- [28] K. Liao, C. Lin, Y. Zhao, and M. Xu. Model-free distortion rectification framework bridged by distortion distribution map. *IEEE Transactions on Image Processing (TIP)*, 29:3707–3718, 2020. 3
- [29] K. Liao, C. Lin, and Y. Zhao. A deep ordinal distortion estimation approach for distortion rectification. *IEEE Transactions on Image Processing (TIP)*, 30:3362–3375, 2021. 3
- [30] Y. Lin, R. Wiersma, S. L. Pintea, K. Hildebrandt, E. Eisemann, and J. C. van Gemert. Deep vanishing point detection: Geometric priors make dataset variations vanish. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 6093–6103, 2022. 2
- [31] L. Liu, H. Jiang, P. He, W. Chen, X. Liu, J. Gao, and J. Han. On the variance of the adaptive learning rate and beyond. In *Proceedings of the International Conference on Learning Representations (ICLR)*, pages 1–14, 2020. 6
- [32] Y. Lochman, O. Dobosevych, R. Hryniv, and J. Pritts. Minimal solvers for single-view lens-distorted camera autocalibration. In *Proceedings of the IEEE Winter Conference on Applications of Computer Vision (WACV)*, pages 2886–2895, 2021. 1, 2, 3, 6, 7, 8
- [33] M. López-Antequera, R. Marí, P. Gargallo, Y. Kuang, J. Gonzalez-Jimenez, and G. Haro. Deep single image camera calibration with radial distortion. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 11809–11817, 2019. 2, 3, 5, 7, 8
- [34] M. Lourakis and G. Terzakis. Efficient absolute orientation revisited. In *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 5813–5818, 2018. 5
- [35] X. Lu, J. Yao, H. Li, Y. Liu, and X. Zhang. 2-Line exhaustive searching for real-time vanishing point estimation in Manhattan world. In *Proceedings of the IEEE Winter Conference on Applications of Computer Vision (WACV)*, pages 345–353, 2017. 2
- [36] K. Ludwig, P. Harzig, and R. Lienhart. Detecting arbitrary intermediate keypoints for human pose estimation with Vision Transformers. In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision Workshops* (WACVW), pages 663–671, 2022. 6
- [37] Z. Luo, Z. Wang, Y. Huang, L. Wang, T. Tan, and E. Zhou. Rethinking the heatmap regression for bottom-up human pose estimation. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 13259–13268, 2021. 4
- [38] P. Mirowski, A. Banki-Horvath, K. Anderson, D. Teplyashin, K. M. Hermann, M. Malinowski, M. K. Grimes, K. Simonyan, K. Kavukcuoglu, A. Zisserman, and R. Hadsell. The StreetLearn environment and dataset. *arXiv preprint arXiv:1903.01292*, 2019. 1, 2, 4, 5
- [39] D. Mortari, F. L. Markley, and P. Singla. Optimal linear attitude estimator. *Journal of Guidance, Control, and Dynamics* (*JGCD*), 3:1619–1627, 2007. 5
- [40] A. Paszke, S. Gross, F. Massa, A. Lerer, J. Bradbury, G. Chanan, T. Killeen, Z. Lin, N. Gimelshein, L. Antiga, A. Desmaison, A. Köpf, E. Yang, Z. DeVito, M. Raison, A.

- Tejani, S. Chilamkurthy, B. Steiner, L. Fang, J. Bai, and S. Chintala. PyTorch: An imperative style, high-performance deep learning library. In *Proceedings of the Advances in Neural Information Processing Systems (NeurIPS)*, pages 8024–8035, 2019. 7
- [41] J. Pritts, Z. Kukelova, V. Larsson, and O. Chum. Radially-distorted conjugate translations. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1993–2001, 2018. 1, 2, 3, 6, 7, 8
- [42] O. Russakovsky, J. Deng, H. Su, J. Krause, S. Satheesh, S. Ma, Z. Huang, A. Karpathy, A. Khosla, M. Bernstein, A. C. Berg, and L. Fei-Fei. ImageNet large scale visual recognition challenge. *International Journal of Computer Vision (IJCV)*, 115(3):211–252, 2015. 6
- [43] A. Sheshkus, A. Ingacheva, and D. Nikolaev. Vanishing points detection using combination of fast Hough transform and deep learning. In *Proceedings of the International Conference on Machine Vision (ICMV)*, 2017. 2
- [44] A. Sheshkus, A. Ingacheva, V. Arlazarov, and D. Nikolaev. HoughNet: Neural network architecture for vanishing points detection. In *Proceedings of the IEEE International Conference on Document Analysis and Recognition (ICDAR)*, pages 844–849, 2019. 2
- [45] Y. Shi, D. Zhang, J. Wen, X. Tong, H. Zhao, X. Ying, and H. Zha. Three orthogonal vanishing points estimation in structured scenes using convolutional neural networks. In *Proceedings of the IEEE International Conference on Image Processing (ICIP)*, pages 3537–3541, 2019. 2
- [46] G. Simon, A. Fond, and M.-O. Berger. A-contrario horizon-first vanishing point detection using second-order grouping laws. In *Proceedings of the European Conference on Computer Vision (ECCV)*, pages 323–338, 2018. 2
- [47] K. Sun, B. Xiao, D. Liu, and J. Wang. Deep high-resolution representation learning for human pose estimation. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 5686–5696, 2019. 4, 6
- [48] J.-P. Tardif. Non-iterative approach for fast and accurate vanishing point detection. In *Proceedings of the IEEE International Conference on Computer Vision (ICCV)*, pages 1250–1257, 2009. 2
- [49] X. Tong, X. Ying, Y. Shi, R. Wang, and J. Yang. Transformer based line segment classifier with image context for real-time vanishing point detection in Manhattan world. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 6083–6092, 2022. 2
- [50] T.-D. Truong, Q.-H. Bui, C. N. Duong, H.-S. Seo, S. L. Phung, X. Li, and K. Luu. DirecFormer: A directed attention in Transformer approach to robust action recognition. In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), pages 19998–20008, 2022. 1
- [51] R. Y. Tsai. A versatile camera calibration technique for high-accuracy 3D machine vision metrology using off-the-shelf TV cameras and lenses. *IEEE Journal of Robotics and Automation (JRA)*, 3(4):323–344, 1987. 1