List of publications on april 15th 2025

Journal Articles

[1] Philip Scales, Olivier Aycard, and Véronique Aubergé. Planning Socially Expressive Mobile Robot Trajectories. *Sensors journal*, 24(11):3533, 2024.

[2] J. Gomez, O. Aycard, and J. Baber. Efficient detection and tracking of human using 3d lidar sensor. *Sensors journal*, 2023.

[3] P. Scales, V. Aubergé, and O. Aycard. From vocal prosody to movement prosody, from hri to understanding humans. *Interaction studies journal*, 2022.

[4] P. Zheng, P-B. Wieber, J. Baber, and O. Aycard. Human arm motion prediction for collision avoidance in a shared workspace. *Sensors journal*, 2022.

[5] R.O. Chavez-Garcia and O. Aycard. Multiple sensor fusion and classification for moving object detection and tracking. *IEEE Transactions on Intelligent Transportation Systems*, 17(2):525–534, 2015.

[6] TD. Vu, J. Burlet, and O. Aycard. Grid-based localization and local mapping with moving objects detection and tracking. *Information Fusion, Elsevier*, 12(1):58–69, Janvier 2011.

[7] S. Pietzsch, TD. Vu, J. Burlet, O. Aycard, T. Hackbarth, N. Appenrodt, J. Dickmann, and B. Radig. Results of a precrash application based on laser scanner and short range radars. *IEEE Transactions on Intelligent Transport Systems*, 10(4):584–593, 2009.

[8] J. Burlet, T. Fraichard, and O. Aycard. Robust navigation using markov models. *International Journal of Advanced Robotic Systems*, 2008.

[9] D. Vasquez, T. Fraichard, O. Aycard, and C. Laugier. Intentional motion on-line learning and prediction. *Machine Vision and Applications*, 2008.

[10] C. Laugier, D. Vasquez, M. Yguel, T. Fraichard, and O. Aycard. Geometric and bayesian model for safe navigation in dynamic environments. *Intelligent Service Robots*, 2007.

[11] M. Yguel, O. Aycard, and C. Laugier. Efficient gpu-based construction of occupancy grids using several laser range finders. *International Journal of Autonomous Vehicles*, 2007.

[12] O. Aycard, JF. Mari, and R. Washington. Learning to automatically detect features for mobile robots using second-order hidden markov models. *International Journal of Advanced Robotic Systems*, 2004.

Conference Articles

[13] O. Aycard. Low level detection and tracking for robust following of a moving person with a mobile robot. In *The 18th IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2024.

[14] P. Scales, V. Aubergé, and O. Aycard. Inducing social perceptions of a mobile robot through motion profiles. In *The 18th IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2024.

[15] C. Brouard and O. Aycard. Robust global localization for a mobile robot using information retrieval techniques. In *The 18th IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2024.

[16] J. Baber, T. Lopez, and O. Aycard. Exploring word embeddings and 3d quantization for human hand motion prediction in shared wordspace with robot. In *The 18th IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2024.

[17] J. Baber and O. Aycard. 3d-psh: 3d lidar object detection using adaptive clustering and 3d point spatial histograms. In *The 36th IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, 2024.

[18] R. Vallee, L. Pregaldiny, V. Aubergé, E. Cenac, S. Tisseron, and O. Aycard. Contrastive study of prosodic features of a virtual robot addressed to children. In *16th International Conference on Advances in Computer-Human Interactions*, 2023.

[19] P. Scales, V. Aubergé, and O. Aycard. Socio-expressive robot navigation: How motion profiles can convey frailty and confidence. In *Workshop on "Affective Robotics For Wellbeing" in 10th International Conference on Affective Computing and Intelligent Interaction*, 2022.

[20] P. Scales, V. Aubergé, and O. Aycard. From vocal prosody to movement prosody, from hri to understanding humans. In *VIHAR Vocal Interactivity in-and-between Humans, Animals and Robots*, 2021.

[21] P. Scales, Rimel M., and O. Aycard. Visual-based global localization from ceiling images using convolutional neural networks. In *International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP)*, 2021.

[22] O. Aycard and C. Brouard. A new tool to initialize global localization for a mobile robot. In *IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, 2020.

[23] P. Scales, O. Aycard, and V. Aubergé. Studying navigation as a form of interaction: a design approach for social robot navigation methods. In *IEEE International Conference on Robotics and Automation (ICRA)*, 2020.

[24] P. Zheng, P-B. Wieber, and O. Aycard. Online optimal motion generation with guaranted safety in shared workspace. In *IEEE International Conference on Robotics and Automation (ICRA)*, 2020.

[25] Q. Labourey, O. Aycard, D. Pellerin, M. Rombaut, and C. Garbay. An evidential filter for indoor navigation of a mobile robot in dynamic environment. In *International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems (IPMU)*, 2016.

[26] Q. Labourey, D. Pellerin, M. Rombaut, O. Aycard, and C. Garbay. Sound classification in indoor environment thanks to belief functions. In *European Signal Processing Conference (EUSIPCO)*, 2015.

[27] A. Azim and O. Aycard. Layer-based supervised classification of moving objects in outdoor dynamic environment using 3d laser scanner. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2014.

[28] O. Chavez, TD. Vu, and O. Aycard. Fusion at detection level for frontal object perception. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2014.

[29] TD. Vu, O. Aycard, and Tango F. Object perception for intelligent vehicle applications: A multi-sensor fusion approach. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2014.

[30] Q. Labourey, O. Aycard, D. Pellerin, and M. Rombaut. Audiovisual data fusion method for successive speakers tracking. In *International Conference on Computer Vision Theory and Applications (VISAPP)*, 2014.

[31] O. Chavez, TD. Vu, O. Aycard, and F. Tango. Fusion framework for moving objects classification. In *IEEE International Conference on Information Fusion*, 2013.

[32] O. Chavez, J. Burlet, TD. Vu, and O. Aycard. Frontal object perception using radar and mono-vision. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2012.

[33] Q. Baig and O. Aycard. Improving moving objects tracking using road model for laser data. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2012.

[34] A. Azim and O. Aycard. Detection, classification and tracking of moving objects in a 3d environment. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2012.

[35] O. Aycard, TD. Vu, Q. Baig, and T. Fraichard. A generic architecture for dynamic outdoor environment. In *IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, 2011.

[36] M. Yguel and O. Aycard. 3d mapping of outdoor environment using clustering techniques. In *IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, 2011.

[37] O. Aycard, Q. Baig, S. Botaz, F. Nashashibi, S. Nedevschi, C. Pantilie, M. Parent, P. Resende, and TD. Vu. Intersection safety using lidar and stereo vision sensors. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2011.

[38] Q. Baig, O. Aycard, TD. Vu, and T. Fraichard. Fusion between laser and stereo vision data for moving objects tracking in intersection like scenario. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2011.

[39] J. Burlet and O. Aycard. Interacting multiple models based classification of moving objects. In *IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2010.

[40] Q. Baig and O. Aycard. Low level fusion of laser and mono camera for object detection and classification. In *IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2010.

[41] Azeem A. and Aycard O. Multiple pedestrian tracking using viterbi data association. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2010.

[42] Aycard O., Vu TD., and Baig Q. An occupancy grid based architecture for advanced driver assistant system. In *Advanced Microsystems for Automotive Applications (AMAA)*, 2010.

[43] Yguel M., Vasquez D., Aycard O., Siegwart R., and Laugier C. Error-driven refinement of multi-scale gaussian maps application to 3-d multi-scale map building, compression and merging. In *International Symposium on Robotics Research (ISRR)*, 2009.

[44] Q. Baig, TD. Vu, and O. Aycard. Online localization and mapping with moving objects detection in dynamic outdoor environments. In *IEEE International Conference on Intelligent Computer Communication and Processing (ICCP)*, 2009.

[45] TD. Vu and O. Aycard. Lased-based detection and tracking moving object using data-driven markov chain monte carlo. In *IEEE International Conference on Robotics and Automation (ICRA)*, Kobe, Japan, Mai 2009.

[46] R. Garcia, O. Aycard, TD. Vu, and M. Ahrholdt. High level sensor data fusion for automotive applications using occupancy grids. In *IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 2008.

[47] S. Pietzsch, O. Aycard, J. Burlet, TD. Vu, T. Hackbarth, N. Appenrodt, J. Dickmann, and B. Radig. Results of a precrash application based on laserscanner and short range radars. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2008.

[48] TD. Vu, J. Burlet, and O. Aycard. Grid-based localization and online mapping with moving objects detection and tracking: new results. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2008.

[49] TD. Vu, J. Burlet, and O. Aycard. Mapping of environment, detection and tracking of moving objects using occupancy grids. In *Workshop on Intelligent Transport*, 2008.

[50] M. Yguel, C. Tay Meng Keat, C. Braillon, C. Laugier, and O. Aycard. Dense mapping for telemetric sensors: efficient algorithms and sparse representation. In *Robotic Science and Systems (RSS)*, 2007.

[51] TD. Vu, O. Aycard, and N. Appenrodt. Online localization and mapping with moving objects tracking in dynamic outdoor environments. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2007.

[52] N. Floudas, A. Polychronopoulos, O. Aycard, J. Burlet, and M. Ahrholdt. High level sensor data fusion approaches for object recognition in road environment. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2007.

[53] SB. Park, F. Tango, O. Aycard, A. Polychronopoulos, U. Scheunert, and T. Tatschke. Profusion2 - sensor data fusion for multiple active safety applications. In *Intelligent Transport System World Congress*, 2006.

[54] O. Aycard, A. Spalanzani, J. Burlet, C. Fulgenzi, TD. Vu, D. Raulo, and M. Yguel. Pedestrians tracking using offboard cameras. In *IEEE International Conference on Intelligent Robot and Systems (IROS)*, 2006.

[55] J. Burlet, O. Aycard, A. Spalanzani, and C. Laugier. Adaptive interacting multiple models applied on pedestrian tracking in car parks. In *IEEE International Conference on Intelligent Robots and Systems (IROS)*, 2006.

[56] M. Yguel, O. Aycard, and C. Laugier. Efficient gpu-based construction of occupancy grids using several laser range finders. In *IEEE International Conference on Intelligent Robots and Systems (IROS)*, 2006.

[57] J. Burlet, O. Aycard, A. Spalanzani, and C. Laugier. Pedestrian tracking in car parks: an adaptive interacting multiple models based filtering method. In *IEEE International Conference on Intelligent Transport Systems (ITSC)*, 2006.

[58] O. Aycard, A. Spalanzani, J. Burlet, C. Fulgenzi, TD. Vu, D. Raulo, and M. Yguel. Grid based fusion and tracking. In *IEEE International Conference on Intelligent Transport Systems (ITSC)*, 2006.

[59] M. Yguel, O. Aycard, D. Raulo, and C. Laugier. Grid based fusion of offboard camera. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2006.

[60] O. Aycard. Puvame - new french approach for vulnerable road users safety. In *IEEE International Conference on Intelligent Vehicles (IV)*, 2006.

[61] T. Tatschke, SB. Park, A. Amditis, A. Polychronopoulos, U. Scheunert, and O. Aycard. Profusion2 - towards a modular, robust and reliable fusion architecture for automotive environment perception. In *Advanced Microsystems for Automotive Applications (AMAA)*, 2006.

[62] D. Vasquez, T. Fraichard, O. Aycard, and C. Laugier. On-line intentional motion learning and prediction. In *International Conference on Field and Service Robotics (FSR)*, 2005.

[63] M. Yguel, O. Aycard, and C. Laugier. Wavelet occupancy grids: a method for compact map building. In *International Conference on Field and Service Robotics (FSR)*, 2005.

[64] J. Burlet, T. Fraichard, and O. Aycard. Robust navigation using markov models. In *IEEE International Conference on Intelligent Robots and Systems (IROS)*, 2005.

[65] N. Mansard, O. Aycard, and C. Koike. Hierarchy of behaviours. In *IEEE International Conference on Robotics and Biomimetics (ROBIO)*, 2005.

[66] C. Laugier, S. Petti, D. Vasquez, M. Yguel, T. Fraichard, and O. Aycard. Steps towards safe navigation in open and dynamic environments. In *IEEE International Conference on Robotics and Automation (ICRA). Workshop on Autonomous Navigation in Dynamic Environments*, 2005.

[67] J. Burlet, O. Aycard, and T. Fraichard. Robust motion planning using markov decision processes and quadtree decomposition. In *IEEE International Conference on Robotics and Automation (ICRA)*, 2004.

[68] O. Aycard, JF. Mari, and R. Washington. Learning to automatically detect features for mobile robots using second-order hidden markov models. In *IJCAI-Workshop on Reasoning with Uncertainty in Robotics*, 2003.

[69] A. Tapus and O. Aycard. Searching a target with a mobile robot. In *International Conference on Control Systems and Computer Science*, 2003.

[70] O. Aycard and R. Washington. State identification for planetary rovers: Learning and recognition. In *IEEE International Conference on Robotics and Automation (ICRA)*, 2000.

[71] O. Aycard, JF. Mari, and F. Charpillet. Second order hidden markov models for places recognition: New results. In *IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, 1998.

[72] O. Aycard, P.Laroche, and F. Charpillet. Mobile robot localization in dynamic environment using place recognition. In *IEEE International Conference on Robotics and Automation (ICRA)*, 1998.

[73] P.Morignot, O. Aycard, and F. Charpillet. A pair of heterogeneous agents in a unique vehicle for object motion. In *IEEE International Conference on Tools with Artificial Intelligence (ICTAI)*, pages 508–513, 1997.

[74] O. Aycard, F. Charpillet, D. Fohr, and JF. Mari. Place learning and recognition using hidden markov models. In *IEEE International Conference on Intelligent Robots and Systems (IROS)*, pages 1741–1746, 1997.

[75] O. Aycard, F. Charpillet, and JP. Haton. A new approach to design fuzzy controllers for mobile robots navigation. In *IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA)*, pages 68–73, 1997.

Book Chapters

[76] C. Laugier, S. Petti, A. D. Vasquez, M. Yguel, Th. Fraichard, and O. Aycard. Steps Towards Safe Navigation in Open and Dynamic Environments. In C. Laugier and R. Chatila, editors, *Autonomous Navigation in Dynamic Environments*, volume 35 of *Springer Tracts in Advanced Robotics Series*. Springer, 2007.

[77] A. D. Vasquez, Th. Fraichard, O. Aycard, and C. Laugier. Intentional Motion Online Learning and Prediction. In P. Corke and S. Sukkarieh, editors, *Field and Service Robotics*, volume 25 of *Springer Tracts in Advanced Robotics Series*. Springer, 2006.

[78] O. Aycard, JF. Mari, and R. Schott. *Application of Markov models in robotics. In Probabilistic and Statistical Methods in Computer Science.*, pages 177–205. Kluwer Academic Publishers, January 2001.

Research Reports