

[1]张涛,尚红,许建华,等.机器人技术在地震废墟搜索救援中的应用[J].自然灾害学报,2012,05:108-112.

点击复制

ZHANG Tao,SHANG Hong,XU Jianhua,et al.Application of robot technology in search and rescue in earthquake ruins [J].,2012,05:108-112.

## 机器人技术在地震废墟搜索救援中的应用(PDF)

《自然灾害学报》[ISSN:/CN:23-1324/X] 期数: 2012年05期 页码: 108-112 栏目: 出版日期: 2012-10-31

Title: Application of robot technology in search and rescue in earthquake ruins

作者: [张涛<sup>1, 2</sup>](#); [尚红<sup>1</sup>](#); [许建华<sup>1</sup>](#); [刘亢<sup>1</sup>](#); [张媛<sup>1</sup>](#); [王金萍<sup>1</sup>](#)

1. 中国地震应急搜救中心, 北京 100049;
2. 中国地震局地球物理研究所, 北京 100081

Author(s): [ZHANG Tao<sup>1, 2</sup>](#); [SHANG Hong<sup>1</sup>](#); [XU Jianhua<sup>1</sup>](#); [LIU Kang<sup>1</sup>](#); [ZHANG Yuan<sup>1</sup>](#); [WANG Jinping<sup>1</sup>](#)

1. National Earthquake Response Support Service, Beijing 100049, China;
2. Institute of Geophysics, China Earthquak Administration, Beijing 100081, China

关键词: [震害现场](#); [救援装备](#); [废墟搜索](#); [救援机器人](#)

Keywords: [earthquake damage site](#); [rescue equipment](#); [ruins search](#); [rescue robot](#)

分类号: TP242.3

DOI: -

文献标识码: -

摘要: 破坏性地震往往会造成大量人员被掩埋在建筑废墟内,因此,被困人员的搜索救援是地震现场应急工作的重要任务。地震现场的搜索效率直接关系到地震救援工作的成功率,是提高被困人员生命存活率的重要因素。但是,强震发生后,地震现场往往余震频发、废墟内环境危险而又复杂,这些都给救援人员带来了极大的困难,也威胁着救援人员的生命安全。结合当前快速发展的搜救机器人技术研究现状以及地震应急救援中遇到的实际问题,提出了地震救援装备机器人化的研究设想,目的是提出地震救援人员对辅助搜索救援机器人的实际需求。同时介绍了中国地震应急搜救中心与国内多家院所合作完成的地震现场搜索救援机器人系列的研究现状,并分析了其优势与不足。所做的工作可为提高现场搜索救援效率,以及地震救援机器人的进一步研发与产业化参考。

Abstract: Destructive earthquakes usually lead to a large number of people buried in the ruins. Therefore, searching and rescuing these people become an important task. The efficiency of search in ruins directly determines the success rate of the rescue, an important factor in improving the survival rate of trapped people. However, following a strong earthquake, there are usually many aftershocks, making the ruins more and more dangerous and complex, and bring many difficulties to the rescue team and threaten their lives. In this paper, the authors introduced the current rapid development of search and rescue robotics and some practical problems about earthquake emergency rescue, trying to figure out the real request for the research of rescue robots which is necessary to the rescuing team. Meanwhile, earthquake search and rescue robot series, which are designed by National Earthquake Response Support Service (NERSS) and other

导航/NAVIGATE

[本期目录/Table of Contents](#)

[下一篇/Next Article](#)

[上一篇/Previous Article](#)

工具/TOOLS

[引用本文的文章/References](#)

[下载 PDF/Download PDF\(1419KB\)](#)

[立即打印本文/Print Now](#)

[推荐给朋友/Recommend](#)

统计/STATISTICS

摘要浏览/Viewed 302

全文下载/Downloads 181

[评论/Comments](#)



institutes, are introduced. Their advantages and disadvantages are analyzed. This work can improve the efficiency of earthquake search and rescue, and give a reference to the research development and industrialization of earthquake rescue robot.

---

## 参考文献/REFERENCES

- [1] 董晓波,王绪本.救援机器人的发展及其在灾害救援中的应用[J].防灾减灾工程学报,2007,27(1):113-117. DONG Xiaobo, Wang zhuben. Development of rescue robot technology and its application in disaster[J]. Journal of Disaster Prevention and Mitigation Engineering, 2007,27(1):113-117.(in Chinese)
- [2] 刘军,程继国,尹志,等.消防机器人灭火救援应用技术分析[J].消防技术与产品信息,2010(11):15-18. LIU Jun, CHENG Jiguo, YIN Zhi, et al. The analysis of rescue application of the fire-fighting robot[J]. Fire Technique and Products Information, 2010(11):15-18.(in Chinese)
- [3] 高瑞霞.美国的灭火与救援机器人研发综述[J].消防技术与产品信息,2005(3):59-60. GAO Ruixia. R & D Review of fire fighting and rescue robot[J]. Fire Technique and Products Information, 2005(3):59-60.(in Chinese)
- [4] 曲国胜,王晋中,张辉等.汶川特大地震专业救援案例[M].北京:地震出版社,2009:3-4. QU Guosheng, WANG Jinzhong, ZHANG Hui, et al. Specialized Rescue Case of the Wenchuan Earthquake[M]. Beijing: Seismological Press, 2009:3-4.(in Chinese)
- [5] 刘金国,王越超,李斌,等.灾难救援机器人研究现状、关键性能及展望[J].机械工程学报,2006.42(12):1-11. LIU Jinguo, WANG Yuechao, LI Bin, et al. Current research, key performance and future development of search and rescue robot[J]. Chinese Journal of Mechanical Engineering, 2006,42(12):1-11.(in Chinese)
- [6] 王忠民.灾难搜救机器人研究现状与发展趋势[J].现代电子技术,2007(17):152-155. WANG Zhongmin. Research status and development tendency of searching and rescuing robot[J]. Modern Electronics Technique, 2007(17):152-155.(in Chinese)
- [7] QI Juntong, SONG Dalei, DAI Lei, et al. The ServoHeli-20 rotorcraft UAV project[C]//15th International conference on Mechatronics and Machine Vision in Practice, Auckland: Inderscience Enterprises Ltd, 2008: 92-96.
- [8] 陈淑艳,陈文家.履带式移动机器人研究综述[J].机电工程,2007,24(12):109-112. CHEN Shuyan, CHEN Wenjia. Review of tracked mobile robots[J]. Mechanical & Electrical Engineering Magazine, 2007,24(12):109-112.(in Chinese)
- [9] LI Bin, MA Shugen, WANG Minghui, et al. Mobility for a special Configuration of a Shape-shifting Robot in Urban Terrain[C]//In University of Denver IEEE International Workshop on Safety, Security, and Rescue Robotics, Denver: Springer Press, 2008: 1-6.

---

备注/Memo: 收稿日期:2011-11-23;改回日期:2012-3-14。

作者简介:张涛(1984-),男,助理工程师,博士研究生,主要从事测试计量技术及仪器和应急救援装备的研究.E-mail:zhangtao.nerss@gmail.com

---

更新日期/Last Update: 1900-01-01