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(56) References cited:

US-A1- 2015 039 458

- **GEORGIA GKIOXARI ET AL: "Detecting and Recognizing Human-Object Interactions", ARXIV.ORG, CORNELL UNIVERSITY LIBRARY, 201 OLIN LIBRARY CORNELL UNIVERSITY ITHACA, NY 14853, 27 March 2018 (2018-03-27), XP081308809,**
- **ESCORCIA VICTOR ET AL: "Spatio-temporal Human-Object Interactions for Action Recognition in Videos", 2013 IEEE INTERNATIONAL CONFERENCE ON COMPUTER VISION WORKSHOPS, IEEE, 2 December 2013 (2013-12-02), pages 508-514, XP032575698, DOI: 10.1109/ICCVW.2013.72 [retrieved on 2014-03-04]**
- **ANDRILUKA MYKHAYLO ET AL: "2D Human Pose Estimation: New Benchmark and State of the Art Analysis", 2014 IEEE CONFERENCE ON COMPUTER VISION AND PATTERN RECOGNITION, IEEE, 23 June 2014 (2014-06-23), pages 3686-3693, XP032649517, DOI: 10.1109/CVPR.2014.471 [retrieved on 2014-09-24]**

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- HAO-SHU FANG ET AL: "RMPE: Regional Multi-person Pose Estimation", ARXIV.ORG, CORNELL UNIVERSITY LIBRARY, 201 OLIN LIBRARY CORNELL UNIVERSITY ITHACA, NY 14853, 1 December 2016 (2016-12-01), XP081352602,
- HAO-SHU FANG ET AL: "Pairwise Body-Part Attention for Recognizing Human-Object Interactions", ARXIV.ORG, CORNELL UNIVERSITY LIBRARY, 201 OLIN LIBRARY CORNELL UNIVERSITY ITHACA, NY 14853, 28 July 2018 (2018-07-28), XP081251907,