

Publications for Fabio Ramos

2018

Dos Santos De Oliveira, R., Ott, L., Ramos, F. (2018). Bayesian Optimisation for Safe Navigation under Localisation Uncertainty (forthcoming). *18th International Symposium on Robotics Research (ISRR 2017)*, Puerto Varas: Springer.

Francis, G., Ott, L., Ramos, F. (2018). Functional Path Optimisation for Exploration in Continuous Occupancy Maps (forthcoming). *18th International Symposium on Robotics Research (ISRR 2017)*, Puerto Varas: Springer.

Guizilini, V., Ramos, F. (2018). Learning to reconstruct 3D structures for occupancy mapping from depth and color information. *International Journal of Robotics Research*, In Press. [More Information]

De Rezende, E., Ruppert, G., De Carvalho, T., Ramos, F., De Geus, P. (2018). Malicious software classification using transfer learning of ResNet-50 deep neural network. *16th IEEE International Conference on Machine Learning and Applications, (ICMLA 2017)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

De Rezende, E., Ruppert, G., De Carvalho, T., Theophilo, A., Ramos, F., De Geus, P. (2018). Malicious Software Classification Using VGG16 Deep Neural Network's Bottleneck Features. *15th International Conference on Information Technology - New Generations (ITNG 2018)*, Cham: Springer Verlag. [More Information]

Hata, A., Ramos, F., Wolf, D. (2018). Monte Carlo Localization on Gaussian Process Occupancy Maps for Urban Environments. *IEEE Transactions on Intelligent Transportation Systems*, 19(9), 2893-2902. [More Information]

Guizilini, V., Ramos, F. (2018). Variational Hilbert Regression with Applications to Terrain Modeling (forthcoming). *18th International Symposium on Robotics Research (ISRR 2017)*, Puerto Varas: Springer.

2017

Senanayake, R., Ramos, F. (2017). Bayesian Hilbert Maps for Dynamic Continuous Occupancy Mapping. *Conference on Robot Learning 2017 (CoRL 2017)*, online: International Foundation of Robotics Research: organizational support.

Senanayake, R., O'Callaghan, S., Ramos, F. (2017). Learning Highly Dynamic Environments with Stochastic Variational Inference. *2017 IEEE International Conference on Robotics and Automation (ICRA 2017)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Ganegedara, T., Ott, L., Ramos, F. (2017). Learning to Navigate by Growing Deep Networks. *Australasian Conference on Robotics and Automation (ACRA 2017)*, Sydney: Australian Robotics and Automation Association (ARAA).

Guizilini, V., Ramos, F. (2017). Learning to Reconstruct 3D

Structures for Occupancy Mapping. *Robotics: Science and System XIII*, Cambridge, MA: The MIT Press. [More Information]

Inoue, R., Guizilini, V., Terra, M., Ramos, F. (2017). Markovian Jump Linear Systems-based filtering for Visual and GPS Aided Inertial Navigation System. *The 30th IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2017)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Weerasiriwardhane, C., Ott, L., Ramos, F. (2017). Online Learning for Scene Segmentation With Laser-Constrained CRFs. *2017 IEEE International Conference on Robotics and Automation (ICRA 2017)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Morere, P., Marchant Matus, R., Ramos, F. (2017). Sequential Bayesian Optimisation for POMDP and Environment Monitoring with UAVs. *2017 IEEE International Conference on Robotics and Automation (ICRA 2017)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Francis, G., Ott, L., Ramos, F. (2017). Stochastic Functional Gradient for Motion Planning in Continuous Occupancy Maps. *2017 IEEE International Conference on Robotics and Automation (ICRA 2017)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Guizilini, V., Ramos, F. (2017). Unsupervised Feature Learning for 3D Scene Reconstruction with Occupancy Maps. *31st AAAI Conference on Artificial Intelligence (AAAI-17)*, USA: AAAI Press.

2016

Jewbali, A., Melkumyan, A., Ramos, F. (2016). Method of Characterising a Resource [SR02]. *Patent No. 2010262748, 9449351*.

Dos Santos De Oliveira, R., Ott, L., Ramos, F. (2016). Active Perception for Modelling Energy Consumption in Off-Road Navigation. *Australasian Conference on Robotics and Automation (ARAA 2016)*, Brisbane: Australian Robotics and Automation Association (ARAA).

Bewley, A., Ott, L., Ramos, F., Uprocft, B. (2016). ALExTRAC: Affinity Learning by Exploring Temporal Reinforcement within Association Chains. *2016 IEEE International Conference on Robotics and Automation (ICRA)*, New Jersey: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Schneider, M., Ertel, W., Ramos, F. (2016). Expected similarity estimation for large-scale batch and streaming anomaly detection. *Machine Learning*, 105(3), 305-333. [More Information]

Information]

Vido, C., Ramos, F. (2016). From Grids to Continuous Occupancy Maps through Area Kernels. *2016 IEEE International Conference on Robotics and Automation (ICRA)*, New Jersey: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

O'Callaghan, S., Ramos, F. (2016). Gaussian Process Occupancy Maps for Dynamic Environments. In M. Ani Hsieh, Oussama Khatib, Vijay Kumar (Eds.), *Experimental Robotics: The 14th International Symposium on Experimental Robotics*, (pp. 791-805). Cham: Springer. [More Information]

Ramos, F., Ott, L. (2016). Hilbert maps: Scalable continuous occupancy mapping with stochastic gradient descent. *International Journal of Robotics Research*, 35(14), 1717-1730. [More Information]

Nettleton, E., Hennessy, R., Durrant-Whyte, H., Goktogan, A., Hatherly, P., Ramos, F. (2016). Geographical Region Imaging [SU09]. *Patent No. 2010242544, 201107807, 2711-2011, 3694, 9297256*. Chile, Other, South Africa.

Shen, D., Ramos, F. (2016). Kernel embeddings of longitudinal data. *29th Australasian Joint Conference on Artificial Intelligence (AI 2016)*, Cham: Springer. [More Information]

Guizilini, V., Ramos, F. (2016). Large-scale 3D scene reconstruction with Hilbert Maps. *2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016)*, Daejeon: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Durrant-Whyte, H., Ramos, F., Hatherly, P. (2016). Method and System For Exploiting Information From Heterogeneous Sources [SU01]. *Patent No. 2009200855, 2657159, 7061 (327-2009)*. Canada, Peru.

Da Rocha, F., Grassi, V., Guizilini, V., Ramos, F. (2016). Model Predictive Control of a Heavy-Duty Truck Based on Gaussian Process. *13th Latin American Robotics Symposium and 4th Brazilian Symposium on Robotics (LARS/SBR 2016)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Ganegedara, T., Ott, L., Ramos, F. (2016). Online Adaptation of Deep Architectures with Reinforcement Learning. *22nd European Conference on Artificial Intelligence (ECAI 2016)*, Amsterdam: IOS Press. [More Information]

Hata, A., Wolf, D., Ramos, F. (2016). Particle Filter Localization on Continuous Occupancy Maps. *2016 International Symposium on Experimental Robotics (ISER 2016)*, Cham: Springer. [More Information]

Senanayake, R., O'Callaghan, S., Ramos, F. (2016). Predicting Spatio-Temporal Propagation of Seasonal Influenza Using Variational Gaussian Process Regression. *The Thirtieth AAAI Conference on Artificial Intelligence (AAAI-16)*, Phoenix: Association for the Advancement of Artificial Intelligence.

Habermann, D., Vido, C., Osorio, F., Ramos, F. (2016). Road Junction Detection from 3D Point Clouds. *2016 International*

Joint Conference on Neural Networks (IJCNN 2016), Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Vivaldini, K., Guizilini, V., Oliveira, M., Martinelli, T., Wolf, D., Ramos, F. (2016). Route planning for active classification with UAVs. *2016 IEEE International Conference on Robotics and Automation (ICRA)*, New Jersey: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Bewley, A., Ge, Z., Ott, L., Ramos, F., Upcroft, B. (2016). Simple online and realtime tracking. *23rd IEEE International Conference on Image Processing (ICIP 2016)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Senanayake, R., Ott, L., O'Callaghan, S., Ramos, F. (2016). Spatio-Temporal Hilbert Maps for Continuous Occupancy Representation in Dynamic Environments. *30th Conference on Neural Information Processing Systems (NIPS 2016)*, Barcelona: Neural Information Processing Systems Foundation.

De Alvis, C., Ott, L., Ramos, F. (2016). Urban Scene Segmentation with Laser-Constrained CRFs. *2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016)*, Daejeon: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

2015

Melkumyan, A., Ramos, F. (2015). Multi-task GPs With Adoption For Each Individual Task [SU05]. *Patent No. 2010201891, 7391*. Peru.

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H. (2015). Gaussian Process Fusion [SU14]. *Patent No. 2010295226, 8825456*.

Guizilini, V., Ramos, F. (2015). A Nonparametric Online Model for Air Quality Prediction. *29th AAAI Conference on Artificial Intelligence (AAAI 2015)*, Austin: AAAI Press.

Souza, J., Mendez, C., Guizilini, V., Vivaldini, K., Colturato, A., Ramos, F., Wolf, D. (2015). Automatic detection of ceratocystis wilt in eucalyptus crops from aerial images. *2015 IEEE International Conference on Robotics and Automation (ICRA)*, Piscataway, NJ USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Ramos, F., Ott, L. (2015). Hilbert maps: scalable continuous occupancy mapping with stochastic gradient descent. *Robotics: Science and Systems XI*, Online: Robotics: Science and Systems. [More Information]

Gerardo Castro, M., Peynot, T., Ramos, F. (2015). Laser-radar data fusion with Gaussian process implicit surfaces. In Luis Mejias, Peter Corke, Jonathan Roberts (Eds.), *Field and Service Robotics: Results of the 9th International Conference*, (pp. 289-302). Cham: Springer. [More Information]

Zhan, K., Faux, S., Ramos, F. (2015). Multi-scale Conditional Random Fields for first-person activity recognition on elders and disabled patients. *Pervasive and Mobile Computing*, 16, 251-267. <a

<http://dx.doi.org/10.1016/j.pmcj.2014.11.004>>[More Information]

Gerardo Castro, M., Peynot, T., Ramos, F., Fitch, R. (2015). Non-parametric consistency test for multiple-sensing-modality data fusion. *18th International Conference on Information Fusion*, Washington, DC: International Society on Information Fusion - ISIF.

Guizilini, V., Ramos, F. (2015). Online self-supervised learning for dynamic object segmentation. *International Journal of Robotics Research*, 34(4-5), 559-581. [More Information]

Abeywardana, S., Ramos, F. (2015). Variational Inference for Nonparametric Bayesian Quantile Regression. *29th AAAI Conference on Artificial Intelligence (AAAI 2015)*, Austin: AAAI Press.

2014

Melkumyan, A., Ramos, F. (2014). Exactly Sparse Gaussian Processes with a New Covariance Function [SU04]. *Patent No. 8849622*.

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H. (2014). A Method of Modeling Large Scale Terrain Data. *Patent No. 8768659*.

Souza, J., Marchant Matus, R., Ott, L., Wolf, D., Ramos, F. (2014). Bayesian optimisation for active perception and smooth navigation. *2014 IEEE International Conference on Robotics and Automation (ICRA)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Marchant Matus, R., Ramos, F. (2014). Bayesian Optimisation for Informative Continuous Path Planning. *2014 IEEE International Conference on Robotics and Automation (ICRA)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Bryson, M., Reid, A., Hung, C., Ramos, F., Sukkarieh, S. (2014). Cost-Effective Mapping Using Unmanned Aerial Vehicles in Ecology Monitoring Applications. In Oussama Khatib, Vijay Kumar, Gaurav Sukhatme (Eds.), *Experimental Robotics (The 12th International Symposium on Experimental Robotics)*, (pp. 509-523). Heidelberg: Springer. [More Information]

Zhan, K., Guizilini, V., Ramos, F. (2014). Dense Motion Segmentation for First-Person Activity Recognition. *The 13th International Conference on Control, Automation, Robotics and Vision*, Piscataway, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Zhan, K., Faux, S., Ramos, F. (2014). Multi-scale Conditional Random Fields for first-person activity recognition. *PerCom 2014: IEEE International Conference on Pervasive Computing and Communications*, Piscataway, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Guizilini, V., Ramos, F. (2014). Multi-task Learning of Visual Odometry Estimators. In Oussama Khatib, Vijay Kumar, Gaurav Sukhatme (Eds.), *Experimental Robotics (The 12th International Symposium on Experimental Robotics)*, (pp. 727-742). Heidelberg: Springer. [More Information]

http://dx.doi.org/10.1007/978-3-642-28572-1_50>[More Information]

Ott, L., Pang, L., Ramos, F., Chawla, S. (2014). On Integrated Clustering and Outlier Detection. *Neural Information Processing Systems Conference 2014*, Montreal: Neural Information Processing Systems Foundation.

Bewley, A., Guizilini, V., Ramos, F., Upcroft, B. (2014). Online self-supervised multi-instance segmentation of dynamic objects. *2014 IEEE International Conference on Robotics and Automation (ICRA)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Gerardo Castro, M., Peynot, T., Ramos, F., Fitch, R. (2014). Robust Multiple-Sensing-Modality Data Fusion using Gaussian Process Implicit Surfaces. *17th International Conference on Information Fusion (Fusion 2014)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE).

Marchant Matus, R., Ramos, F., Sanner, S. (2014). Sequential Bayesian Optimisation for Spatial-Temporal Monitoring. *30th Conference on Uncertainty in Artificial Intelligence (UAI 2014)*, Corvallis, Oregon, United States: AUAI Press.

Schneider, M., Ramos, F. (2014). Transductive Learning for Multi-Task Copula Processes. *21st European Conference on Artificial Intelligence (ECAI 2014)*, Prague, Czech Republic: IOS Press. [More Information]

2013

Melkumyan, A., Ramos, F. (2013). A Method and System for Data Analysis and Synthesis [SU05] (USA). *Patent No. 8438121*.

Reid, A., Ramos, F., Sukkarieh, S. (2013). Bayesian fusion for multi-modal aerial images. *Robotics: Science and Systems IX*, Berlin, Germany: Robotics: Science and Systems.

Reid, A., O'Callaghan, S., Bonilla, E., McCalman, L., Rawling, T., Ramos, F. (2013). Bayesian Joint Inversions for the Exploration of Earth Resources. *23rd International Joint Conference on Artificial Intelligence (IJCAI 2013)*, Palo Alto: AAAI Press.

Gerardo Castro, M., Peynot, T., Ramos, F. (2013). Laser-Radar Data Fusion with Gaussian Process Implicit Surfaces. *9th Conference on Field and Service Robotics (FSR)*, Brisbane, Australia: Australian Robotics and Automation Association (ARAA).

McCalman, L., O'Callaghan, S., Ramos, F. (2013). Multi-Modal Estimation with Kernel Embeddings for Learning Motion Models. *2013 IEEE International Conference on Robotics and Automation (ICRA)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Ott, L., Ramos, F. (2013). Multi-Sensor Clustering using Layered Affinity Propagation. *2013 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Tokyo, Japan: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Guizilini, V., Ramos, F. (2013). Online Self-Supervised Segmentation of Dynamic Objects. *2013 IEEE International Conference on Robotics and Automation (ICRA)*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Information]

Guizilini, V., Ramos, F. (2013). Semi-parametric learning for visual odometry. *International Journal of Robotics Research*, 32(5), 526-546. [More Information]

Ott, L., Ramos, F. (2013). Unsupervised online learning for long-term autonomy. *International Journal of Robotics Research*, 32(14), 1724-1741. [More Information]

2012

Ramos, F., Upcroft, B., Kumar, S., Durrant-Whyte, H. (2012). A Bayesian approach for place recognition. *Robotics and Autonomous Systems*, 60(4), 487-497. [More Information]

Zhan, K., Ramos, F., Faux, S. (2012). Activity Recognition from a Wearable Camera. *12th International Conference on Control, Automation, Robotics and Vision ICARCV 2012*, Guangzhou: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Zhou, C., Hatherly, P., Monteiro, S., Ramos, F., Oppolzer, F., Nettleton, E., Scheduling, S. (2012). Automatic Rock Recognition from Drilling Performance Data. *2012 IEEE International Conference on Robotics and Automation (ICRA 2012)*, Piscataway, NJ, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Marchant Matus, R., Ramos, F. (2012). Bayesian Optimisation for Intelligent Environmental Monitoring. *2012 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Chehade, N., Ozisik, P., Gomez, J., Ramos, F., Pottie, G. (2012). Detecting Stumbles with a Single Accelerometer. *34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society EMBS 2012*, Piscataway: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Garg, S., Singh, A., Ramos, F. (2012). Efficient Space-Time Modeling for Informative Sensing. *Sixth International Workshop on Knowledge*

Discovery from Sensor Data (Sensor-KDD '12), New York: Association for Computing Machinery (ACM). [More Information]

O'Callaghan, S., Ramos, F. (2012). Gaussian process occupancy maps. *International Journal of Robotics Research*, 31(1), 42-62. [More Information]

Sun, Z., Van de Ven, J., Ramos, F., Mao, X., Durrant-Whyte, H. (2012). Inferring laser-scan matching uncertainty with conditional random fields. *Robotics and Autonomous Systems*, 60(1), 83-94. [More Information]

Garg, S., Singh, A., Ramos, F. (2012). Learning Non-Stationary Space-Time Models for Environmental Monitoring. *26th AAAI Conference on Artificial Intelligence AAAI 2012*, Palo Alto: Association for the Advancement of Artificial Intelligence.

Guizilini, V., Ramos, F. (2012). Semi-parametric Models for Visual Odometry. *2012 IEEE International Conference on Robotics and Automation (ICRA 2012)*, Piscataway, NJ, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Ball, A., Rye, D., Ramos, F., Velonaki, M. (2012). Unsupervised clustering of people from 'Skeleton' data. *7th ACM/IEEE International Conference on Human-Robot Interaction*, New York, NY, USA: Association for Computing Machinery (ACM). [More Information]

Ott, L., Ramos, F. (2012). Unsupervised Incremental Learning for Long-Term Autonomy. *2012 IEEE International Conference on Robotics and Automation (ICRA 2012)*, Piscataway, NJ, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

2011

Ball, A., Rye, D., Ramos, F., Velonaki, M. (2011). A Comparison of Unsupervised Learning Algorithms for Gesture Clustering. *6th ACM/IEEE International Conference on Human-Robot Interaction (HRI 2011)*.

Bastos, G., Souza, L., Ramos, F., Ribeiro, C. (2011). A Single-dependent Agent Approach for Stochastic Time-Dependent Truck Dispatching in Open-pit Mining. *14th International IEEE Annual Conference on Intelligent Transportation Systems (ITSC 2011)*, Washington, DC, USA: OmniPress. [More Information]

Zhou, C., Hatherly, P., Ramos, F., Nettleton, E. (2011). An Adaptive Data Driven Model for Characterizing Rock Properties from Drilling Data. *IEEE International Conference on Robotics and Automation ICRA 2011*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Douillard, B., Fox, D., Ramos, F., Durrant-Whyte, H. (2011). Classification and semantic mapping of urban environments. *International Journal of Robotics Research*, 30(1), 5-32. [More Information]

O'Callaghan, S., Ramos, F. (2011). Continuous Occupancy Mapping with Integral Kernels. *25th AAAI Conference on Artificial Intelligence*, USA: Association for the Advancement of Artificial Intelligence.

Van de Ven, J., Ramos, F. (2011). Distributed Anytime MAP Inference. *27th Conference on Uncertainty in Artificial Intelligence UAI 2011*, United States: AUAI Press.

Monteiro, S., Van de Ven, J., Ramos, F., Hatherly, P. (2011). Learning 3D geological structure from drill-rig sensors for automated mining. *22nd International Joint Conference on Artificial Intelligence*, Menlo Park, California, USA: AAAI Press. [More Information]

O'Callaghan, S., Singh, S., Alempijevic, A., Ramos, F. (2011). Learning Navigational Maps by Observing Human Motion

Patterns. *IEEE International Conference on Robotics and Automation ICRA 2011*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Granstrom, K., Schon, T., Nieto, J., Ramos, F. (2011). Learning to close loops from range data. *International Journal of Robotics Research*, 30(14), 1728-1754. [More Information]

Reid, A., Ramos, F., Sukkarieh, S. (2011). Multi-Class Classification of Vegetation in Natural Environments Using an Unmanned Aerial System. *IEEE International Conference on Robotics and Automation ICRA 2011*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Melkumyan, A., Ramos, F. (2011). Multi-kernel Gaussian processes. *22nd International Joint Conference on Artificial Intelligence*, Menlo Park, California, USA: AAAI Press.

Zubizarreta-Rodriguez, J., Ramos, F. (2011). Multi-Task Learning of System Dynamics with Maximum Information Gain. *IEEE International Conference on Robotics and Automation ICRA 2011*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Melkumyan, A., Ramos, F. (2011). Non-Parametric Bayesian Learning for Resource Estimation in the Autonomous Mine. *35th APCOM Symposium 2011*, Carlton, Victoria: The Australasian Institute of Mining and Metallurgy.

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H. (2011). Non-stationary dependent Gaussian processes for data fusion in large-scale terrain modeling. *IEEE International Conference on Robotics and Automation ICRA 2011*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Guizilini, V., Ramos, F. (2011). Visual Odometry Learning for Unmanned Aerial Vehicles. *IEEE International Conference on Robotics and Automation ICRA 2011*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

2010

Ramos, F., Melkumyan, A. (2010). A Method and System of Data Modelling [SU04]. *Patent No. 2010/00100*. South Africa.

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H. (2010). A Mine on Its Own - Fully Autonomous, Remotely Operated Mine. *IEEE Robotics and Automation Magazine*, 17(2), 63-73. [More Information]

Bryson, M., Reid, A., Ramos, F., Sukkarieh, S. (2010). Airborne Vision-Based Mapping and Classification of Large Farmland Environments. *Journal of Field Robotics*, 27(5), 632-655. [More Information]

Van de Ven, J., Ramos, F., Tipaldi, G. (2010). An integrated probabilistic model for scan-matching, moving object detection and motion estimation. *2010 IEEE International Conference on Robotics and Automation*, Anchorage, Alaska: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Bryson, M., Reid, A., Ramos, F., Sukkarieh, S. (2010). An unmanned airborne system for vision-based mapping and classification in ecological monitoring applications. *Australasian Remote Sensing & Photogrammetry Conference*.

Zhou, C., Monteiro, S., Hatherly, P., Ramos, F., Nettleton, E., Oppolzer, F. (2010). Automated rock recognition with wavelet feature space projection and gaussian process classification. *2010 IEEE International Conference on Robotics and Automation*, Anchorage, Alaska: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Douillard, B., Fox, D., Ramos, F., Durrant-Whyte, H. (2010). Classification and Semantic Mapping of Urban Environments. *International Journal of Robotics Research*, 30(1), 5-32. [More Information]

O'Callaghan, S., Ramos, F., Durrant-Whyte, H. (2010). Contextual Occupancy Maps Incorporating Sensor and Location Uncertainty. *2010 IEEE International Conference on Robotics and Automation*, Anchorage, Alaska: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Bryson, M., Reid, A., Hung, C., Ramos, F., Sukkarieh, S. (2010). Cost-Effective Mapping using Unmanned Aerial Vehicles in Ecology Monitoring Applications. *12th International Symposium on Experimental Robotics 2010*.

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H. (2010). Heteroscedastic gaussian processes for data fusion in large scale terrain modeling. *2010 IEEE International Conference on Robotics and Automation*, Anchorage, Alaska: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Zhou, C., Ramos, F., Nettleton, E. (2010). Improving Kernel Methods through Complex Data Mapping. *10th IEEE International Conference on Data Mining (ICDM 2010)*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Sun, Z., Van de Ven, J., Ramos, F., Mao, X., Durrant-Whyte, H. (2010). Inferring Motion Uncertainty from Shape-Matching. *2010 IEEE International Conference on Robotics and Automation*, Anchorage, Alaska: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H. (2010). Large-scale terrain modeling from multiple sensors with dependent Gaussian processes. *2010 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Singh, A., Ramos, F., Durrant-Whyte, H., Kaiser, W. (2010). Modeling and decision making in spatio-temporal processes for environmental surveillance. *2010 IEEE International Conference on Robotics and Automation*, Anchorage, Alaska: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Guizilini, V., Ramos, F. (2010). Multi-Task Learning of Visual Odometry Estimators. *12th International Symposium on Experimental Robotics 2010*.

Cadena, C., Galvez-Lopez, D., Ramos, F., Tardos, J., Neira, J. (2010). Robust Place Recognition with Stereo Cameras. *2010 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Piscataway, NJ: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Kadkhodaie-Ilkhchi, A., Monteiro, S., Ramos, F., Hatherly, P. (2010). Rock recognition from MWD data: A comparative study of boosting, neural networks, and fuzzy logic. *IEEE Geoscience and Remote Sensing Letters*, 7(4), 680-684. [More Information]

2009

Douillard, B., Brooks, A., Ramos, F. (2009). A 3D laser and vision based classifier. *5th International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP 2009)*, United States of America: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Melkumyan, A., Ramos, F. (2009). A Sparse Covariance Function for Exact Gaussian Process Inference in Large Datasets. *Twenty-first International Joint Conference on Artificial Intelligence (IJCAI-09)*, Menlo Park, California: AAAI Press.

Monteiro, S., Murphy, R., Ramos, F., Nieto, J. (2009). Applying Boosting for Hyperspectral Classification of Ore-Bearing Rocks. *2009 IEEE International Workshop on Machine Learning For Signal Processing (MLSP 2009)*, Grenoble, France: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Monteiro, S., Ramos, F., Hatherly, P. (2009). Conditional random fields for rock characterization using drill measurements. *Eight International Conference on Machine Learning and Applications*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

O'Callaghan, S., Ramos, F., Durrant-Whyte, H. (2009). Contextual Occupancy Maps using Gaussian Processes. *2009 IEEE International Conference on Robotics and Automation*, Kobe, Japan: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H. (2009). Evaluation of gaussian processes for large scale terrain modeling. *2009 Australasian Conference on Robotics and Automation*, Sydney: Australian Robotics and Automation Association (ARAA).

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H., Blair, A. (2009). Gaussian Process Modeling of Large Scale Terrain. *2009 IEEE International Conference on Robotics and Automation*, Kobe, Japan: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Vasudevan, S., Ramos, F., Nettleton, E., Durrant-Whyte, H.

(2009). Gaussian Process Modeling of Large-Scale Terrain. *Journal of Field Robotics*, 26(10), 812-840. [More Information]

Ramos, F., Kadous, W., Fox, D. (2009). Learning to Associate Image Features with CRF-Matching. In Oussama Khatib, Vijay Kumar, George J. Pappas (Eds.), *Springer Tracts in Advanced Robotics-Experimental Robotics-The Eleventh International Symposium*, (pp. 505-514). Germany: Springer. [More Information]

Granstrom, K., Callmer, J., Ramos, F., Nieto, J. (2009). Learning to Detect Loop Closure from Range Data. *2009 IEEE International Conference on Robotics and Automation*, Kobe, Japan: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Tipaldi, G., Ramos, F. (2009). Motion clustering and estimation with conditional random fields. *2009 IEEE/RSJ International Conference on Intelligent Robots and Systems*, USA: Institute of Electrical and Electronics Engineers (IEEE). [More Information]

Ramos, F. (2009). *Recognising, Representing and Mapping in Field Robotics: A Statistical View to Perception in Unstructured Environments*. Germany: VDM Verlag Dr Muller.

Ramos, F., Brock, O., Trinkle, J. (2009). *Robotics: Science and Systems IV*. United States: MIT Press.

Zhou, C., Monteiro, S., Hatherly, P., Ramos, F., Nettleton, E., Oppolzer, F. (2009). Spectral feature selection for automated rock recognition using gaussian process classification. *2009 Australasian Conference on Robotics and Automation*, Sydney: Australian Robotics and Automation Association (ARAA).

2008

Ramos, F., Sureshkumar, S., Upcroft, B., Durrant-Whyte, H. (2008). A natural feature representation for unstructured environments. *IEEE Transactions on Robotics*, 24(6), 1329-1340. [More Information]

Ramos, F., Nieto, J., Durrant-Whyte, H. (2008). Combining Object Recognition and SLAM for Extended Map Representations. In Oussama Khatib, Vijay Kumar, Daniela Rus (Eds.), *Experimental Robotics: The 10th International Symposium on Experimental Robotics*, (pp. 55-64). Berlin, Germany: Springer. [More Information]

Douillard, B., Fox, D., Ramos, F. (2008). Laser and Vision Based Outdoor Object Mapping. *Robotics: Science and Systems IV 2008 Conference*, Zurich, Switzerland: Institute of Robotics and Intelligent Systems (IRIS).

Upcroft, B., Ridley, M., Ong, L., Douillard, B., Kaupp, T., Sureshkumar, S., Bailey, T., Ramos, F., Makarenko, A., Brooks, A., Sukkarieh, S., Durrant-Whyte, H. (2008). Multi-level State Estimation in an Outdoor Decentralised Sensor Network. In Oussama Khatib, Vijay Kumar, Daniela Rus (Eds.), *Experimental Robotics: The 10th International Symposium on Experimental Robotics*, (pp. 355-365). Berlin, Germany: Springer. [More Information]

Callmer, J., Granstrom, K., Nieto, J., Ramos, F. (2008). Tree of Words for Visual Loop Closure Detection in Urban SLAM.

Australasian Conference on Robotics and Automation 2008, Canberra, Australia: Australian Robotics and Automation Association (ARAA).

2007

Douillard, B., Fox, D., Ramos, F. (2007). A Spatio-Temporal Probabilistic Model for Multi-Sensor Object Recognition. *IEEE/RSJ 2007 International Conference on Intelligent Robots and Systems (IROS 2007)*, USA: Institute of Electrical and Electronics Engineers (IEEE).

Douillard, B., Upcroft, B., Kaupp, T., Ramos, F., Durrant-Whyte, H. (2007). Bayesian filtering over compressed appearance states. *Australasian Conference on Robotics and Automation (ACRA)*, Brisbane, Australia: Australian Robotics and Automation Association (ARAA).

Ramos, F., Dickson, B., Sureshkumar, S. (2007). Denoising Aerial Gamma-Ray Surveying Through Non-Linear Dimensionality Reduction. *Journal of Field Robotics*, 24(10), 849-861. <http://dx.doi.org/10.1002/rob.20220> [More Information]

Ramos, F., Hatherly, P. (2007). Learning to Characterise Rock Properties from Geophysical Logs. *2007 Australian Mining Technology Conference 'Smart Technologies for Overcoming the Skills Shortage'*, Carlton, Victoria, Australia: The Australasian Institute of Mining and Metallurgy.

Underwood, J., Scheduling, S., Ramos, F. (2007). Real-Time Map Building with Uncertainty using Colour Camera and Scanning Laser. *Australasian Conference on Robotics and Automation (ACRA)*, Brisbane, Australia: Australian Robotics and Automation Association (ARAA).

Ramos, F., Nieto, J., Durrant-Whyte, H. (2007). Recognising and Modelling Landmarks to Close Loops in Outdoor SLAM. *2007 IEEE International Conference on Robotics and Automation ICRA 2007*, United States: Institute of Electrical and Electronics Engineers (IEEE).

Kaupp, T., Douillard, B., Ramos, F., Makarenko, A., Upcroft, B. (2007). Shared Environment Representation for a Human-Robot Team Performing Information Fusion. *Journal of Field Robotics*, 24(11), 911-942. <http://dx.doi.org/10.1002/rob.20201> [More Information]

2006

Sureshkumar, S., Ramos, F., Douillard, B., Ridley, M., Durrant-Whyte, H. (2006). A Novel Visual Perception Framework. *ICARCV 2006 Ninth International Conference on Control, Automation, Robotics and Vision*, Singapore: Institute of Electrical and Electronics Engineers (IEEE).

Ramos, F., Nieto, J., Durrant-Whyte, H. (2006). Combining Object Recognition and SLAM for Extended Map Representations. *10th International Symposium on Experimental Robotics (ISER)*. 10th International Symposium on Experimental Robotics (ISER).

Upcroft, B., Ridley, M., Ong, L., Douillard, B., Kaupp, T., Sureshkumar, S., Bailey, T., Ramos, F., Makarenko, A., Brooks, A., Sukkarieh, S., Durrant-Whyte, H. (2006). Multi-level State Estimation in an Outdoor Decentralised Sensor Network. *10th International Symposium on Experimental Robotics (ISER)*. 10th International Symposium on Experimental Robotics (ISER).

Wang, X., Sureshkumar, S., Ramos, F., Kaupp, T., Upcroft, B., Durrant-Whyte, H. (2006). Probabilistic Classification of Hyperspectral Images by Learning Nonlinear Dimensionality Reduction Mapping. *9th International Conference on*

Information Fusion (Fusion 2006), Florence, Italy: Institute of Electrical and Electronics Engineers (IEEE).

Ramos, F., Upcroft, B., Sureshkumar, S., Durrant-Whyte, H. (2006). Recognising and Segmenting Objects in Natural Environments. *2006 IEEE/RSJ International Conference on Intelligent Robots and Systems*, USA: Institute of Electrical and Electronics Engineers (IEEE).

2005

Ramos, F., Upcroft, B., Sureshkumar, S., Durrant-Whyte, H. (2005). A Bayesian Approach for Place Recognition. *IJCAI Workshop Reasoning with Uncertainty in Robotics*, United States of America: Professional Book Center.

Sureshkumar, S., Ramos, F., Upcroft, B., Durrant-Whyte, H. (2005). A Statistical Framework for Natural Feature Representation. *2005 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Canada: OmniPress.

Sureshkumar, S., Ramos, F., Upcroft, B., Ridley, M., Ong, L., Sukkarieh, S., Durrant-Whyte, H. (2005). A Stochastic Model for Natural Feature Representation. *8th International Conference on Information Fusion (Fusion 2005)*, United States of America: Institute of Electrical and Electronics Engineers (IEEE).

Kaupp, T., Makarenko, A., Ramos, F., Upcroft, B., Williams, S., Durrant-Whyte, H. (2005). Adaptive Human Sensor Model in Sensor Networks. *8th International Conference on Information Fusion (Fusion 2005)*, United States of America: Institute of Electrical and Electronics Engineers (IEEE).

Wang, X., Ramos, F. (2005). Applying Structural EM in Autonomous Planetary Exploration Missions using Hyperspectral Image Spectroscopy. *2005 IEEE International Conference on Robotics and Automation: Robots Get Closer To Humans ICRA 2005*, United States: Institute of Electrical and Electronics Engineers (IEEE).

Kaupp, T., Makarenko, A., Ramos, F., Durrant-Whyte, H. (2005). Human Sensor Model for Range Observations. *IJCAI Workshop Reasoning with Uncertainty in Robotics*, United States of America: Professional Book Center.

Ramos, F., Durrant-Whyte, H., Upcroft, B. (2005). Learning Articulated Motion Structures with Bayesian Networks. *8th International Conference on Information Fusion (Fusion 2005)*, United States of America: Institute of Electrical and Electronics Engineers (IEEE).

Ramos, F., Sureshkumar, S., Upcroft, B., Durrant-Whyte, H. (2005). Representing Natural Objects in Unstructured Environments. *NIPS 2005 Workshop on Machine Learning Based Robotics in Unstructured Environments*, Online: NIPS Workshop, 2005 Conference organisers.