Nope-nerf: Optimising neural radiance field with no pose prior. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. Retrieved from *O* https://nope-nerf.active.vision/
- 4 Li, K., Bian, J.-W., Castle, R., Torr, P., & Prisacariu, V. A. (2023). Mobilebrick: Building lego for 3d reconstruction on mobile devices. In *IEEE Conference on Computer Vision and Pattern Recognition* (CVPR). Retrieved from *O* https://code.active.vision/MobileBrick/
- 5 Bian, J.-W., Zhan, H., & Reid, I. (2021). NVSS: High-quality novel view selfie synthesis. In International Conference on 3D Vision (3DV). Retrieved from *International Conference on Conference on*
- 6 Zhang, X., Wang, X., Bian, J.-W., Shen, C., & You, M. (2021). Diverse knowledge distillation for end-to-end person search. In Association for the Advancement of Artificial Intelligence (AAAI). Retrieved from *O* https://arxiv.org/abs/2012.11187
- Zhan, H., Weerasekera, C. S., Bian, J.-W., & Reid, I. (2020). Visual odometry revisited: What should be learnt? In *International Conference on Robotics and Automation (ICRA)*.
 doi:10.1109/ICRA40945.2020.9197374
 - Bian, J.-W., Li, Z., Wang, N., Zhan, H., Shen, C., Cheng, M.-M., & Reid, I. (2019). Unsupervised scale-consistent depth and ego-motion learning from monocular video. In *Neural Information Processing Systems (NeurIPS)*. Retrieved from *Information Processing Systems* (NeurIPS).

Bian, J.-W., Wu, Y.-H., Zhao, J., Liu, Y., Zhang, L., Cheng, M.-M., & Reid, I. (2019). An evaluation of feature matchers for fundamental matrix estimation. In *British Machine Vision Conference (BMVC)*. Retrieved from *I* https://arxiv.org/abs/1908.09474

10 Liu, Y., Jiang, P.-T., Petrosyan, V., Li, S.-J., Bian, J.-W., Zhang, L., & Cheng, M.-M. (2018). Del: Deep embedding learning for efficient image segmentation. In *International Joint Conference on Artificial Intelligence (IJCAI)*. *O* doi:10.24963/ijcai.2018/120



Bian, J.-W., Lin, W.-Y., Matsushita, Y., Yeung, S.-K., Nguyen, T.-D., & Cheng, M.-M. (2017). GMS: Grid-based motion statistics for fast, ultra-robust feature correspondence. In *IEEE Conference on Computer Vision and Pattern Recognition* (*CVPR*). *O* doi:10.1109/CVPR.2017.302

12 Cheng, M.-M., Liu, Y., Hou, Q., Bian, J.-W., Torr, P., Hu, S.-M., & Tu, Z. (2016). Hfs: Hierarchical feature selection for efficient image segmentation. In *European Conference on Computer Vision (ECCV)* (pp. 867–882). *O* doi:10.1007/978-3-319-46487-9_53

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