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Abstract—This paper describes Atlas, a hybrid metri- calltopological approach to SLAM that achieves efficient mapping of large-scale environments. The representation is a graph of coordinate frames, with each vertex in the ...

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The problem of simultaneous localization and mapping, also known as SLAM, has attracted immense attention in the mobile robotics literature. SLAM addresses the prob- lem of building a map of an unknown environment from a sequence ...

[Cited by 105](#) - [Related Articles](#) - [Web Search](#) - [BL Direct](#)[Hierarchical SLAM: Real-Time Accurate Mapping of Large Environments](#) - all 6 versions »[C Estrada, J Neira, JD Tardos - Robotics, IEEE Transactions on \[see also Robotics and ..., 2005 - ieeexplore.ieee.org](#)

Abstract—In this paper, we present a hierarchical mapping method that allows us to obtain accurate metric maps of large en- vironments in real time. The lower (or local) map level is composed of a set of local maps that are ...

[Cited by 54](#) - [Related Articles](#) - [Web Search](#) - [BL Direct](#)[Cooperative concurrent mapping and localization](#) - all 13 versions »[JW Fenwick, PM Newman, JJ Leonard, C MIT - Robotics and Automation, 2002. Proceedings. ICRA'02. IEEE ..., 2002 - ieeexplore.ieee.org](#)

Absrrucrduonomous vehicles require the ability to build maps of an unknown environment while concurrently using these maps for navigation. Current algorithms for this concurrent mapping and localization (CML) problem have ...

[Cited by 55](#) - [Related Articles](#) - [Web Search](#) - [BL Direct](#)[Towards lazy data association in SLAM](#) - all 2 versions »[D Hahnel, W Burgard, B Wegbreit, S Thrun - Proceedings of the 11th International Symposium of Robotics ... - Springer](#)

Abstract. We present a lazy data association algorithm for the simultaneous localization and mapping (SLAM) problem. Our approach uses a tree-structured Bayesian representation of map posteriors that makes it possible to revise ...

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Page 1. FastSLAM: A Factored Solution to the Simultaneous Localization and Mapping Problem With Unknown Data Association Michael Montemerlo 11th July 2003 CMU-RI-TR-03-28 The Robotics Institute Carnegie Mellon University ...

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Abstracf-Simultaneous Localisation And Mapping (SLAM) is a stochastic map building method which permits consistent robot navigation without requiring an a priori map. The map is built incrementally as the robot observes the ...

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Page 1. FastSLAM: An Efficient Solution to the Simultaneous Localization And Mapping Problem with Unknown Data Association Sebastian Thrun 1, Michael Montemerlo 1, Daphne Koller 1, Ben Wegbreit 1 Juan Nieto 2, and Eduardo Nebot 2 ...

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Page 1. Visually Navigating the RMS Titanic with SLAM Information Filters Ryan Eustice and Hanumant Singh Woods Hole Oceanographic Institution Woods Hole, MA, USA { ryan,hanu } @whoi.edu John Leonard ...

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[SLAM-Loop Closing with Visually Salient Features](#) - [all 3 versions](#) »

P Newman, K Ho - [Robotics and Automation, 2005. Proceedings of the 2005 IEEE ...](#), 2005 - [ieeexplore.ieee.org](#)

Abstract— Within the context of Simultaneous Localisation and Mapping (SLAM), “loop closing” is the task of deciding whether or not a vehicle has, after an excursion of arbitrary length, returned to a previously visited area. ...

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[Outdoor SLAM using visual appearance and laser ranging](#) - [all 5 versions](#) »

P Newman, D Cole, K Ho - [IEEE International Conference on Robotics and Automation, 2006 - robocup.csu.edu.cn](#)

Abstract— This paper describes a 3D SLAM system using information from an actuated laser scanner and camera installed on a mobile robot. The laser samples the local geometry of the environment and is used to incrementally build a ...

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[Mapping partially observable features from multiple uncertain vantage points.](#) - [all 12 versions](#) »

JJ Leonard, RJ Rikoski, PM Newman, M Bosse - [International Journal of Robotics Research, 2002 - robots.ox.ac.uk](#)

This paper presents a technique for mapping partially observable features from multiple un- certain vantage points. The problem of concurrent mapping and localization (CML) is stated as follows: starting from an initial known ...

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[Consistent, convergent, and constant-time SLAM](#) - [all 7 versions](#) »

JJ Leonard, P Newman - [International Joint Conference on Artificial Intelligence, 2003 - cml.mit.edu](#)

This paper presents a new efficient algorithm for si- multaneous localization and mapping (SLAM), us- ing multiple overlapping submaps, each built with respect to a local frame of reference defined by one of the features in the ...

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[Linear time vehicle relocation in SLAM](#) - [all 7 versions](#) »

J Neira, JD Tardos, JA Castellanos - [Robotics and Automation, 2003. Proceedings. ICRA'03. IEEE ...](#), 2003 - [ieeexplore.ieee.org](#)

I. INTRODUCTION The objective of simultaneous localization and mapping (SLAM) is to use the information obtained by sensors mounted on a vehicle to build and update a map of the environment and compute the vehicle location in that ...

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[Towards robust data association and feature modeling for concurrent mapping and localization](#) - [all 10 versions](#) »

JJ Leonard, PM Newman, RJ Rikoski, J Neira, JD ... - [Proceedings of the Tenth International Symposium on Robotics ...](#), 2001 - Springer

Abstract. One of the most challenging aspects of concurrent mapping and localization (CML) is the problem of data association. Because of uncertainty in the origins of sensor measurements, it is difficult to determine the ...

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[The revisiting problem in mobile robot map building: A hierarchical Bayesian approach](#) - [all 3 versions](#) »

B Stewart, J Ko, D Fox, K Konolige - [Conf. on Uncertainty in Artificial Intelligence, 2003 - cs.washington.edu](#)

Page 1. The Revisiting Problem in Mobile Robot Map Building: A Hierarchical Bayesian Approach Benjamin Stewart † Jonathan Ko † Dieter Fox † Kurt Konolige ‡ Dept. of Computer Science & Engineering ...

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[A comparison of maximum likelihood methods for appearance-based minimalistic SLAM](#) - [all 13 versions](#) »

PE Rybski, SI Roumeliotis, M Gini, N ... - [Robotics and Automation, 2004. Proceedings. ICRA'04. 2004 ...](#), 1926 - [ieeexplore.ieee.org](#)

Page 1 0-7803-8232-3/04/Si 7.00 ©2004 IEEE 1777 Proceedings of the 2004 IEEE

International Conference on Robotics & Automation New Orleans, LA April 2004 A Comparison of Maximum Likelihood Methods for Appearance-Based Minimalistic ...

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[Simultaneous localization and mapping: part I](#) - [all 10 versions](#) »

H Durrant-Whyte, T Bailey - [IEEE Robotics & Automation Magazine, 2006 - w3.mech.uwa.edu.au](#)

The simultaneous localization and mapping (SLAM) problem asks if it is possible for a mobile robot to be placed at an unknown location in an unknown environment and for the robot to incrementally build a consistent map of this ...

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[Navigation and mapping in large unstructured environments.](#) - [all 5 versions](#) »

J Guivant, E Nebot, J Nieto, F Masson - [International Journal of Robotics Research, 2004 - icr.uns.edu.ar](#)

This paper addresses the problem of autonomous navigation in very large unstructured environments. A new Hybrid Metric Map (HYMM) structure is presented that combines feature maps with other metric representation in a consistent ...

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[Improved techniques for grid mapping with rao-blackwellized particle filters](#) - [all 4 versions](#) »

G Grisetti, C Stachniss, W Burgard - [IEEE Transactions on Robotics, 2007 - informatik.uni-freiburg.de](#)

Abstract— Recently, Rao-Blackwellized particle filters have been introduced as an effective means to solve the simultaneous localization and mapping problem. This approach uses a particle filter in which each particle carries an ...

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[\[PDF\] Simultaneous Localisation and Mapping \(SLAM\): Part I The Essential Algorithms](#) - all 2 versions »

H Durrant-Whyte, T Bailey - *Robotics and Automation Magazine*, 2006 - acfr.usyd.edu.au

Abstract—This tutorial provides an introduction to Simultaneous Localisation and Mapping (SLAM) and the extensive research on SLAM that has been undertaken over the past decade. SLAM is the process by which a mobile robot can build ...

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[Bayesian Inference in the Space of Topological Maps](#) - all 7 versions »

A Ranganathan, E Menegatti, F Dellaert - *Robotics, IEEE Transactions on* [see also *Robotics and ...*, 2006 - ieeexplore.ieee.org

Abstract—While probabilistic techniques have previously been investigated extensively for performing inference over the space of metric maps, no corresponding general-purpose methods exist for topological maps. We ...

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[\[PDF\] Simultaneous Localisation and Mapping \(SLAM\): Part II State of the Art](#) - all 4 versions »

T Bailey, H Durrant-Whyte - *Robotics and Automation Magazine*, 2006 - quasar.inf.elte.hu

SLAM is the process by which a mobile robot can build a map of the environment and at the same time use this map to compute its location. The past decade has seen rapid and exciting progress in solving the SLAM problem together ...

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[Constrained Initialization of the Simultaneous Localization and Mapping Algorithm](#) - all 2 versions »

SB Williams, H Durrant-Whyte, G Dissanayake - *The International Journal of Robotics Research*, 2003 - ijr.sagepub.com

In this paper we present a novel feature initialization technique for the Simultaneous Localization and Mapping (SLAM) algorithm. The initialization scheme extends previous approaches for identifying new confirmed features ...

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[A hierarchical bayesian approach to the revisiting problem in mobile robot map building](#) - all 4 versions »

D Fox, J Ko, K Konolige, B Stewart - *Proc. of the Int. Symposium of Robotics Research (ISRR)* - Springer

Abstract. We present an application of hierarchical Bayesian estimation to robot map building. The revisiting problem occurs when a robot has to decide whether it is seeing a previously-built portion of a map, or is exploring new ...

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[The effects of partial observability in SLAM](#) - all 8 versions »

J Andrade-Cetto, A Sanfeliu - *Robotics and Automation, 2004. Proceedings. ICRA'04. 2004 ...* - ieeexplore.ieee.org

Page 1 0-7803-8232-3/04/Si 7.00 ©2004 IEEE 397 Proceedings of the 2004 IEEE International Conference on Robotics & Automation New Orleans, LA April 2004 The Effects of Partial Observability in SLAM Juan Andrade-Cetto and Alberto ...

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[\[PDF\] A tree parameterization for efficiently computing maximum likelihood maps using gradient descent](#)

G Grisetti, C Stachniss, S Grzonka, W Burgard - *Proc. of Robotics: Science and Systems (RSS)*, 2007 - informatik.uni-freiburg.de

Abstract— In 2006, Olson et al. presented a novel approach to address the graph-based simultaneous localization and mapping problem by applying stochastic gradient descent to minimize the error introduced by constraints. Together ...

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PE Rybski, SI Roumeliotis, M Gini, N ... - *Intelligent Robots and Systems, 2003.(IROS 2003). ...*, 2003 - ieeexplore.ieee.org

Abstract—This paper addresses the problem of Simultaneous Localization and Mapping (SLAM) for the case of very small, resource-limited robots which have poor odometry and can typically only carry a single monocular camera. We ...

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[\[PDF\] Simultaneous localization and mapping \(SLAM\): part II](#) - all 3 versions »

T Bailey, H Durrant-Whyte - *IEEE Robotics & Automation Magazine*, 2006 - jasonvitt.googlepages.com

Simultaneous localization and mapping (SLAM) is the process by which a mobile robot can build a map of the environment and, at the same time, use this map to compute its location. The past decade has seen rapid and exciting progress ...

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AS Paul, EA Wan - *Proc. IEEE International Joint Conference on Neural Networks*, 2005 - csee.ogi.edu

Adaptive Systems Lab, Department of Computer Science and Electrical Engineering OGI School of Science and Engineering, Oregon Health & Science University 20000 NW Walker Rd., Beaverton, OR 97006 ... In this paper, we address a method ...

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[Implementing Map Based Navigation in Guido, the Robotic SmartWalker](#) - all 3 versions »

D Rodriguez-Losada, F Matia, A Jimenez, R Galan, G ... - *Robotics and Automation, 2005. Proceedings of the 2005 IEEE ...*, 2005 - ieeexplore.ieee.org

Abstract – Guido is a healthcare robot that serves as support and navigation aid for the frail and visually impaired. The previous assistive navigation software has been replaced by a full map based control, including real time ...

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[\[PDF\] Mapping Large Loops with a Single Hand-Held Camera](#) - all 5 versions »

LA Clemente, AJ Davison, ID Reid, J Neira, JD ... - *Robotics: Science and Systems (RSS)*, Atlanta, GA, available ..., 2007 - doc.ic.ac.uk

Page 1. Mapping Large Loops with a Single Hand-Held Camera Laura A. Clemente

Instituto de Investigacion en Ingenieria de Aragon Universidad de Zaragoza,

Spain laura.clemente@unizar.es Andrew J. Davison Dept. ...

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[Simultaneous localization and mapping using the Geometric Projection Filter and correspondence graph ...](#) - [all 3 versions](#) »

C Pradalier, S Sekhavat - *Advanced Robotics*, 2003 - Springer

Abstract—A common way of localization in robotics is using triangulation on a system composed of a sensor and some landmarks (which can be artificial or natural). First, when no identifying marks are set on the landmarks, their ...

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[An Efficient Data Association Approach to Simultaneous Localization and Map Building](#) - [all 5 versions](#) »

S Zhang, L Xie, M Adams - *The International Journal of Robotics Research*, 2005 - ijr.sagepub.com

The International Journal of Robotics Research Sen Zhang, Lihua Xie and Martin

Adams An Efficient Data Association Approach to Simultaneous Localization and

Map Building ... The International Journal of Robotics Research Additional ...

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[Incorporation of Feature Tracking into Simultaneous Localization and Map Building via Sonar Data](#) - [all 4 versions](#) »

YL Ip, AB Rad - *Journal of Intelligent and Robotic Systems*, 2004 - Springer

(Received: 4 March 2003; in final form: 15 October 2003) Abstract. Simultaneous

Localization and Map building (SLAM) is referred to as the ability of an

Autonomous Mobile Robot (AMR) to incrementally extract the surrounding ...

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JW Langelaan - 2006 - aero.psu.edu

A DISSERTATION SUBMITTED TO THE DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS AND

THE COMMITTEE ON GRADUATE STUDIES OF STANFORD UNIVERSITY IN PARTIAL FULFILLMENT

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[PDF Robust Navigation and Mapping Architecture for Large Environments](#)

F Masson, J Guivant, E Nebot - *Journal of Robotic Systems*, 2003 - icr.uns.edu.ar

Page 1. 1 Robust Navigation and Mapping Architecture for Large Environments Favio

Masson, Jose Guivant, Eduardo Nebot F. Masson is with the Departamento de Ingenieria

Electrica, Universidad Nacional del Sur, Argentina. ...

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[PDF Single-Cluster Spectral Graph Partitioning for Robotics Applications](#) - [all 17 versions](#) »

E Olson, M Walter, S Teller, J Leonard - *Robotics: Science and Systems, RSS* - people.csail.mit.edu

Abstract— We present SCGP, an algorithm for finding a single cluster of

well-connected nodes in a graph. The general problem is NP-hard, but our

algorithm produces an approximate solution in $O(N^2)$ time by considering ...

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[Toward Multidimensional Assignment Data Association in Robot Localization and Mapping](#) - [all 2 versions](#) »

WS Wijesoma, LDL Perera, MD Adams - ieeexplore.ieee.org

Abstract—It is well accepted that the data association or the correspondence

problem is one of the toughest problems faced by any state estimation algorithm.

Particularly in robotics, it is not very well addressed. This paper ...

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G Grisetti, GD Tipaldi, C Stachniss, W Burgard, D ... - *Proc. of the IEEE Int. Conf. on Robotics & Automation (ICRA)* ..., 2006 - robocup.csu.edu.cn

Abstract— Recently, Rao-Blackwellized particle filters have become a popular

tool to solve the simultaneous localization and mapping problem. This technique

applies a particle filter in which each particle carries an individual map ...

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G Grisetti, GD Tipaldi, C Stachniss, W Burgard, D ... - *Robotics and Autonomous Systems*, 2007 - Elsevier

Rao-Blackwellized particle filters have become a popular tool to solve the

simultaneous localization and mapping problem. This technique applies a particle

filter in which each particle carries an individual map of the environment. ...

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[Robocentric map joining: Improving the consistency of EKF-SLAM](#) - [all 5 versions](#) »

JA Castellanos, R Martinez-Cantin, JD Tardós, J ... - *Robotics and Autonomous Systems*, 2007 - Elsevier

In this paper 1 we study the Extended Kalman Filter approach to simultaneous

localization and mapping (EKF-SLAM), describing its known properties and

limitations, and concentrate on the filter consistency issue. We show that ...

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[PDF Exploration and Mapping with Mobile Robots](#) - [all 4 versions](#) »

C Stachniss - freidok.uni-freiburg.de

Viele Anwendungen aus dem Bereich der mobilen Robotik setzen eine geeignete Repräsentation der Umgebung voraus. Aus diesem Grund ist das Lernen von Umgebungsmodellen eines der grundlegenden Probleme für Roboter, dem schon ...

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[A method for dealing with assignment ambiguity](#) - [all 3 versions](#) »

[SJ Julier, JK Uhlmann, D Nicholson](#) - [American Control Conference, 2004. Proceedings of the 2004](#) - [ieeexplore.ieee.org](#)

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American Control Conference Boston, Massachusetts June 30 - July 2, 2004 A

Method for Dealing with Assignment Ambiguity Simon J. Julier, Jeffrey K. ...

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[On the treatment of relative-pose measurements for mobile robot localization](#) - [all 4 versions](#) »

[AI Mourikis, SI Roumeliotis](#) - [Proc. IEEE Int. Conf. on Robotics and Automation](#) - [robocup.csu.edu.cn](#)

Abstract— In this paper, we study the problem of localization using relative-state estimates. It is shown, that when the same exteroceptive sensor measurement is processed for the computation of two consecutive ...

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[Visually Mapping the RMS Titanic: Conservative Covariance Estimates for SLAM Information Filters](#) - [all 2 versions](#) »

[RM Eustice, H Singh, JJ Leonard, MR Walter](#) - [The International Journal of Robotics Research, 2006](#) - [ijr.sagepub.com](#)

This paper describes a vision-based, large-area, simultaneous localization and mapping (SLAM) algorithm that respects the low-overlap imagery constraints typical of underwater vehicles while exploiting the inertial sensor ...

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[Detecting Loop Closure with Scene Sequences](#) - [all 6 versions](#) »

[KL Ho, P Newman](#) - [International Journal of Computer Vision, 2007](#) - [Springer](#)

Abstract. This paper is concerned with “loop closing” for mobile robots.

Loop closing is the problem of correctly asserting that a robot has returned to a previously visited area. It is a particularly hard but important ...

[Cited by 6](#) - [Related Articles](#) - [Web Search](#) - [BL Direct](#)

[Biologically inspired machines: Mapping and localization](#)

[I Kahn, Y Mazor](#) - [2002](#) - [ai.mit.edu](#)

The task of building a robot capable of concurrently mapping and localizing (CML) in an unexplored and dynamic environment is an outstanding problem in the field of robotic autonomy. Although there are implementations of CML that ...

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[Consistency improvement for SLAM-EKF for indoor environments](#) - [all 3 versions](#) »

[D Rodriguez-Losada, F Matia, A Jimenez, R Galan](#) - [IEEE Intl. Conf. on Robotics and Automation, 2006](#) - [robocup.csu.edu.cn](#)

I. INTRODUCTION A mobile robot requires an internal representation (map) of the environment to perform its task. If true autonomy is desired, the robot has to automatically build that map while localizing itself in it, which is known ...

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[Robust sonar feature detection for the SLAM of mobile robot](#)

[J Choi, S Ahn, WK Chung](#) - [Intelligent Robots and Systems, 2005.\(IROS 2005\). 2005 IEEE/ ..., 2005](#) - [ieeexplore.ieee.org](#)

SLAM. This paper proposes a robust sonar feature detection algorithm. This algorithm gives feature detection methods for both point features and line features. The point feature detection method is based on the TBF [1] ...

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[Simultaneous Localization and Mapping 2002 Summer School](#) - [all 3 versions](#) »

[E Nebot](#) - [Australian Centre for Field Robotics, University of Sydney, ..., 2002](#) - [lasmea.univ-bpclermont.fr](#)

Reliable localization is an essential component of any autonomous vehicle system. The basic navigation loop is based on dead reckoning sensors that predict high frequency vehicle manoeuvres and low frequency absolute ...

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[Explore and Return: Experimental Validation of Real-Time Concurrent Mapping and Localization](#) - [all 10 versions](#) »

[PNJ Leonard, JD Tardos, J Neira](#) - [IEEE Int. Conf. on Robotics and Automation, 2002](#) - [wv.inf.tu-dresden.de](#)

Abstract— This paper describes a real-time implementation of feature-based concurrent mapping and localization (CML) running on a mobile robot in a dynamic indoor environment. Novel characteristics of this work include: (1) a ...

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[E Nebot, F Masson, J Guivant, H Durrant-Whyte](#) - [Experimental Robotics VIII](#) - [Springer](#)

Abstract. This paper addresses the problem of Simultaneous Localization and Mapping (SLAM) when working in very large environments. A Hybrid architecture is presented that makes use of the Extended Kalman Filter to perform SLAM in a ...

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The International Journal of Robotics Research Cheng Chen and Han Wang Environment ... Appearance-Based Topological Bayesian Inference for

Loop-Closing Detection in a Cross-Country ... The International Journal of ...
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[PDF Automated multisensor polyhedral model acquisition](#)

D Ortin, JMM Montiel, A Zisserman - 2003 - webdiis.unizar.es
 Abstract— We describe a method for automatically generating accurate piecewise planar models of indoor scenes using a combination of a 2D laser scanner and a camera on a mobile platform. The method exploits the complementarity of the ...
 Cited by 2 - Related Articles - View as HTML - Web Search

[Toward a Unified Bayesian Approach to Hybrid Metric--Topological SLAM](#)

JL Blanco, JA FernÁndez-Madrigal, J González - Robotics, IEEE Transactions on [see also Robotics and ..., 2008 - ieeexplore.ieee.org
 Abstract—This paper introduces a new approach to simultaneous localization and mapping (SLAM) that pursues robustness and accuracy in large-scale environments. Like most successful works on SLAM, we use Bayesian filtering ...
 Cited by 2 - Related Articles - Web Search

[PDF A New Approach for Large-Scale Localization and Mapping: Hybrid Metric-Topological SLAM - all 2 versions »](#)

JL Blanco, JA Fernandez-Madrigal, J Gonzalez - Robotics and Automation, 2007 IEEE International Conference ..., 2007 - isa.uma.es
 Abstract—Most successful works in Simultaneous Localization and Mapping (SLAM) aim to build a metric map under a probabilistic viewpoint employing Bayesian filtering techniques. This work introduces a new hybrid metric- topological ...
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[Metric Localization with Scale-Invariant Visual Features Using a Single Perspective Camera - all 6 versions »](#)

M Bennewitz, C Stachniss, W Burgard, S Behnke - European Robotics Symposium 2006, 2006 - Springer
 Abstract. The Scale Invariant Feature Transform (SIFT) has become a popular feature extractor for vision-based applications. It has been successfully applied to metric localization and mapping using stereo vision and omnivision ...
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S Thrun - Robot and Cognitive Approaches to Spatial Mapping. STAR - Springer
 Summary. This article provides a comprehensive introduction into the simultaneous localization and mapping problem, better known in its abbreviated form as SLAM. SLAM addresses the problem of a robot navigating an unknown environment ...
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[Robot Exploration by Subjectively Maximizing Objective Information Gain](#)

B Si, K Pawelzik, JM Herrmann - Robotics and Biomimetics, 2004. ROBIO 2004. IEEE ..., 2004 - ieeexplore.ieee.org
 Abstract— Localization, mapping and action selection are three main aspects in robot exploration. This paper proposes an autonomous exploration method for robot localization and mapping in unknown environments. First an ideal ...
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J Nieto, T Bailey, E Nebot - Robotics and Autonomous Systems, 2007 - Elsevier
 This paper presents Scan-SLAM, a new generalization of simultaneous localization and mapping (SLAM). SLAM implementations based on extended Kalman filter (EKF) data fusion have traditionally relied on simple geometric models for feature matching ...
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D Rodriguez-Losada, F Matia, A Jimenez - Robotics and Automation, 2004. Proceedings. ICRA'04. 2004 ..., 1926 - ieeexplore.ieee.org
 Page 1 Sss - S S fy Figure 1. Objects representation with error vectors * This work is funded by Spanish Ministry of Science and Technology (UR.BANO: t)P12001 -3652C0201) and EU 5th R&D Framework Program (WebFATR: 1ST- 2000-29456) and ...
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[PDF P-SLAM: Simultaneous Localization and Mapping With Environmental-Structure Prediction - all 4 versions »](#)

HJ Chang, CSG Lee, YH Lu, YC Hu - IEEE Transactions on Robotics, 2007 - cobweb.ecn.purdue.edu
 Abstract—Traditionally, simultaneous localization and mapping (SLAM) algorithms solve the localization and mapping problem in explored regions. This paper presents a prediction-based SLAM algorithm (called P-SLAM), which ...
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[移动机器人的同步自定位与地图创建研究进展](#)

陈卫东, 张飞, C Wei-dong, F ZHANG - 控制理论与应用, 2005 - 万方数据资源系统
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[未知环境中移动机器人并发建图与定位\(CML\)的研究进展](#) - [all 2 versions](#) »

王璐, 蔡自兴 - 机器人, 2004 - 维普资讯

第26卷第4期2004年7月机器人ROBOT Vo1 . 26 , No . 4 July , 2004 文章编号 : 1002-0446(2004) 04-0380-05 未知环境中移动机器人并发建图与定位(CML)的研究进展王璐, 蔡自兴 ...

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Z Wang, S Huang, G Dissanayake - [International Journal of Robotics Research](#), 2007 - [portal.acm.org](#)

The main contribution of this paper is the reformulation of the simultaneous localization and mapping (SLAM) problem for mobile robots such that the mapping and localization can be treated as two concurrent yet separated processes: ...

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[SC-KF Mobile Robot Localization: A Stochastic Cloning Kalman Filter for Processing Relative-State ...](#) - [all 6 versions](#) »

Al Mourikis, SI Roumeliotis, JW Burdick - [Robotics, IEEE Transactions on](#) [see also [Robotics and ...](#)], 2007 - [ieeexplore.ieee.org](#)

Abstract—This paper presents a new method to optimally combine motion measurements provided by proprioceptive sensors, with relative-state estimates inferred from feature-based matching. Two key challenges arise in such ...

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J Andrade-Cetto, A Sanfeliu - [Robotics and Automation](#), 2003. [Proceedings. ICRA'03. IEEE ...](#), 2003 - [ieeexplore.ieee.org](#)

Page 1 these functions it is still possible to achieve a monotonically decreasing map covariance matrix, and how in the limit, the map still becomes fully correlated. That is, the two fundamental properties of the EKF-CML ...

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Al Mourikis, SI Roumeliotis - [Proc. Robotics: Science and Systems Conf](#) - [cs.umn.edu](#)

Dept. of Computer Science & Engineering University of Minnesota 4-192 EE/CS Building 200 Union St. SE Minneapolis, MN 55455 Tel: (612) 625-2217 Fax: (612) 625-0572 URL: <http://www.cs.umn.edu/~mourikis>

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[Sequential Monte Carlo methods for rigorous Bayesian modeling of Autonomous Compliant Motion](#) - [all 3 versions](#) »

K Gadeyne - 2005 - [repository.libis.kuleuven.ac.be](#)

Ik was reeds begonnen met een filosofische behandeling van bovenstaande citatie. Niet dus. Schrijven is schrappen 1 en er volgt nog genoeg over robotica in het vervolg van dit boek(je). Ik laat het nadenken over bovenstaande uitspraak ...

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[Spatially-Adaptive Learning Rates for Online Incremental SLAM](#) - [all 10 versions](#) »

E Olson, J Leonard, S Teller - [Proceedings of Robotics Science and Systems](#) - [edwinolson.org](#)

Abstract— Several recent algorithms have formulated the SLAM problem in terms of non-linear pose graph optimization. These algorithms are attractive because they offer lower computational and memory costs than the traditional ...

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[Local map fusion for real-time indoor simultaneous localization and mapping](#)

D Rodriguez-Losada, F Matia, A Jimenez, R Galan - [Journal of Field Robotics](#), 2006 - [doi.wiley.com](#)

Among the solutions to the simultaneous localization and mapping SLAM problem with probabilistic techniques, the extended Kalman filter EKF is a very common approach. There are several approaches to deal with its computational ...

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R Martinez-Cantin, JA Castellanos - [Robotics and Automation](#), 2006. [ICRA 2006. Proceedings 2006 ...](#), 2006 - [robocup.csu.edu.cn](#)

Abstract— This paper addresses the consistency issue of the Extended Kalman Filter approach to the simultaneous localization and mapping (EKF-SLAM) problem. Linearization of the inherent nonlinearities of both the motion ...

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[Building geometric feature based maps for indoor service robots](#)

D Rodriguez-Losada, F Matia, R Galan - [Robotics and Autonomous Systems](#), 2006 - Elsevier

This paper presents an efficient geometric approach to the Simultaneous Localization and Mapping problem based on an Extended Kalman Filter. The map representation and building process is formulated, fully implemented and ...

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XS Zhou, SI Roumeliotis - [Proceedings of IEEE International Conference on Intelligent ...](#) - [www-users.cs.umn.edu](#)

Abstract— This paper presents a new approach to the multi-robot map-alignment problem that enables teams of robots to build joint maps without initial knowledge of their relative poses. The key contribution of this work is an ...

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[Rigid data association for shallow water surveys - all 2 versions »](#)E Coiras, F Baralli, B Evans - Radar, Sonar & Navigation, IET, 2007 - ieeexplore.ieee.org

Abstract: An automatic procedure for target data association is presented here.

The procedure is particularly appropriate for shallow water applications, where navigation errors are limited and where sufficient overlap is present ...

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Page 1. Chapter 1 Map Building and SLAM Algorithms Jose A. Castellanos, Jose Neira, Juan D. Tardos Dept. Informatica e Ingenieria de Sistemas Universidad de Zaragoza Maria de Luna 1, 50018 Zaragoza, Spain ...

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Monocular SLAM has the potential to turn inexpensive cameras into powerful pose sensors for applications such as robotics and augmented reality. However, current imple- mentations lack the robustness required to be useful outside ...

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Z Chen, J Samarabandu, R Rodrigo - Advanced Robotics, 2007 - Springer

Abstract—Simultaneous localization and map-building (SLAM) continues to draw considerable attention in the robotics community due to the advantages it can offer in building autonomous robots. It examines the ability of an ...

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H Hashimoto - Artificial Life and Robotics, 2007 - Springer

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[Cited by 1](#) - [Related Articles](#) - [Web Search](#) - [BL Direct](#)[Morphological neural networks and vision based simultaneous localization and mapping](#)

I Villaverde, M Graña, Ad'Anjou - Integrated Computer-Aided Engineering, 2007 - IOS Press

Abstract. Simultaneous Localization and Mapping (SLAM) is a key process in several robotic contexts. In this paper we explore the realization of non-metric SLAM using a visual information based approach relying on the detection of ...

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We present an application of Bayesian modeling and inference to topological mapping in robotics. This is a potentially difficult problem due to (a) the combinatorial nature of the state space, and (b) perceptual aliasing by ...

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Abstract— Simultaneous localization and mapping (SLAM) for mobile robots has attracted research interests in the past two decades. Recent years, Rao-Blackwellized particle filter (RBPF) approach proved to be an effective ...

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D Pizarro, M Mazo, E Santiso, H Hashimoto - Industrial Electronics, 2007. ISIE 2007. IEEE International ..., 2007 - [ieeexplore.ieee.org](#)

Abstract— This paper presents an approach to solve a 3D tracking of mobile robots based on visual information from a fixed and calibrated camera. The proposed algorithm builds a metric model of primitives of the object ...

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C Tessier, M Berducat, R Chapuis, F Chausse - Intelligent Vehicles Symposium, 2007 IEEE, 2007 - [ieeexplore.ieee.org](#)

Abstract— Markov localization is one of the effective techniques for determining the physical locations of an autonomous vehicle whose the perceptions of the environment are limited. To improve the localization, a ...

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[John J. Leonard Richard J. Rikoski Paul M. Newman](#)

M Bosse - The International Journal of Robotics Research, 2002 - [ijr.sagepub.com](#)

In this paper we present a technique for mapping partially observable features from multiple uncertain vantage points. The problem of concurrent mapping and localization (CML) is stated as follows. Starting from an initial known ...

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[Multi-robot simultaneous localization and mapping using D-SLAM framework](#)

Z Wang, S Huang, G Dissanayake - Intelligent Sensors, Sensor Networks and Information, 2007. ..., 2007 - [ieeexplore.ieee.org](#)

This paper presents an algorithm for the multi-robot simultaneous localization and mapping (SLAM) problem with the robot initial locations completely unknown. Each robot builds its own local map using the traditional Extended Kalman ...

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[Simultaneous landmarks detection and data association in noisy environment for map aided ...](#)

C Tessier, C Debain, R Chapuis, F Chausse - Intelligent Robots and Systems, 2007. IROS 2007. IEEE/RSJ ..., 2007 - [ieeexplore.ieee.org](#)

Abstract— In this paper, we make an analysis of Map Aided Localization systems (MAL) in noisy outdoor environments. In a first time, we present the main sensors used in those approaches and their behavior in noisy environments. ...

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