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Jiawang Bian is a Nanyang Assistant Professor at Nanyang Technological University (NTU), College of Computing and Data Science, Singapore, where he leads the Spatial Intelligence Lab. His research focuses on spatial intelligence, with the goal of enabling AI to perceive, understand, and interact with the physical world—spanning 3D/4D reconstruction, generative AI, world models, and vision-language systems. He has over 6,400 citations and an h-index of 21 (Google Scholar, 2026), and has published in leading venues including CVPR, ICCV, ECCV, NeurIPS, ICLR, TPAMI, and IJCV. His work has found applications in autonomous driving, AR/VR, and robotics.

Education

- Feb. 2019 – Apr. 2022 ■ **Ph.D., Computer Science** at the University of Adelaide, Australia.
Advised by Prof. Ian Reid and Prof. Chunhua Shen
- Aug. 2012 – Jun. 2016 ■ **B.Eng., Computer Science** at Nankai University, China.
Advised by Prof. Ming-Ming Cheng

Academic Positions

- May 2026 – Present ■ **Nanyang Assistant Professor**, NTU, Singapore.
- Mar. 2024 – Apr. 2025 ■ **Postdoctoral Researcher**, MBZUAI, UAE.
- Sep. 2022 – Dec. 2023 ■ **Postdoctoral Researcher**, University of Oxford, UK.
- Aug. 2016 – Aug. 2017 ■ **Research Assistant**, SUTD, Singapore.

Grants & Fellowships

- 2026 – 2031 ■ **NRF AI Fellowship**, Singapore. SGD 3M.
- 2026 – 2029 ■ **Nanyang Assistant Professorship**, Singapore. SGD 1M.

Industry Experience

- Apr. 2025 – May 2026 ■ **Research Scientist**, ByteDance Seed, USA.
- Sep. 2021 – Jan. 2022 ■ **Research Intern**, Meta Reality Labs, UK.
- Apr. 2021 – Jul. 2021 ■ **Research Intern**, Amazon Web Services, USA.
- Sep. 2018 – Jan. 2019 ■ **Research Intern**, TuSimple, China.

Professional Service

- Journal Reviewer ■ TPAMI, IJCV, TOG, TRO, TIP, TNNLS, TMM, RA-L, ISPRS, PR, KBS
- Conference Reviewer ■ NeurIPS, ICLR, SIGGRAPH, CVPR, ICCV, ECCV, AAAI, BMVC, ACCV, ICRA, IROS, WACV, PRCV, CVM

Publications

I have published over 30 papers in top computer vision and machine learning venues, including CVPR, ICCV, ECCV, NeurIPS, ICLR, TPAMI, and IJCV. My work has accumulated over 6,400 citations with an h-index of 21 (Google Scholar, 2026).

Journal Articles

- 1 Zhou, K., **Bian, J.-W.**, Zheng, J.-Q., Zhong, J., Xie, Q., Trigoni, N., & Markham, A. (2025). Manydepth2: Motion-aware self-supervised monocular depth estimation in dynamic scenes. *IEEE Robotics and Automation Letters*. <https://doi.org/10.1109/LRA.2025.3568337>
- 2 Xu, G., Yin, W., Zhang, J., Wang, O., Niklaus, S., Chen, S., & **Bian, J.-W.** (2024). Towards Domain-agnostic Depth Completion. *Machine Intelligence Research*. <https://doi.org/10.1007/s11633-024-1494-4>
- 3 Zhang, L., Hou, Q., Liu, Y., **Bian, J.-W.**, Xu, X., Zhou, J. T., & Zhu, C. (2024). Deep Negative Correlation Classification. *Machine Learning*. <https://doi.org/10.1007/s10994-024-06604-0>
- 4 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)*. <https://doi.org/10.1109/TPAMI.2023.3322549>
- 5 **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)*. <https://doi.org/10.1109/TPAMI.2021.3136220>
- 6 **Bian, J.-W.**, Zhan, H., Wang, N., Li, Z., Zhang, L., Shen, C., Cheng, M.-M., & Reid, I. (2021). Unsupervised scale-consistent depth learning from video. *International Journal on Computer Vision (IJCV)*. <https://doi.org/10.1007/s11263-021-01484-6>
- 7 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)*. <https://doi.org/10.1007/s11263-021-01539-8>
- 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)*. <https://doi.org/10.1109/TIP.2021.3065239>
- 9 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)*. <https://doi.org/10.1109/TPAMI.2021.3134684>
- 10 **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)*. <https://doi.org/10.1007/s11263-019-01280-3>
- 11 Zhang, L., Shi, Z., Zhou, J. T., Cheng, M.-M., Liu, Y., **Bian, J.-W.**, Zeng, Z., & Shen, C. (2020). Ordered or orderless: A revisit for video based person re-identification. *IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI)*. <https://doi.org/10.1109/TPAMI.2020.2976969>
- 12 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)*. <https://doi.org/10.1109/TPAMI.2018.2878849>
- 13 Zhang, L., Shi, Z., Cheng, M.-M., Liu, Y., **Bian, J.-W.**, Zhou, J. T., Zheng, G., & Zeng, Z. (2019). Nonlinear regression via deep negative correlation learning. *IEEE Transactions on*

Conference Proceedings

- 1 Gao, S., Zhao, S., Jiang, X., Duan, L., Chng, Y. X., Chen, Q.-G., Luo, W., Zhang, K., **Bian, J.-W.**, & Gong, M. (2026). Scaling Beyond Context: A Survey of Multimodal Retrieval-Augmented Generation for Document Understanding. *Annual Meeting of the Association for Computational Linguistics (ACL)*. <https://arxiv.org/abs/2510.15253>
- 2 Shi, D., Wang, W., Chen, D. Y., Zhang, Z., **Bian, J.-W.**, Zhuang, B., & Shen, C. (2026). Revisiting Depth Representations for Feed-Forward 3D Gaussian Splatting. *International Conference on 3D Vision (3DV)*. <https://arxiv.org/abs/2506.05327>
- 3 Gao, Z., **Bian, J.-W.**, Lin, G., Chen, H., & Shen, C. (2025). SurfaceSplat: Connecting Surface Reconstruction and Gaussian Splatting. *IEEE International Conference on Computer Vision (ICCV)*. <https://arxiv.org/abs/2507.15602>
- 4 Tang, T., Ma, E., Zhou, X., Wang, L., Yan, T., Zhang, X., Zhan, K., Jia, P., Lang, X., **Bian, J.-W.**, Yu, K., & Liang, X. (2025). OmniGen: Unified Multimodal Sensor Generation for Autonomous Driving. *ACM International Conference on Multimedia (ACM MM)*. <https://arxiv.org/abs/2512.14225>
- 5 Tang, T., Zhang, L., Wen, Y., Zhang, K., **Bian, J.-W.**, Zhou, X., Yan, T., Zhan, K., Jia, P., Wu, H., Lin, L., & Liang, X. (2025). RoboPearls: Editable Video Simulation for Robot Manipulation. *IEEE International Conference on Computer Vision (ICCV)*. <https://arxiv.org/abs/2506.22756>
- 6 **Bian, J.-W.**, Bian, W., Prisacariu, V. A., & Torr, P. H. (2024). PoRF: Pose Residual Field for Accurate Neural Surface Reconstruction. *International Conference on Learning Representations (ICLR)*. <https://porf.active.vision/>
- 7 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. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. <https://nefes.active.vision/>
- 8 Wu, J., **Bian, J.-W.**, Li, X., Wang, G., Reid, I., Torr, P., & Prisacariu, V. (2024). GaussCtrl: Multi-View Consistent Text-Driven 3D Gaussian Splatting Editing. *European Conference on Computer Vision (ECCV)*. <https://gaussctrl.active.vision/>
- 9 Bian, W., Wang, Z., Li, K., **Bian, J.-W.**, & Prisacariu, V. A. (2023). NoPe-NeRF: Optimising Neural Radiance Field with No Pose Prior. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. <https://nope-nerf.active.vision/>
- 10 Li, K., **Bian, J.-W.**, Castle, R., Torr, P., & Prisacariu, V. A. (2023). MobileBrick: Building lego for 3d reconstruction on mobile devices. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. <https://code.active.vision/MobileBrick/>
- 11 **Bian, J.-W.**, Zhan, H., & Reid, I. (2021). NVSS: High-quality novel view selfie synthesis. *International Conference on 3D Vision (3DV)*. https://jwbian.net/nvss_3dv
- 12 Zhang, X., Wang, X., **Bian, J.-W.**, Shen, C., & You, M. (2021). Diverse knowledge distillation for end-to-end person search. *Association for the Advancement of Artificial Intelligence (AAAI)*. <https://arxiv.org/abs/2012.11187>
- 13 Zhan, H., Weerasekera, C. S., **Bian, J.-W.**, & Reid, I. (2020). Visual odometry revisited: What should be learnt? *International Conference on Robotics and Automation (ICRA)*. <https://doi.org/10.1109/ICRA40945.2020.9197374>

- 14 **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. *Neural Information Processing Systems (NeurIPS)*. [🔗https://arxiv.org/abs/1908.10553](https://arxiv.org/abs/1908.10553)
- 15 **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. *British Machine Vision Conference (BMVC)*. [🔗https://arxiv.org/abs/1908.09474](https://arxiv.org/abs/1908.09474)
- 16 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. *International Joint Conference on Artificial Intelligence (IJCAI)*. [🔗https://doi.org/10.24963/ijcai.2018/120](https://doi.org/10.24963/ijcai.2018/120)
- 17 **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. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*. [🔗https://doi.org/10.1109/CVPR.2017.302](https://doi.org/10.1109/CVPR.2017.302)
- 18 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. *European Conference on Computer Vision (ECCV)*, 867–882. [🔗https://doi.org/10.1007/978-3-319-46487-9_53](https://doi.org/10.1007/978-3-319-46487-9_53)

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