MAS ISW Assignment 4

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Task 1: 25 Paper with the most citation

(The remaining have zero citations)

1. (Derrac, García, Molina, & Herrera, 2011)
2. (Mavrovouniotis, Li, & Yang, 2017)
3. (Lynn & Suganthan, 2015)
4. (Bechar & Vigneault, 2016)
5. (Weiss & Biber, 2011)
6. (Pedersen, Fountas, Have, & Blackmore, 2006)
7. (Konur, Dixon, & Fisher, 2012)
8. (Schneider & Wildermuth, 2003)
9. (Winfield, Liu, Nembrini, & Martinoli, 2008)
10. (Chung, Paranjape, Dames, Shen, & Kumar, 2018)
11. (Vasconez, Kantor, & Cheein, 2019)
12. (Roldán et al., 2016)
13. (Liu, Mao, & Yu, 2006)
14. (Vigelius, Meyer, & Pascoe, 2014)
15. (Ball et al., 2015)
16. (Villa-Henriksen, Edwards, Pesonen, Green, & Sørensen, 2020)
17. (CORTÉS & EGERSTEDT, 2017)
18. (Oberti & Shapiro, 2016)
19. (Innocente & Grasso, 2019)

20. (Din, Jabeen, Zia, Khalid, & Saini, 2018)
21. (Gao et al., 2018)
22. (Fu, Majeed, Zhang, Karkee, & Zhang, 2020)
23. (Jones et al., 2019)
24. (Miner, 2007)
25. (Osaba, Del Ser, Iglesias, & Yang, 2020)
26. (van Herck, Kurtser, Wittemans, & Edan, 2020)

Task 3: Sort and divide paper collection into subtopics and categories

Topics

Agricultural Robots

- (Ball et al., 2015)
- (Gao et al., 2018)
- (Bechar & Vigneault, 2016)
- (Tiwari, Silver, & Karnieli, 2020)
- (Ge, Xiong, & From, 2020)
- (Fu et al., 2020)
- (Chen, Li, Liu, Bao, & Ren, 2020)
- (Raja, Nguyen, Vuong, Slaughter, & Fennimore, 2020)
- (van Herck et al., 2020)
- (Villa-Henriksen et al., 2020)
- (Oberti & Shapiro, 2016)
- (Pedersen et al., 2006)
- (Weiss & Biber, 2011)
- (Vasconez et al., 2019)
- (Jones et al., 2019)

Navigation

- (Z. Huang et al., 2020)
- (Schneider & Wildermuth, 2003)
- (Liang & Lee, 2014)
- (Liu et al., 2006)
- (Hameed, 2018)
- (Bechar & Vigneault, 2016)
- (Jones et al., 2019)

Multi Robot Systems

- (Schneider & Wildermuth, 2003)
- (Liang & Lee, 2014)
- (Liu et al., 2006)
- (Roldán et al., 2016)
- (Gao et al., 2018)
- (Hameed, 2018)
- (CORTÉS & EGERSTEDT, 2017)
- (Wu, Zeng, Pan, Wang, & Liu, 2019)
- (Wang, Liu, Li, & Prorok, 2020)

Swarms

- (Innocente & Grasso, 2019)
- (Din et al., 2018)
- (Khan, Kasmarik, & Barlow, 2020)
- (Osaba et al., 2020)
- (Alshawi & Shalan, 2017)
- (Winfield et al., 2008)
- (Konur et al., 2012)
- (Mirzaei, Pouyan, & Biglari, 2020)
- (Chung et al., 2018)

- (Mavrovouniotis et al., 2017)
- (Derrac et al., 2011)
- (Lynn & Suganthan, 2015)
- (Shi, Tu, Zhang, Liu, & Wei, 2012)
- (Miner, 2007)

Algorithms

- (Liu et al., 2006)
- (Roldán et al., 2016)
- (Ni et al., 2020)
- (Konur et al., 2012)
- (Chung et al., 2018)
- (Mavrovouniotis et al., 2017)
- (Derrac et al., 2011)
- (Lynn & Suganthan, 2015)
- (Miner, 2007)
- (Hameed, 2018)
- (Bechar & Vigneault, 2016)

Categories

Conference Paper

- (Schneider & Wildermuth, 2003)
- (Liang & Lee, 2014)
- (Liu et al., 2006)
- (Hameed, 2018)

Journal Paper

- (Innocente & Grasso, 2019)
- (Osaba et al., 2020)
- (Alshawi & Shalan, 2017)
- (Vigelius et al., 2014)
- (Mirzaei et al., 2020)
- (CORTÉS & EGERSTEDT, 2017)

Survey Paper

- (Chung et al., 2018)
- (Mavrovouniotis et al., 2017)
- (Derrac et al., 2011)
- (Shi et al., 2012)
- (Miner, 2007)
- (CORTÉS & EGERSTEDT, 2017)
- (Vasconez et al., 2019)

Task 6: Create a one page summary of two given papers

Summary: *How to Read an Engineering Research Paper*

In the given paper (Griswold, 2009), the author suggests several tips on how two effectively read a research paper. He starts by encouraging the reader and then begins with analyzing the structure of typical research paper. Following items are mentioned:

- Abstract
- Introduction
- Related work
- Background
- System or model
- Contribution

- Performance or evaluation
- Conclusions
- References.

The author emphasizes to read the paper out of order and to start with the important parts like Abstract, Introduction, Contribution and Conclusion. One of the key things he suggested is a series of eight question a reader should be able to answer after reading or skimming through a research paper. After reading a paper, the reader should ideally immediately annotate it with answers to those question as well as key take aways.

1. What are *motivations* for this work?
2. What is the proposed *solution*?
3. What is the work‘s *evaluation* of the proposed solution?
4. What is your analysis of the identified problem,idea and evaluation?
5. What are the *contributions*?
6. What are *future directions* for this research?
7. What questions are you left with?
8. What is the main take away message of this paper?

A suggestion is to use a standard form for every paper to keep track of the own thoughts and to be fast able to find ideas again. Another important point to remember is to check the papers context. For this it is important to find out if the read paper classifies as a generalization of a topic, if its a new research direction or if its contradicts existing research. Further the author suggest to read everything twice, first to get a general big picture of the content and a second time to get all the details. He wraps up the guide with the important question: *Are you convinced that the paper proposed a viable solution?*

Summary: *How to read a research paper*

This paper (W. Huang, 2000) is a similar how-to about effective paper reading. The authors first writes about where to get papers. He mentioned two main sources: conferences and archival journals. The difference between them is the length of the content. Conference papers tend to be shorter and newer and journal paper are longer and stronger reviewed writes the author.

Further he recommends those specific sources for research in robotics:

- IEEE Transactions on Robotics and Automation
- International Journal of Robotics Research

- Autonomous Robots
- IEEE Conference on Robotics and Automation (ICRA)
- IEEE/RSJ Conference on Robots and Systems (IROS)

As a next thing he suggests citeseer and google scholar for discovering papers. The last two sections are quite similar to the first one (Griswold, 2009). The first section contains question the reader should answer after reading the paper, and the second contains tips for the order of the read sections.

- What problems are they solving?
- What did they really do?
- What is the contribution?
- What methods did they use?
- Would you have solved the problem differently?
- Do all pieces fit together logically?
- What were the results? Did they do what they set out to do?

One of the final tips if the author is to point out how important the references are if you want to research yourself, because they will point to similar work worth studying.

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