

HassanSabeehSaad MainPage

From MAS-Students_ws15

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Seminar Introduction to Scientific Working

Topic: Enabling Technologies for low cost Robotics

Author: Sabeeh ul hassan Saad
Date: 10.11.2015

Abstract

To make robotics industry flourish, robots should be designed in such a way that the overall cost is as low as possible making it affordable. The research is in the field of enabling such technologies which will ultimately help us in making low cost robotics.

Introduction

Based on the literature (survey articles, books, journals, conference proceedings), which you have found explain and discuss how the scientific subject which you have been investigating is embedded in the superior field, e.g. learning by experimentation is sub field of machine learning ... What are neighboring disciplines (inductive learning, one-shot learning, reinforcement learning, etc)? What are the special aspects which are addressed in the subject and how do they distinguish the subject from neighboring subjects/disciplines? What are the typical assumptions made in the research on the subject? What is the methodology used in the field? (one page)

Description of the subject

Based on the literature (survey articles, books, journals, conference proceedings), which you have found explain and discuss how the scientific subject which you have been investigating is decomposed into different subfields and/or aspects and/or problem areas (e.g. learning by experimentation: cognitive/developmental psychology, epistemology, theory of experimentation, optimal design and evaluation of experiments, etc. Explain for each subfield/aspect/problem area why you think that is of crucial importance to the subject which you have been investigating. Explain why you think that the set of subfields/aspects/problems which you have identified in fact covers the whole subject. (one page)

Annotated Bibliography <Topic>

In this section you should establish a subsection for each subfield/aspect/problem area which you have identified in the foregoing Section ("Description of the subject"). In each of the subsection you give a brief overview of the subfield list the annotated bibliography, i.e. all the papers which you found for this subfield, where each entry in this annotated bibliography should consist of the reference itself and a brief summary of the content of the paper. (as many pages as it takes)

For example:

Paper Collection

Link to the HTML table with the Top 100 papers

<thead></thead> <tbody> </tbody>

Author	Title	Year	Journal/Proceedings	Reftype	DOI/URL
Abbott, E. and Powell, D.	Land-vehicle navigation using GPS	1999	Proceedings of the IEEE Vol. 87(1), pp. 145-162	article	
Agrawal, M. and Konolige, K.	Real-time localization in outdoor environments using stereo vision and inexpensive gps	2006	Vol. 3Pattern Recognition, 2006. ICPR 2006. 18th International Conference on, pp. 1063-1068	inproceedings	

Bošnjak, M., Matko, D. and Blažič, S.	Quadrocopter hovering using position-estimation information from inertial sensors and a high-delay video system	2012	Journal of Intelligent & Robotic Systems Vol. 67(1), pp. 43-60	article	
Bulusu, N., Heidemann, J. and Estrin, D.	GPS-less low-cost outdoor localization for very small devices	2000	Personal Communications, IEEE Vol. 7(5), pp. 28-34	article	
Burgard, W., Fox, D., Hennig, D. and Schmidt, T.	Estimating the absolute position of a mobile robot using position probability grids	1996	Proceedings of the national conference on artificial intelligence, pp. 896-901	inproceedings	
Chenavier, F. and Crowley, J.L.	Position estimation for a mobile robot using vision and odometry	1992	Robotics and Automation, 1992. Proceedings., 1992 IEEE International Conference on, pp. 2588-2593	inproceedings	
Cox, I.J.	Blanche: Position estimation for an autonomous robot vehicle	1990	Autonomous robot vehicles, pp. 221-228	incollection	
Crowley, J.L.	Navigation for an intelligent mobile robot	1985	Robotics and Automation, IEEE Journal of Vol. 1(1), pp. 31-41	article	
Elfes, A.	Using occupancy grids for mobile robot perception and navigation	1989	Computer Vol. 22(6), pp. 46-57	article	
Elfes, A.	Sonar-based real-world mapping and navigation	1987	Robotics and Automation, IEEE Journal of Vol. 3(3), pp. 249-265	article	
Engel, J., Sturm, J. and Cremers, D.	Camera-based navigation of a low-cost quadrocopter	2012	Intelligent Robots and Systems (IROS), 2012 IEEE/RSJ International Conference on, pp. 2815-2821	inproceedings	
Fox, D., Burgard, W., Dellaert, F. and Thrun, S.	Monte carlo localization: Efficient position estimation for mobile robots	1999	AAAI/IAAI Vol. 1999, pp. 343-349	article	
Gezici, S.	A survey on wireless position estimation	2008	Wireless personal communications Vol. 44(3), pp. 263-282	article	
Grzonka, S., Grisetti, G. and Burgard, W.	A fully autonomous indoor quadrotor	2012	Robotics, IEEE Transactions on Vol. 28(1), pp. 90-100	article	
Gu, Y., Lo, A. and Niemegeers, W.	A survey of indoor positioning systems for	2009	Communications Surveys & Tutorials, IEEE	article	

I.	wireless personal networks		Vol. 11(1), pp. 13-32		
Hahnel, D., Burgard, W., Fox, D., Fishkin, K. and Philipose, M.	Mapping and localization with RFID technology	2004	Vol. 1 Robotics and Automation, 2004. Proceedings. ICRA'04. 2004 IEEE International Conference on, pp. 1015-1020	inproceedings	
Hernandez, O., Jain, V., Chakravarty, S. and Bhargava, P.	Position Location Monitoring Using IEEEtextregistered 802.15.4/ZigBeetextregistered technology	2009	Beyond Bits, issue IV, pp. 67-69	article	
Hoffmann, G., Rajnarayan, D.G., Waslander, S.L., Dostal, D., Jang, J.S. and Tomlin, C.J.	The Stanford testbed of autonomous rotorcraft for multi agent control (STARMAC)	2004	Vol. 2 Digital Avionics Systems Conference, 2004. DASC 04. The 23rd, pp. 12-E	inproceedings	
Kingston, D.B. and Beard, R.W.	Real-time attitude and position estimation for small UAVs using low-cost sensors	2004	AIAA 3rd unmanned unlimited technical conference, Workshop and exhibit, pp. 2004-6488	inproceedings	
Kourogi, M., Sakata, N., Okuma, T. and Kurata, T.	Indoor/outdoor pedestrian navigation with an embedded GPS/Rfid/self-contained sensor system	2006	Advances in Artificial Reality and Tele-Existence, pp. 1310-1321	in collection	
Ladd, A.M., Bekris, K.E., Rudys, A., Kavraki, L.E. and Wallach, D.S.	Robotics-based location sensing using wireless ethernet	2005	Wireless Networks Vol. 11(1-2), pp. 189-204	article	
Liu, H., Darabi, H., Banerjee, P. and Liu, J.	Survey of wireless indoor positioning techniques and systems	2007	Systems, Man, and Cybernetics, Part C: Applications and Reviews, IEEE Transactions on Vol. 37(6), pp. 1067-1080	article	
Lobo, J., Lucas, P., Dias, J. and others	Inertial navigation system for mobile land vehicles	1995	Vol. 2 Industrial Electronics, 1995. ISIE'95., Proceedings of the IEEE International Symposium on, pp. 843-848	inproceedings	
Mondada, F., Bonani, M.,					

Raemy, X., Pugh, J., Cianci, C., Klapotcz, A., Magnenat, S., Zufferey, J.-C., Floreano, D. and Martinoli, A.	The e-puck, a robot designed for education in engineering	2009	Vol. 1(LIS-CONF-2009-004)Proceedings of the 9th conference on autonomous robot systems and competitions, pp. 59-65	inproceedings	
Ollero, A. and Merino, L.	Control and perception techniques for aerial robotics	2004	Annual reviews in Control Vol. 28(2), pp. 167-178	article	
Randell, C. and Muller, H.	Low cost indoor positioning system	2001	Ubicomp 2001: Ubiquitous Computing, pp. 42-48	inproceedings	
Tabar, A.M., Keshavarz, A. and Aghajan, H.	Smart home care network using sensor fusion and distributed vision-based reasoning	2006	Proceedings of the 4th ACM international workshop on Video surveillance and sensor networks, pp. 145-154	inproceedings	
Takeshita, T., Tomizawa, T. and Ohya, A.	A House Cleaning Robot System-Path indication and Position estimation using ceiling camera	2006	SICE-ICASE, 2006. International Joint Conference, pp. 2653-2656	inproceedings	
Talluri, R. and Aggarwal, J.K.	Position estimation for an autonomous mobile robot in an outdoor environment	1992	Robotics and Automation, IEEE Transactions on Vol. 8(5), pp. 573-584	article	
Thrun, S., Bennewitz, M., Burgard, W., Cremers, A.B., Dellaert, F., Fox, D., Hähnel, D., Rosenberg, C., Roy, N., Schulte, J. and others	MINERVA: A second-generation museum tour-guide robot	1999	Vol. 3Robotics and automation, 1999. Proceedings. 1999 IEEE international conference on	inproceedings	
Toth, F.N. and Meijer, G.C.	A low-cost, smart capacitive position sensor	1992	IEEE Transactions on Instrumentation and Measurement, 41 (6)	article	
Wenzel, K.E., Rosset, P. and Zell, A.	Low-cost visual tracking of a landing place and hovering flight control with a microcontroller	2010	Selected papers from the 2nd International Symposium on UAVs, Reno, Nevada, USA June 8--10, 2009, pp. 297-311	inproceedings	
Apvrille, L., Dugelay, J.-L. and Ranft, B.	Indoor Autonomous Navigation of Low-Cost MAVs Using Landmarks and 3D Perception	2013	Proceedings of OCOSS	article	
Bertozzi, M.,	Vision-based intelligent		Robotics and Autonomous		

Broggi, A. and Fascioli, A.	vehicles: State of the art and perspectives	2000	systems Vol. 32(1), pp. 1-16	article	
Bertrand, S., Marzat, J., Carton, M., Chaix, C., Varela, P., Waroux, R., De Ferron, G. and Laurel, R.	A low-cost system for indoor motion tracking of unmanned aerial vehicles	2011	Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP), 2011 Seventh International Conference on, pp. 574-579	inproceedings	
Bipin, K., Duggal, V. and Madhava Krishna, K.	Autonomous navigation of generic monocular quadcopter in natural environment	2015	Robotics and Automation (ICRA), 2015 IEEE International Conference on, pp. 1063-1070	inproceedings	
Calpe, J., Pla, F., Monfort, J., Diaz, P. and Boada, J.C.	Robust low-cost vision system for fruit grading	1996	Vol. 3Electrotechnical Conference, 1996. MELECON'96., 8th Mediterranean, pp. 1710-1713	inproceedings	
Dobrokhodov, V.N., Kaminer, I., Jones, K.D., Ghabcheloo, R. and others	Vision-based tracking and motion estimation for moving targets using small UAVs	2006	American Control Conference, 2006, pp. 6-pp	inproceedings	
Ferreira, F.T., Cardoso, J.S. and Oliveira, Hé.P.	Video Analysis in Indoor Soccer using a Quadcopter			article	
Hide, C., Botterill, T. and Andreotti, M.	Low cost vision-aided IMU for pedestrian navigation	2010	Ubiquitous Positioning Indoor Navigation and Location Based Service (UPINLBS), 2010, pp. 1-7	inproceedings	
Martin, J.F. and Chiang, L.	Low cost vision system for an educational platform in artificial intelligence and robotics	2002	Computer Applications in Engineering Education Vol. 10(4), pp. 238-248	article	
Nascimento, R.M.G.	QuadAALper--The Ambient Assisted Living Quadcopter	2014		article	
Ostojić, G., Stankovski, S., Tejić, B., Đukić null, N. and Tegeltija, S.	Design, Control and Application of Quadcopter			article	
Rowe, A.,			Vol. 1Intelligent Robots		

Rosenberg, C. and Nourbakhsh, I.	A low cost embedded color vision system	2002	and Systems, 2002. IEEE/RSJ International Conference on, pp. 208-213	inproceedings	
Soetedjo, A. and Nurcahyo, E.	Developing of Low Cost Vision-Based Shooting Range Simulator	2011	International Journal of Computer Science and Network Security (IJCSNS) Vol. 11(1), pp. 109-113	article	
Stubblebine, A., Redmond, B., Feie, B. and Kivelevitch, E.	Laser-Guided Quadrotor Obstacle Avoidance			article	
Su, M.-C., Su, S.-Y. and Chen, G.-D.	A low-cost vision-based human-computer interface for people with severe disabilities	2005	Biomedical Engineering: Applications, Basis and Communications Vol. 17(06), pp. 284-292	article	

Conclusions

Summarize you view on the state of the art in the field which you have been investigating. (half a page, times roman 11pt, single space)

References

List of references in IEEE, ACM, APA, etc. format.

Attach an electronic copy of the paper to each reference!!!!!!!!!!

Appendix

A. Sources

A.1 List of searched journals

- IEEE Transactions on Robotics and Automation, Vol. 1 No. 1 - ??, 1901 - 2005
- IEEE Transactions on Robotics, Vol. 1 No. 1 - ??, 1901 – 2005
- ...

A.2 List of searched conference proceedings

- IEEE Int. Conf. on Robotics and Automation ICRA, 1901 – 2005
- IEEE/RSJ Int. Conf on Intelligent Robots and Systems IROS, 1901 – 2005
- ...

A.3 List of searched magazines

- IEEE Robotics and Automation Magazine (RAM)
- ...

A.4 Other searched publications

- New York Times 1801 – 2005
- ...

B. Key words and key word combinations used for search

pictured either as structured list or as tree

C. List of most important conferences

- ICRA: IEEE International Conference on Robotics and Automation
- CASE: IEEE International Conference on Automation Science and Engineering
- IROS: IEEE/RSJ International Conference on Intelligent Robots and Systems

D. List of most important journals and magazines

- Transactions on Pattern Analysis and Machine Intelligence
- International Journal of Computer Vision
- IEEE International Conference on Robotics and Automation
- The International Journal of Robotics Research
- IEEE Transactions on Robotics
- IEEE/ASME Transactions on Mechatronics
- IEEE/RSJ International Conference on Intelligent Robots and Systems
- Robotics and Autonomous Systems

E. List of top research labs/researchers

Seminar Advanced Scientific Working

Project Title (R&D)

Master Seminar**Project Title (Master Thesis)**

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