

INTRODUCTION OF



zotero

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2022年4月25日



Organize

How to organize all the items in Zotero.



Notes

How to take notes in Zotero.



Cite

How to cite papers through Zotero.



Plugins

Several useful plugins for Zotero.



Collaborate

How to collaborate through Zotero.





/ Collections and Tags

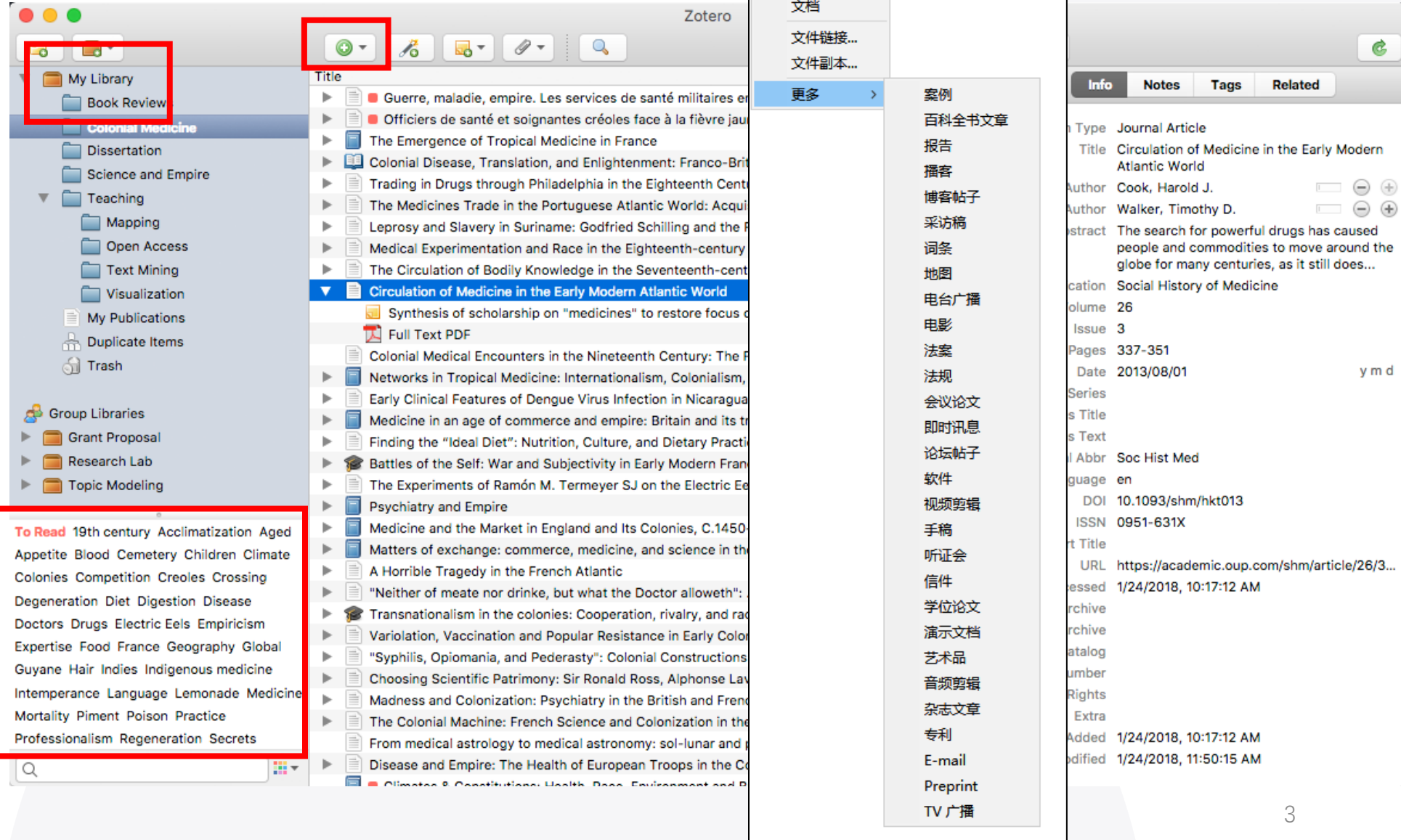
 Organization

 Notes

 Citation

 Plugins

 Collaboration

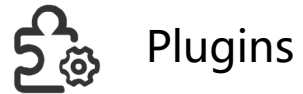


The screenshot displays the Zotero application interface. On the left, a sidebar shows a hierarchical tree of collections: My Library, Book Review, Colonial Medicine, Dissertation, Science and Empire, Teaching, Mapping, Open Access, Text Mining, Visualization, My Publications, Duplicate Items, and Trash. Below this, Group Libraries include Grant Proposal, Research Lab, and Topic Modeling. A red box highlights the 'Book Review' collection. The main pane shows a list of items, with 'Circulation of Medicine in the Early Modern Atlantic World' selected. A red box highlights the 'Add' button (a green plus sign) in the toolbar. A dropdown menu is open, listing various document types in Chinese: 报纸文章, 期刊文章, 书籍, 图书章节, 文档, 文件链接..., 文件副本..., 更多 >. The '更多' option is expanded to show a list of document types: 案例, 百科全书文章, 报告, 播客, 博客帖子, 采访稿, 词条, 地图, 电台广播, 电影, 法案, 法规, 会议论文, 即时讯息, 论坛帖子, 软件, 视频剪辑, 手稿, 听证会, 信件, 学位论文, 演示文档, 艺术品, 音频剪辑, 杂志文章, 专利, E-mail, Preprint, and TV 广播. On the right, the 'Info' tab is active, showing metadata for the selected item: Type: Journal Article, Title: Circulation of Medicine in the Early Modern Atlantic World, Author: Cook, Harold J., Walker, Timothy D., Abstract: The search for powerful drugs has caused people and commodities to move around the globe for many centuries, as it still does..., Citation: Social History of Medicine, Volume: 26, Issue: 3, Pages: 337-351, Date: 2013/08/01, DOI: 10.1093/shm/hkt013, ISSN: 0951-631X, URL: https://academic.oup.com/shm/article/26/3..., Added: 1/24/2018, 10:17:12 AM, Modified: 1/24/2018, 11:50:15 AM.

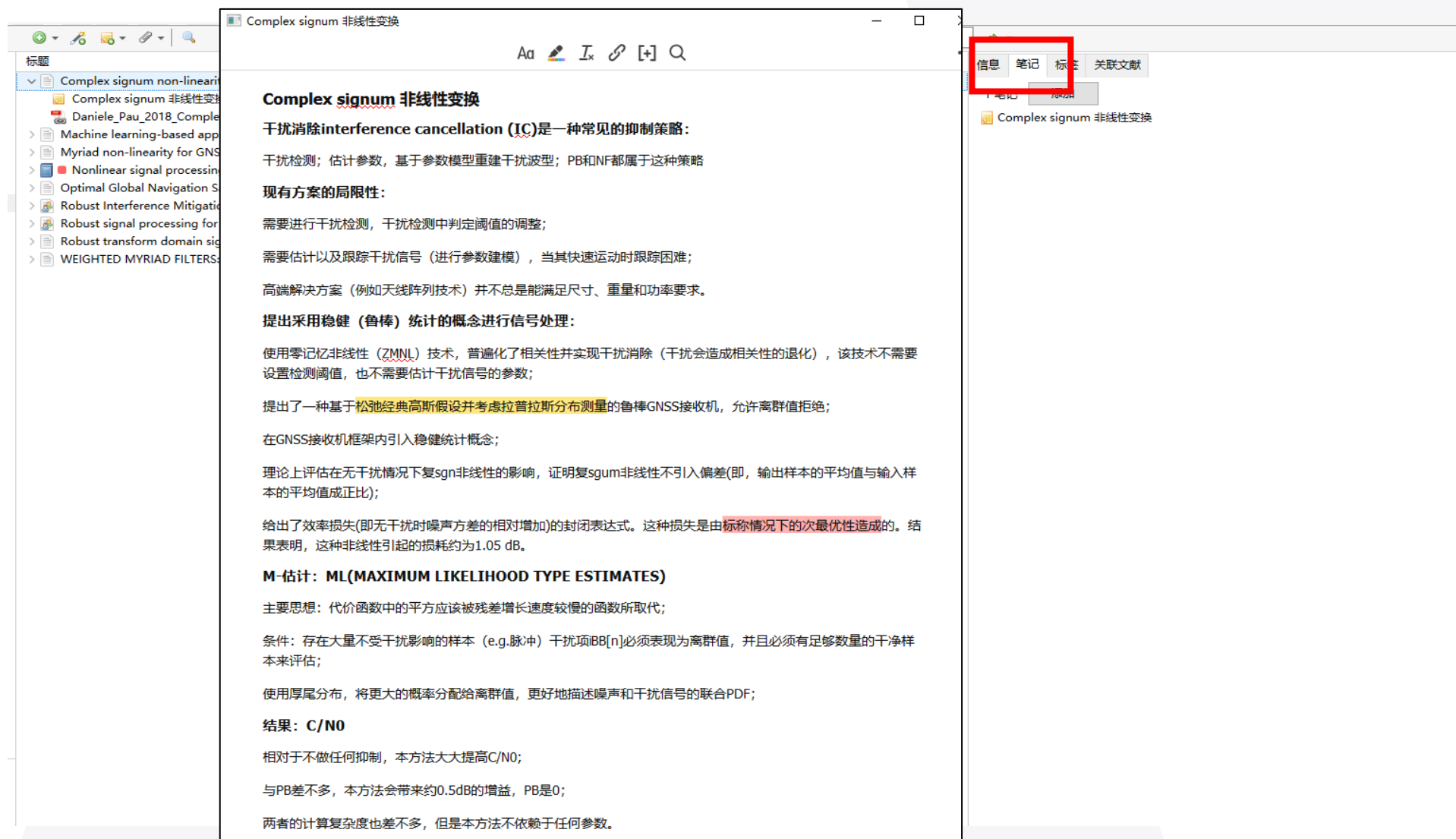


/ Web page

做个示范



The screenshot shows a web browser displaying a ResearchGate article titled "Code tracking performance analysis of GNSS signal in the presence of CW interference". The article is by Yuqi Liu, Yihang Ran, Ting Ke, and Xiulin Hu, published in April 2011 in the journal *Signal Processing*. The article's DOI is 10.1016/j.sigpro.2010.09.022. The page includes tabs for Overview, Stats, Comments, Citations (30), and References (29). A blue "Request full-text" button is visible. A file save dialog is overlaid on the right side of the page, showing a folder structure with "06 GNSS系统内系统间" selected. The dialog also shows the file name "GNSS" and a "完成" (Done) button.



Complex signum 非线性变换

标题

- Complex signum non-linear...
- Complex signum 非线性变换
- Daniele_Pau_2018_Comple...
- Machine learning-based app...
- Myriad non-linearity for GNS...
- Nonlinear signal processin...
- Optimal Global Navigation S...
- Robust Interference Mitigati...
- Robust signal processing for...
- Robust transform domain sig...
- WEIGHTED MYRIAD FILTERS...

Complex signum 非线性变换

干扰消除interference cancellation (IC)是一种常见的抑制策略:

干扰检测; 估计参数, 基于参数模型重建干扰波形; PB和NF都属于这种策略

现有方案的局限性:

需要进行干扰检测, 干扰检测中判定阈值的调整;

需要估计以及跟踪干扰信号 (进行参数建模), 当其快速运动时跟踪困难;

高端解决方案 (例如天线阵列技术) 并不总是能满足尺寸、重量和功率要求。

提出采用稳健 (鲁棒) 统计的概念进行信号处理:

使用零记忆非线性 (ZMNL) 技术, 普遍化了相关性并实现干扰消除 (干扰会造成相关性的退化), 该技术不需要设置检测阈值, 也不需要估计干扰信号参数;

提出了一种基于松弛经典高斯假设并考虑拉普拉斯分布测量的鲁棒GNSS接收机, 允许离群值拒绝;

在GNSS接收机框架内引入稳健统计概念;

理论上评估在无干扰情况下复sgn非线性的影响, 证明复sgm非线性不引入偏差(即, 输出样本的平均值与输入样本的平均值成正比);

给出了效率损失(即无干扰时噪声方差的相对增加)的封闭表达式。这种损失是由标称情况下的次最优性造成的。结果表明, 这种非线性引起的损耗约为1.05 dB。

M-估计: ML(MAXIMUM LIKELIHOOD TYPE ESTIMATES)

主要思想: 代价函数中的平方应该被残差增长速度较慢的函数所取代;

条件: 存在大量不受干扰影响的样本 (e.g.脉冲) 干扰项 $BB[n]$ 必须表现为离群值, 并且必须有足够数量的干净样本来评估;

使用厚尾分布, 将更大的概率分配给离群值, 更好地描述噪声和干扰信号的联合PDF;

结果: C/N0

相对于不做任何抑制, 本方法大大提高C/N0;

与PB差不多, 本方法会带来约0.5dB的增益, PB是0;

两者的计算复杂度也差不多, 但是本方法不依赖于任何参数。

信息 笔记 标签 关联文献

Complex signum 非线性变换



/ Citation in Word



Organization



Notes



Citation



Plugins



Collaboration

标题	创建者	添加日期
Complex signum non-linearity for robust GNSS interference mitigation	Daniele 和 Pau	2022/4/8 上午9:33:35
Machine learning-based approach to GPS antijamming	Wang 等.	2022/3/4 上午9:57:32

(1) Daniele, B.; Pau, C. Complex Signum Non-linearity for Robust GNSS Interference Mitigation. *IET Radar, Sonar & Navigation* **2018**, *12* (8), 900–909. <https://doi.org/10.1049/iet-rsn.2017.0552>.

(2) Borio, D. Myriad Non-linearity for GNSS Robust Signal Processing. *IET Radar, Sonar & Navigation* **2017**, *11* (10), 1467–1476. <https://doi.org/10.1049/iet-rsn.2016.0610>.

(3) Wang, C.-Z.; Kong, L.-W.; Jiang, J.; Lai, Y.-C. Machine Learning-Based Approach to GPS Antijamming. *GPS Solut* **2021**, *25* (3), 115. <https://doi.org/10.1007/s10291-021-01154-7>.

(4) Arce, G. R. *Nonlinear Signal Processing: A Statistical Approach*; Wiley-Interscience: Hoboken, N.J, 2005.

1



/ Citation in Word

北航论文：GB7714-87

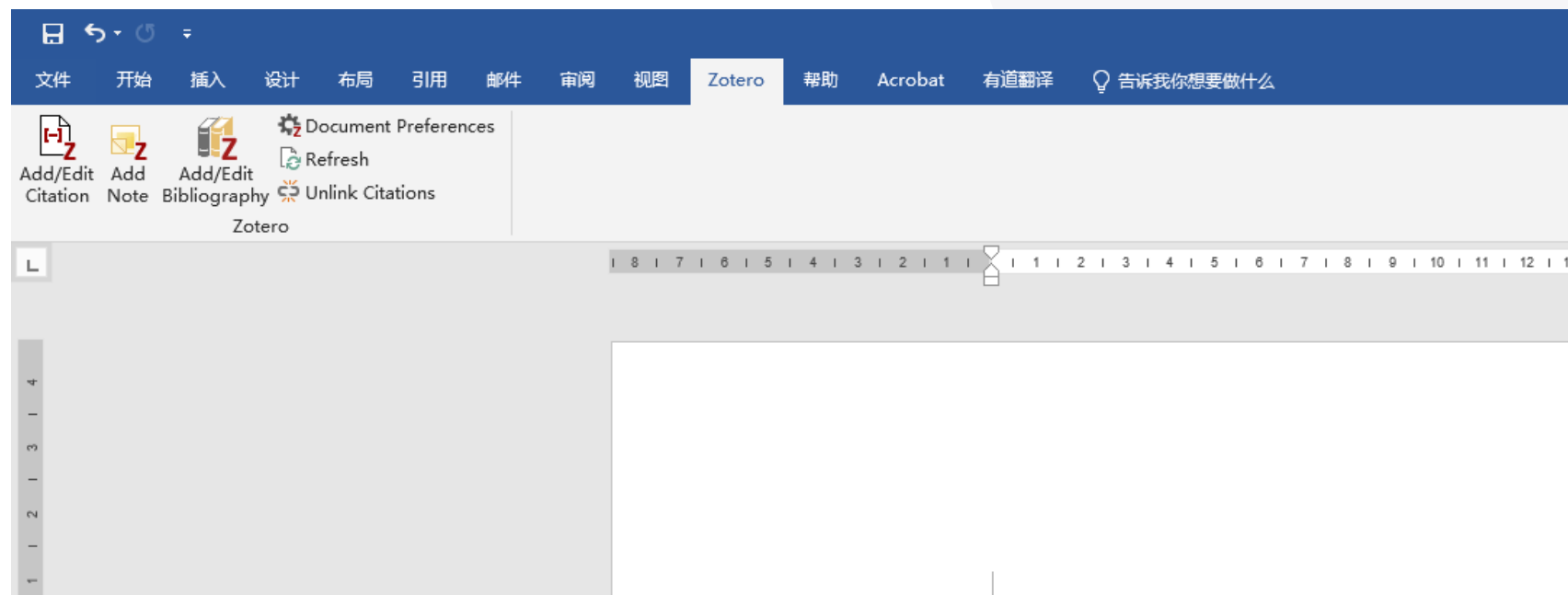
Organization






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添加/编辑引文		在光标位置添加新引文或编辑文档中的现有引文。
添加/编辑参考书目		在光标位置插入参考书目或编辑现有的参考书目。
文档首选项		打开“文档首选项”窗口，例如更改引文样式。
刷新		刷新所有引文和参考书目，更新Zotero库中已更改的任何项目元数据。
取消链接引文		通过删除字段代码取消链接文档中的Zotero引用。这可以防止引用和参考书目的任何进一步的自动更新。 请注意，删除字段代码是不可逆转的，通常只能在文档的最终副本中完成。



/ Citation in LaTeX



Organization

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Citation

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Collaboration

Better BibTeX for Zotero
 Make Zotero useful for us LaTeX hol... [More](#) Disable Remove

The screenshot shows the Zotero interface with a list of citations and a detailed view of a selected entry. The citation key 'wang_mobile_2020' is highlighted in red in the 'Info' tab.

Title	Creator	Year	Info	Notes	Tags	Related
> Near-Optimal Area-Coverage Path Planning of Energy-Constrained Aerial Robots With Applicatio...	Jensen-Nau et al.	2021	1			
> Message-Aware Graph Attention Networks for Large-Scale Multi-Robot Path Planning	Li et al.	2021	2			
> Data-Driven MPC for Quadrotors	Torrente et al.	2021	2			
> A Real-Time Game Theoretic Planner for Autonomous Two-Player Drone Racing	Spica et al.	2020	1			
> Graph Neural Networks for Decentralized Multi-Robot Path Planning	Li et al.	2020	3			
> Mobile Robot Path Planning in Dynamic Environments through Globally Guided Reinforce...	Wang et al.	2020	3			
> The Emergence of Adversarial Communication in Multi-Agent Reinforcement Learning	Blumenkamp and Prorok	2020	1			
> Dynamic obstacle avoidance for quadrotors with event cameras	Falanga et al.	2020	1			
> Path planning techniques for unmanned aerial vehicles: A review, solutions, and challenges	Aggarwal and Kumar	2020	1			
> Methods for Online UAV Path Planning for Tracking Multiple Objects	Nguyen	2020	1			
> Minimal navigation solution for a swarm of tiny flying robots to explore an unknown environ...	McGuire et al.	2019	1			
> Search-Based Motion Planning for Aggressive Flight in SE(3)	Liu et al.	2018	1			
> Tracking wildlife with multiple UAVs: System design, safety and field experiments	Bayram et al.	2017	1			
> A Survey of Motion Planning and Control Techniques for Self-Driving Urban Vehicles	Paden et al.	2016	1			
> Conflict-based search for optimal multi-agent pathfinding	Sharon et al.	2015	2			
> Path Planning and Trajectory Planning Algorithms: A General Overview	Gasparetto et al.	2015	1			
> Quadrotor Helicopter Trajectory Tracking Control	Hoffmann et al.	2008	1			
> Reciprocal velocity obstacles for real-time multi-agent navigation	Van den Berg et al.	2008	1			
> Efficient Two-phase 3D Motion Planning for Small Fixed-wing UAVs	Hwangbo et al.	2007	1			
> Behaviour-based control: examples from navigation, learning, and group behaviour	Mataric	1997	1			

Item Type	Title	Author	Date
Journal Article	Mobile Robot Path Planning in Dynamic Environments through Globally Guided Reinforcement Learning	Wang, Binyu	2020-09-11
		Liu, Zhe	
		Li, Qingbiao	
		Prorok, Amanda	
(...) Abstract	Path planning for mobile r...		
Publication	arXiv:2005.05420 [cs]		
Volume			
Issue			
Pages			
Date	2020-09-11		y m d
Series			
Series Title			
Series Text			
Journal Abbr			
Language			



/ Citation in LaTeX



Organization

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Citation

Plugins

Collaboration

The screenshot shows the Overleaf editor interface. On the left is a file explorer with a tree view containing folders like 'archives', 'figures', and 'IEEEtranBST2', and files like 'IEEEabrv.bib', 'IEEEexample.bib', 'IEEEfull.bib', 'IEEEtran_bst_HOWTO.pdf', 'IEEEtran.bst', 'IEEEtranS.bst', 'README', 'references.bib', 'bare_jrnl_new_sample4.tex', 'New_IEEEtran_how-to.tex', and 'root.tex'. The main editor area shows LaTeX source code with comments in Chinese. A 'Rich Text' view is also visible. A 'Menu' bar is at the top. A 'Add Files' dialog box is open in the center, with 'From Zotero' highlighted in a red box. The dialog has options: 'New File', 'Upload', 'From Another Project', 'From External URL', 'From Mendeley', and 'From Zotero'. The 'From Zotero' option is selected. The dialog also has a 'File Name In This Project' field containing 'references.bib' and a 'Format' dropdown set to 'BibTeX'. 'Cancel' and 'Create' buttons are at the bottom right of the dialog.

```

76 \section{Related work}
77
78 cite \cite{shi_neural_2019}
79

```



ACKNOWLEDGMENTS

This work is supported by xxx.

REFERENCES

[1] G. Shi, X. Shi, M. O'Connell, R. Yu, K. Azizzadenesheli, A. Anandkumar, Y. Yue, and S.-J. Chung, "Neural Lander: Stable Drone Landing Control Using Learned Dynamics," in *2019 IEEE International Conference on Robotics and Automation (ICRA)*. Montreal, QC, Canada: IEEE, May 2019, pp. 9784-9790, iSSN: 2577-087X.



- Manage your attachments: automatically rename, move, and attach PDFs (or other files) to Zotero items.



Organization



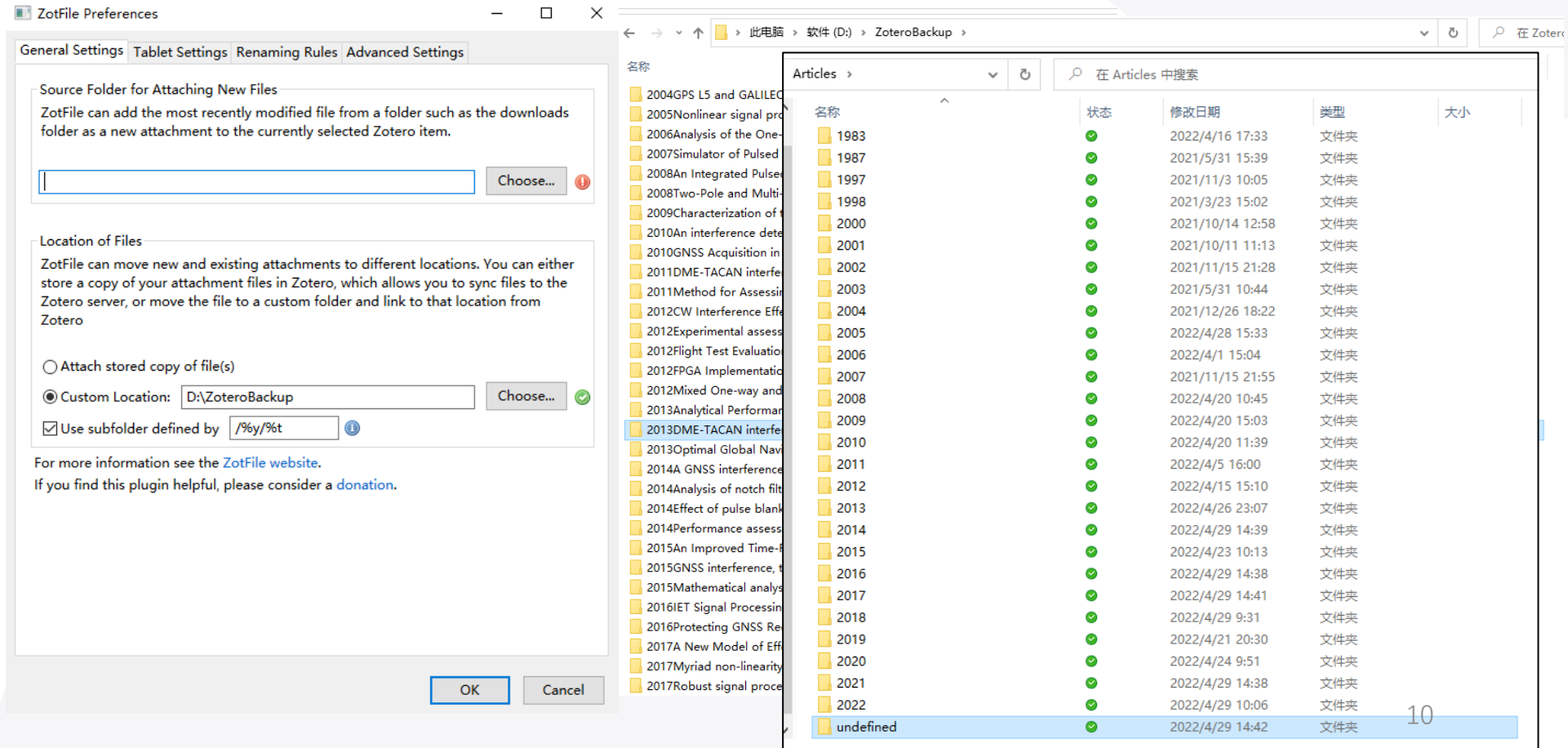
Notes



Citation

**Plugins**

Collaboration



The screenshot shows the ZotFile Preferences dialog box and a file explorer window. The dialog box is open to the 'Advanced Settings' tab and shows the 'Location of Files' section. The 'Custom Location' is set to 'D:\ZoteroBackup' and 'Use subfolder defined by' is checked with the pattern '/%y/%t'. The file explorer window shows a list of folders in the 'ZoteroBackup' directory, with columns for '名称' (Name), '状态' (Status), '修改日期' (Modification Date), '类型' (Type), and '大小' (Size).

名称	状态	修改日期	类型	大小
1983	✓	2022/4/16 17:33	文件夹	
1987	✓	2021/5/31 15:39	文件夹	
1997	✓	2021/11/3 10:05	文件夹	
1998	✓	2021/3/23 15:02	文件夹	
2000	✓	2021/10/14 12:58	文件夹	
2001	✓	2021/10/11 11:13	文件夹	
2002	✓	2021/11/15 21:28	文件夹	
2003	✓	2021/5/31 10:44	文件夹	
2004	✓	2021/12/26 18:22	文件夹	
2005	✓	2022/4/28 15:33	文件夹	
2006	✓	2022/4/1 15:04	文件夹	
2007	✓	2021/11/15 21:55	文件夹	
2008	✓	2022/4/20 10:45	文件夹	
2009	✓	2022/4/20 15:03	文件夹	
2010	✓	2022/4/20 11:39	文件夹	
2011	✓	2022/4/5 16:00	文件夹	
2012	✓	2022/4/15 15:10	文件夹	
2013	✓	2022/4/26 23:07	文件夹	
2014	✓	2022/4/29 14:39	文件夹	
2015	✓	2022/4/23 10:13	文件夹	
2016	✓	2022/4/29 14:38	文件夹	
2017	✓	2022/4/29 14:41	文件夹	
2018	✓	2022/4/29 9:31	文件夹	
2019	✓	2022/4/21 20:30	文件夹	
2020	✓	2022/4/24 9:51	文件夹	
2021	✓	2022/4/29 14:38	文件夹	
2022	✓	2022/4/29 10:06	文件夹	
undefined	✓	2022/4/29 14:42	文件夹	



- Delete the item and all its attachments.



Organization



Notes



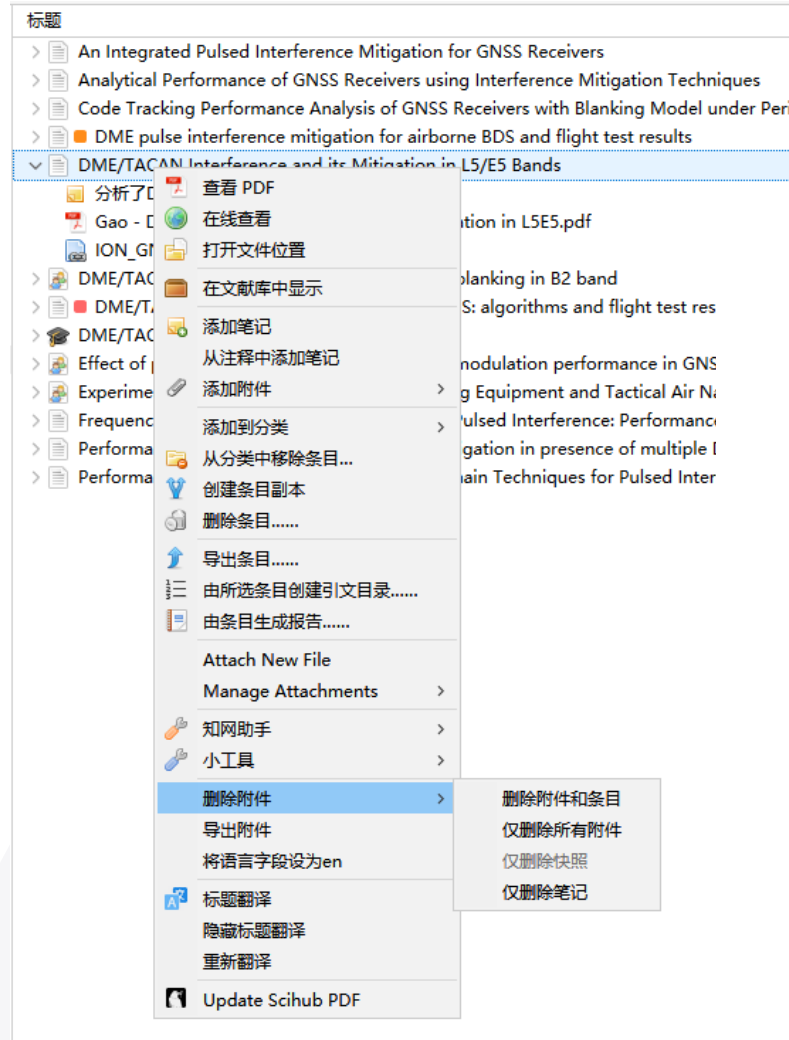
Citation



Plugins

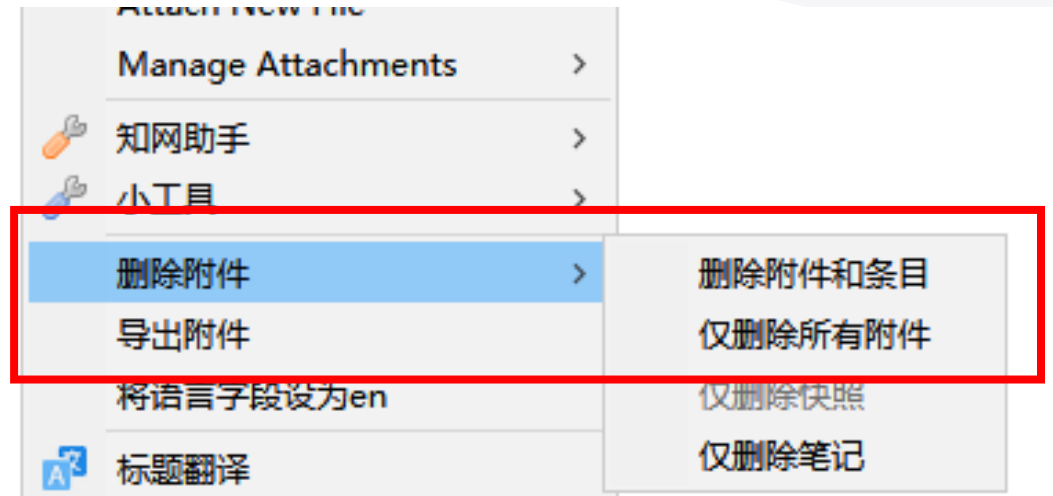


Collaboration



标题

- > An Integrated Pulsed Interference Mitigation for GNSS Receivers
- > Analytical Performance of GNSS Receivers using Interference Mitigation Techniques
- > Code Tracking Performance Analysis of GNSS Receivers with Blanking Model under Peri
- > DME pulse interference mitigation for airborne BDS and flight test results
- ▼ DME/TACAN Interference and its Mitigation in L5/E5 Bands
 - 分析了... 查看 PDF
 - Gao - D... 在线查看
 - ION_G... 打开文件位置
 - > DME/TAC... 在文献库中显示
 - > DME/T... 添加笔记
 - > DME/TAC... 从注释中添加笔记
 - > Effect of... 添加附件
 - > Experime... 添加到分类
 - > Frequenc... 从分类中移除条目...
 - > Performa... 创建条目副本
 - > Performa... 删除条目.....
 - 导出条目.....
 - 由所选条目创建引文目录.....
 - 由条目生成报告.....
 - Attach New File
 - Manage Attachments >
 - 知网助手 >
 - 小工具 >
 - 删除附件 > 删除附件和条目
 - 导出附件 仅删除所有附件
 - 将语言字段设为en 仅删除快照
 - 标题翻译 仅删除笔记
 - 隐藏标题翻译
 - 重新翻译
 - Update SciHub PDF



Attach New File

Manage Attachments >

- 知网助手 >
- 小工具 >
- 删除附件 > 删除附件和条目
- 导出附件 仅删除所有附件
- 将语言字段设为en 仅删除快照
- 标题翻译 仅删除笔记



/ Zotero_scihub



Sci-Hub Plugin for Zotero

Download papers and books by DOI from Sci-Hub

- Directly download paper from Sci-Hub.
- Quick and convenient



Organization



Notes



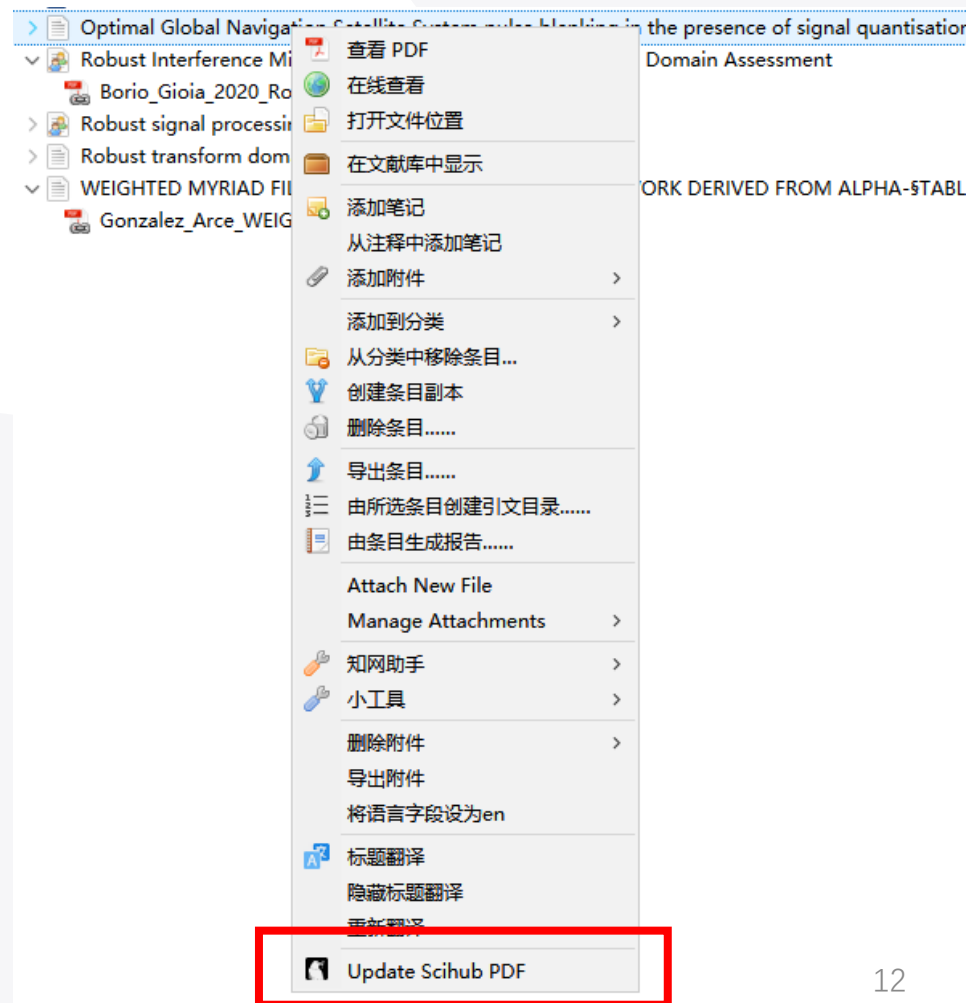
Citation



Plugins



Collaboration





- Translate the selected sentences into Chinese.



Organization



Notes



Citation



Plugins



Collaboration

1 Introduction

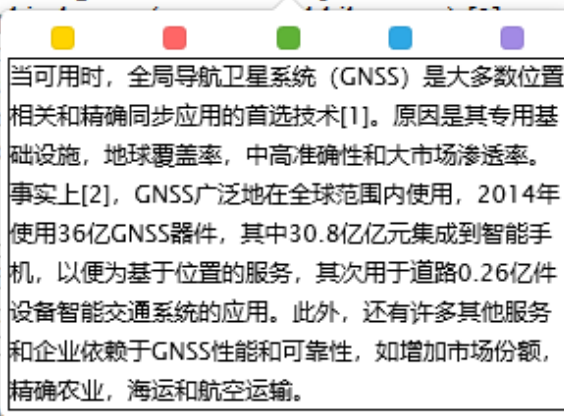
When available, global navigation satellite system (GNSS) is the technology of choice for most position-related and precise synchronisation applications [1]. The reasons are due to its dedicated infrastructure, Earth coverage, medium-to-high accuracy and large market penetration. As a matter of fact [2], GNSS is extensively used around the globe, with 3.6 billion GNSS devices in use in 2014, out of which 3.08 billion are integrated into smartphones for location-based services, followed by 0.26 billion devices used for road applications in intelligent transportation systems. Additionally, there are many other services and businesses that rely on GNSS performance and reliability such as – in increasing market share – surveying, precise agriculture, maritime and aviation transportation.

Even very simple jamming devices can disrupt GNSS-based services in wide geograp

Although these jammer relatively easy and cheap of dollars. In addition unintentional interference events can has motivated notable characterisation, detectio

To counteract the eff or unintentional, a com cancellation (IC) [5]. IC and (ii) estimating its waveform from a param

the interference term is then subtracted from the observations such





- Obtain relevant information from CNKI.



Organization



Notes



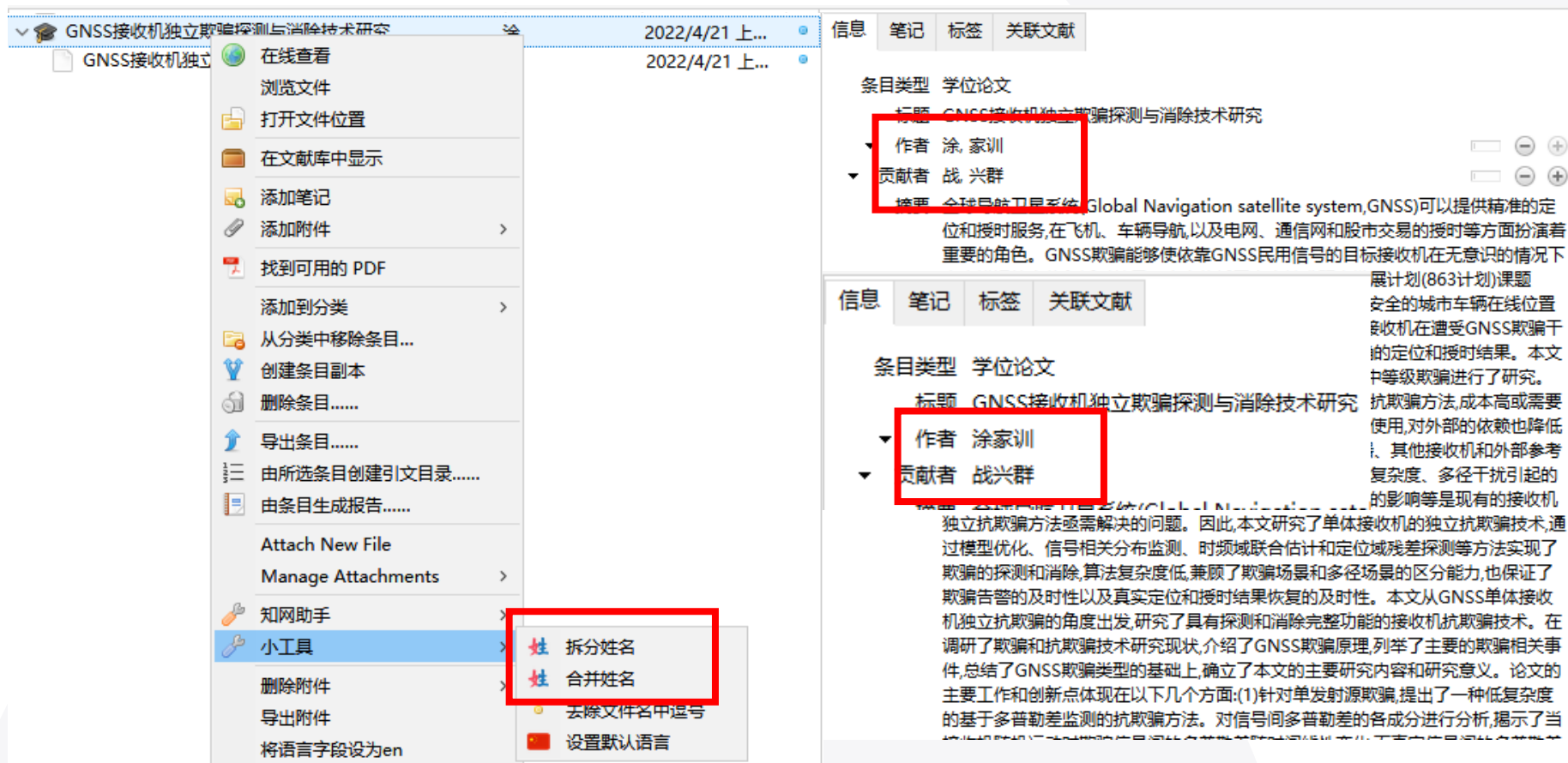
Citation



Plugins



Collaboration



The screenshot shows the Zotero interface with a context menu open over a citation entry. The citation entry is for a thesis titled "GNSS接收机独立欺骗探测与消除技术研究" (Research on Independent Spoofing Detection and Elimination Technology of GNSS Receiver). The author is listed as "涂, 家训" (Tu, Jiajun) and the contributor as "战, 兴群" (Zhan, Xingqun). The context menu includes options like "在线查看" (View Online), "浏览文件" (Browse File), and "小工具" (Tools). The "小工具" menu is open, showing options like "拆分姓名" (Split Name) and "合并姓名" (Merge Name), which are highlighted with red boxes. The citation entry is also highlighted with a red box.

GNSS接收机独立欺骗探测与消除技术研究 2022/4/21 上...

GNSS接收机独立欺骗探测与消除技术研究 2022/4/21 上...

信息 笔记 标签 关联文献

条目类型 学位论文

标题 GNSS接收机独立欺骗探测与消除技术研究

作者 涂, 家训

贡献者 战, 兴群

摘要 全球导航卫星系统(Global Navigation satellite system,GNSS)可以提供精准的定位和授时服务,在飞机、车辆导航,以及电网、通信网和股市交易的授时等方面扮演着重要的角色。GNSS欺骗能够使依靠GNSS民用信号的目标接收机在无意识的情况下展计划(863计划)课题

安全的城市车辆在线位置

接收机在遭受GNSS欺骗干

扰的定位和授时结果。本文

中等级欺骗进行了研究。

抗欺骗方法,成本高或需要

使用,对外部的依赖也降低

!。其他接收机和外部参考

复杂度、多径干扰引起的

的影响等是现有的接收机

独立抗欺骗方法亟需解决的

问题。因此,本文研究了单

体接收机的独立抗欺骗技术,

通过模型优化、信号相关分

布监测、时频域联合估计和

定位域残差探测等方法实现

了欺骗的探测和消除,算法

复杂度低,兼顾了欺骗场景

和多径场景的区分能力,也

保证了欺骗告警的及时性以

及真实定位和授时结果恢复

的及时性。本文从GNSS单

体接收机独立抗欺骗的角度

出发,研究了具有探测和消

除完整功能的接收机抗欺骗

技术。在调研了欺骗和抗欺

骗技术研究现状,介绍了GN

SS欺骗原理,列举了主要的

欺骗相关事件,总结了GN

SS欺骗类型的基础上,确立

了本文的主要研究内容和研

究意义。论文的主要工作和

创新点体现在以下几个方面:

(1)针对单发射源欺骗,提

出了一种低复杂度的基于

多普勒差监测的抗欺骗方

法。对信号间多普勒差的各

成分进行分析,揭示了当

欺骗信号与真实信号同时

存在时,多普勒差监测的

有效性。通过仿真验证了

该方法的可行性,并分析了

该方法的优缺点。最后,对

该方法的实际应用进行了

讨论。

关键词 GNSS欺骗;多普勒差;抗欺骗;探测;消除

信息 笔记 标签 关联文献

条目类型 学位论文

标题 GNSS接收机独立欺骗探测与消除技术研究

作者 涂家训

贡献者 战兴群

拆分姓名

合并姓名

去除文件名中逗号

设置默认语言



Organization



Notes



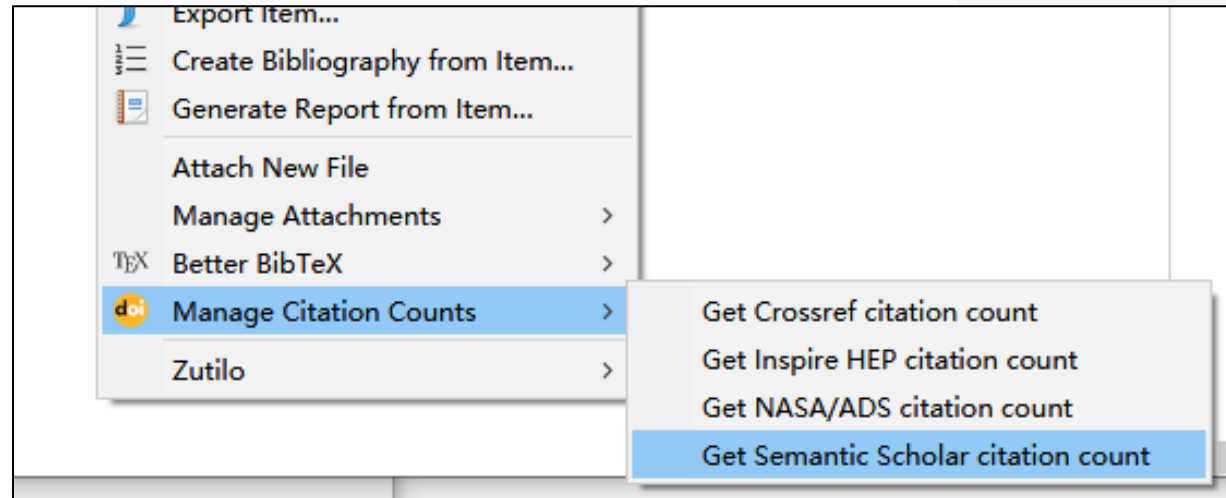
Citation



Plugins



Collaboration



Extra 1307 citations (Semantic Scholar/DOI) [2022-04-20]
929 citations (Crossref) [2022-04-20]
ISSN: 1050-4729



Organization



Notes



Citation

Plugins

Collaboration

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**Zotero Citation Counts Manager**Automatically fetch and update citation... [More](#)

Disable

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Zotero LibreOffice IntegrationIntegrates Zotero with LibreOffice [More](#)

Disable

Zotero Word for Windows IntegrationIntegrates Zotero with Microsoft Word for Windows [More](#)

Disable

**ZotFile**Advanced PDF management for Zotero [More](#)

Disable

Remove

**Zutilo Utility for Zotero**A utility adding assorted macros for Zo... [More](#)

Disable

Remove

**Delitem (disabled)**Delete Item(s) with Attachment(s). [More](#)

Enable

Remove

**Jasminum (disabled)**A simple Add-on to enhance Chinese u... [More](#)

Enable

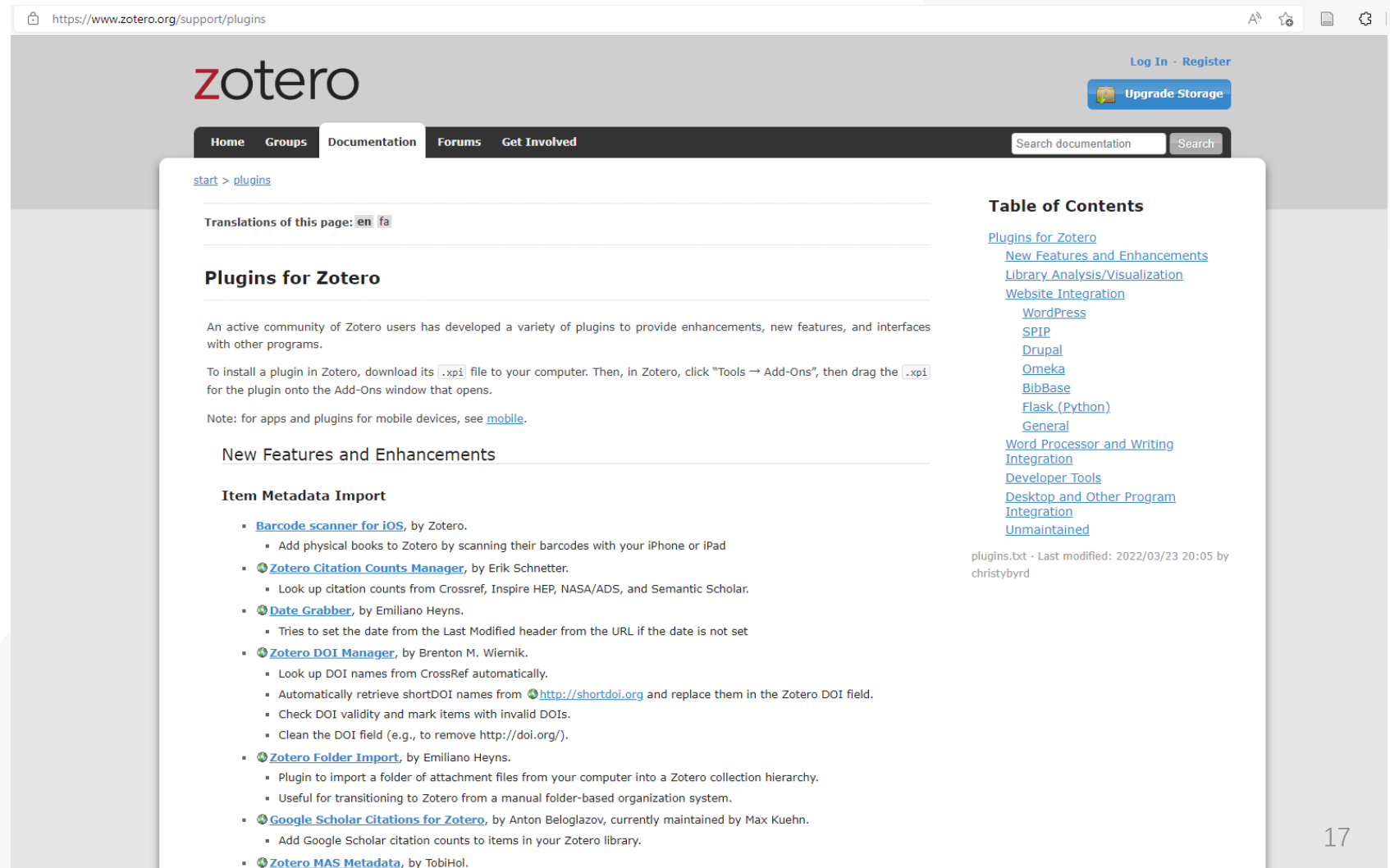
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**Sci-Hub Plugin for Zotero (disabled)**Download papers and books by DOI fr... [More](#)

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Remove

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zotero

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Search documentation Search

start > plugins

Translations of this page: [en](#) [fa](#)

Plugins for Zotero

An active community of Zotero users has developed a variety of plugins to provide enhancements, new features, and interfaces with other programs.

To install a plugin in Zotero, download its `.xpi` file to your computer. Then, in Zotero, click "Tools → Add-Ons", then drag the `.xpi` for the plugin onto the Add-Ons window that opens.

Note: for apps and plugins for mobile devices, see [mobile](#).

New Features and Enhancements

Item Metadata Import


- [Barcode scanner for iOS](#), by Zotero.
 - Add physical books to Zotero by scanning their barcodes with your iPhone or iPad
- [Zotero Citation Counts Manager](#), by Erik Schnetter.
 - Look up citation counts from Crossref, Inspire HEP, NASA/ADS, and Semantic Scholar.
- [Date Grabber](#), by Emiliano Heyns.
 - Tries to set the date from the Last Modified header from the URL if the date is not set
- [Zotero DOI Manager](#), by Brenton M. Wiernik.
 - Look up DOI names from CrossRef automatically.
 - Automatically retrieve shortDOI names from <http://shortdoi.org> and replace them in the Zotero DOI field.
 - Check DOI validity and mark items with invalid DOIs.
 - Clean the DOI field (e.g., to remove `http://doi.org/`).
- [Zotero Folder Import](#), by Emiliano Heyns.
 - Plugin to import a folder of attachment files from your computer into a Zotero collection hierarchy.
 - Useful for transitioning to Zotero from a manual folder-based organization system.
- [Google Scholar Citations for Zotero](#), by Anton Beloglazov, currently maintained by Max Kuehn.
 - Add Google Scholar citation counts to items in your Zotero library.
- [Zotero MAS Metadata](#), by TobiHol.

Table of Contents




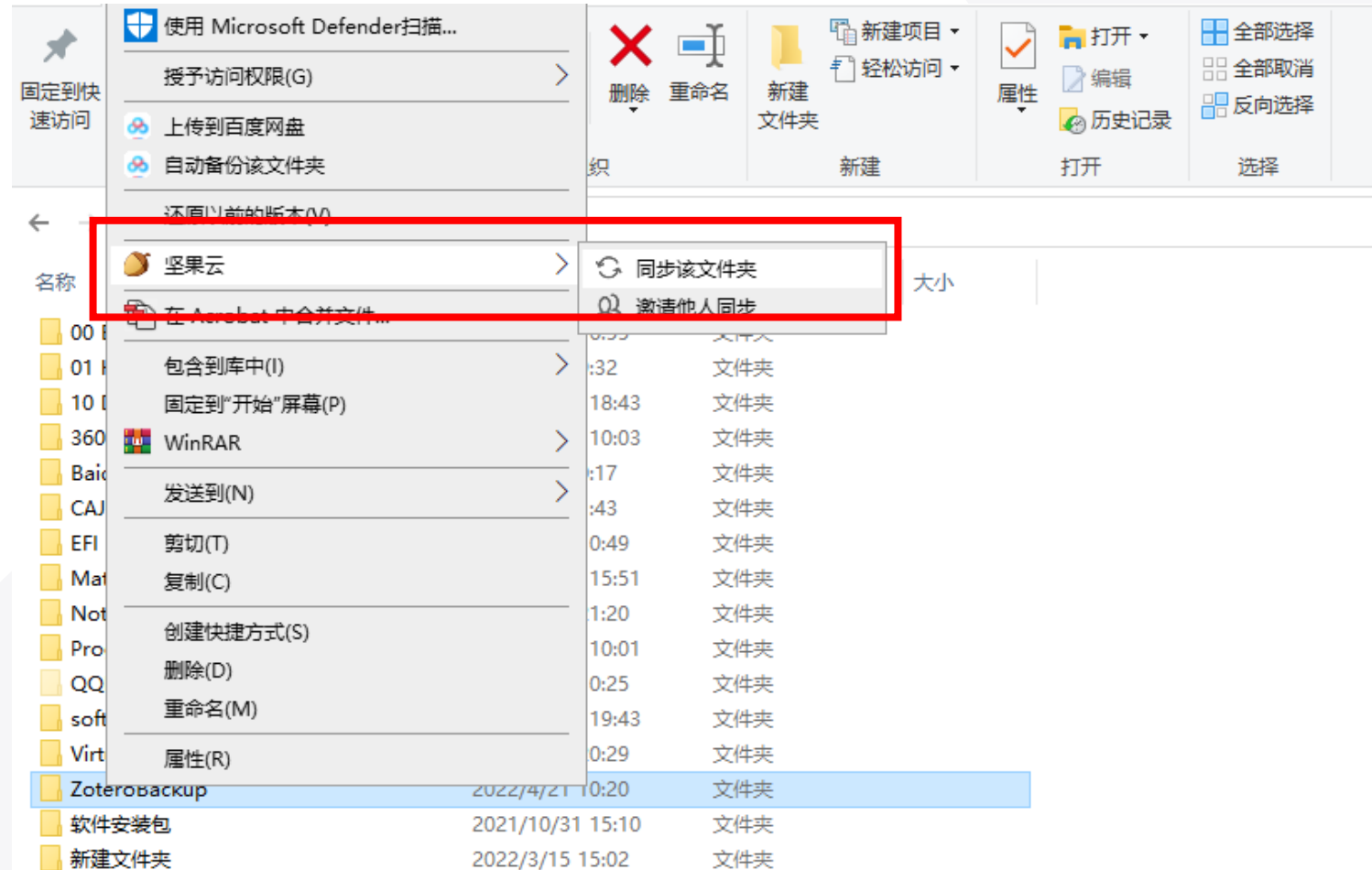
[Plugins for Zotero](#)

- [New Features and Enhancements](#)
- [Library Analysis/Visualization](#)
- [Website Integration](#)
 - [WordPress](#)
 - [SPnP](#)
 - [Drupal](#)
 - [Omeka](#)
 - [BibBase](#)
 - [Flask \(Python\)](#)
 - [General](#)
- [Word Processor and Writing Integration](#)
- [Developer Tools](#)
- [Desktop and Other Program Integration](#)
- [Unmaintained](#)

plugins.txt · Last modified: 2022/03/23 20:05 by christybyrd

 Organization Notes Citation **Plugins** Collaboration

- Use Zotero on multiple computers with Zotero syncing.

 Organization Notes Citation Plugins **Collaboration**



/ Groups

- Share group libraries to collaboratively manage research sources and materials, publicly or privately.

Organization

Notes

Citation

Plugins

Collaboration

The screenshot displays the Zotero application interface. At the top, the 'zotero' logo is on the left, and a navigation bar contains 'Groups' (highlighted with a red box) and 'Documentation'. Below the navigation bar, a dark sidebar on the left contains icons for various features. The main content area shows a 'What can groups' section with the text 'With groups, you can collaborate and so much more.' and a bullet point 'Share your own work'. Overlaid on this is a 'Group Libraries' dropdown menu with options: 'BUAA_TEST', 'Nature', 'Duplicate Items', 'Unfiled Items', and 'Trash'. Another window titled 'CNS_Research - Zotero' is open, showing a file explorer view with folders like '我的文库', '干扰&兼容性', and '建模方法参考', and files like 'Breaking into the black box of artif' and 'Snapshot'. A third window shows a '群组文库' (Group Library) view for 'CNS_Research' with sub-items: '重复条目', '未分类条目', and '回收站'.

ADVANCED TOPIC OF




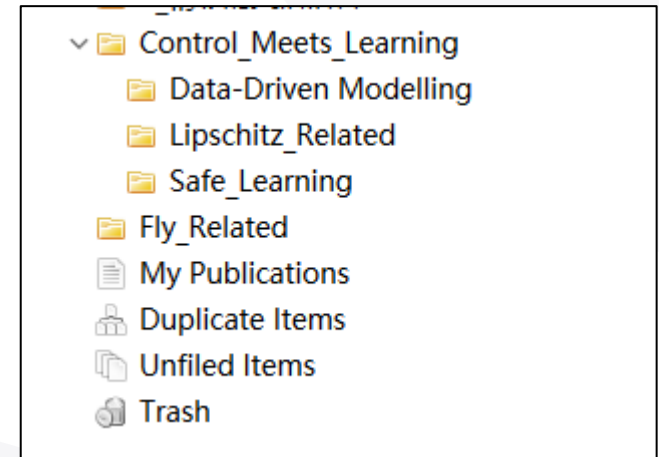
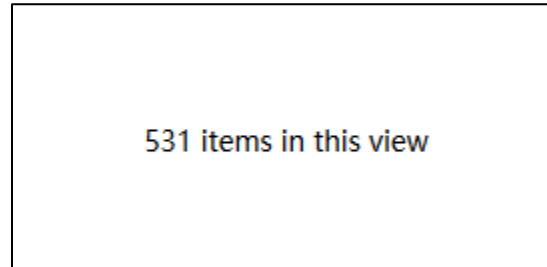
zotero

— 李谨杰 —

2022年4月29日

/ 如何分类

- 遇到问题：混乱的分类增加查找难度

 **文献分类** 前沿追踪 标签状态 为何用纸 只有两点

- 方案一：按项目分。如毕业设计。
- 方案二：按对象分。如四旋翼、固定翼等。
- 方案三：按问题分。如Sensing, Planning等。
- 方案四：按方法分。Deep Learning, Consensus等。

/ 思考过程

- 目的：文献的组织架构应该有助于**建立整个知识体系及跨学科思考**。
- 科研的正确方向：寻找一个好的问题



文献分类



前沿追踪



标签状态



为何用纸



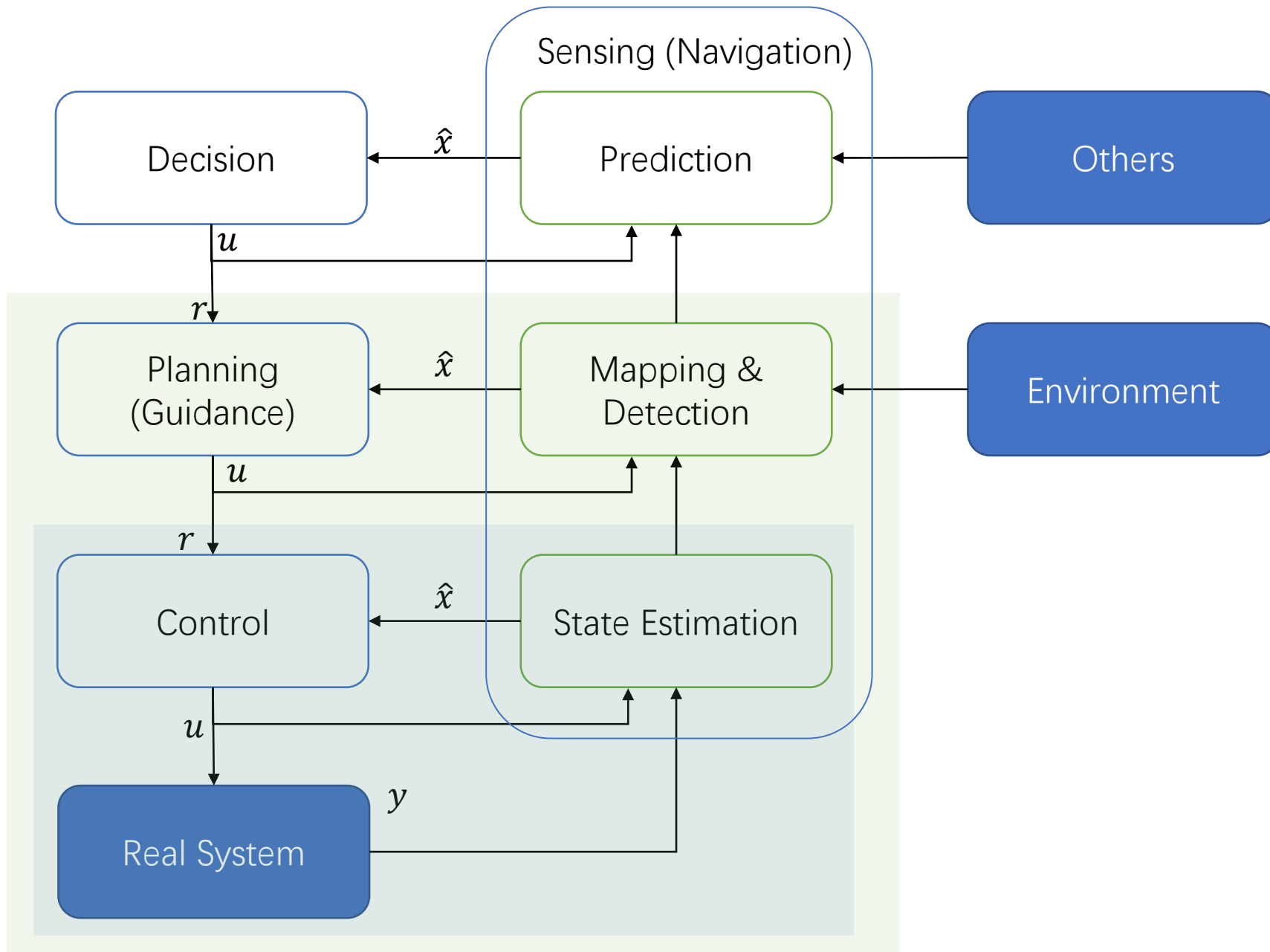
只有两点

分类标准	优点	缺点	跨学科程度	优先级
项目	高效	长期无积累，对构建知识体系无帮助	较高	1
对象	便于深耕某个对象	不利于进行不同对象间的方法借鉴	低	3
问题	便于构建知识体系	不容易针对一个理论建立分支	高	1（最高）
方法	便于对一种理论内部的分支有所了解	容易拿着锤子找钉子	低	2

JGCD也说制导一般
不要求稳定性证明了

引入环境变量难以构造
封闭系统，是难以
应用Lyapunov的原因！

Lyapunov的适用范畴？



/ 最终结果

- My Library
 - 0a_NN_MPC
 - 0b_IPT
 - 0c_Falcon

- 1_Full_Stack
 - 1a_Sensing
 - a_Prediction_&_Detection
 - b_Mapping
 - c_SLAM
 - d_Localization
 - e_Fusion_Filter
 - f_Event_Camera
 - 1b_Decision
 - 1c_Planning
 - a_Path_Planning
 - b_Traj_Generation
 - c_Traj_Planning
 - d_Guidance
 - 1d_Control
 - a_Trajectory_Tracking
 - b_Path_Following
 - c_Formation_Flocking
 - d_Dynamic_Obstacle_Avoidance
 - z_Others
 - 1e_Modelling
 - a_Aero_Classical
 - b_Aero_Deep_Learning
 - z_Others
 - 1f_Structure
 - 1g_Sim_&_Tools
 - 1h_Evaluation

- 2_Bioinspired
- 2_MPC
 - Learning_MPC
 - MPC_Tools
 - Robust_MPC
 - Standard_MPC
 - Swarm_MPC
- 2_Pattern_Recognition
 - a_General
 - b_CV
 - c_NLP
 - d_GNN
 - e_DRL
 - f_XAI
- 2_RL
 - RL_AERO
 - RL_Algorithms



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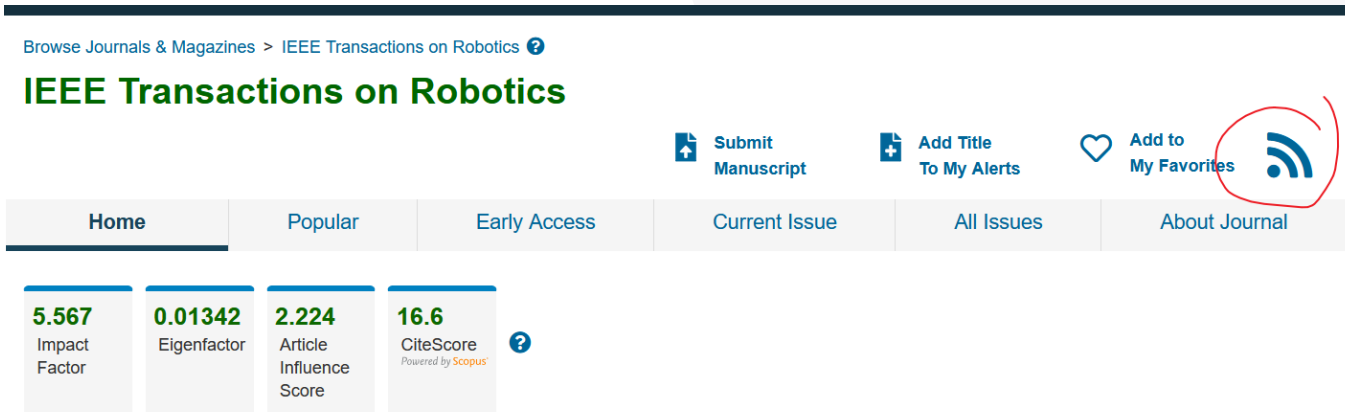


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/ 如何跟踪前沿

- 1. Feed



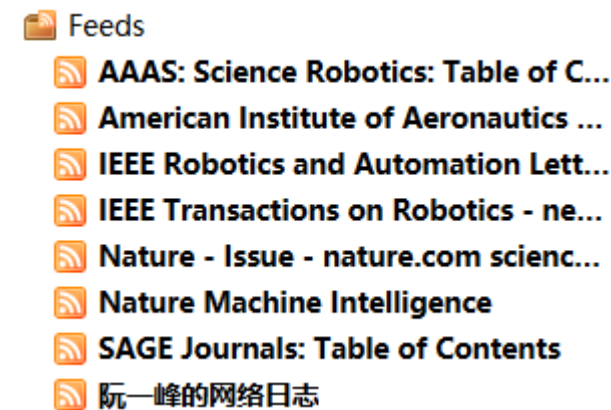
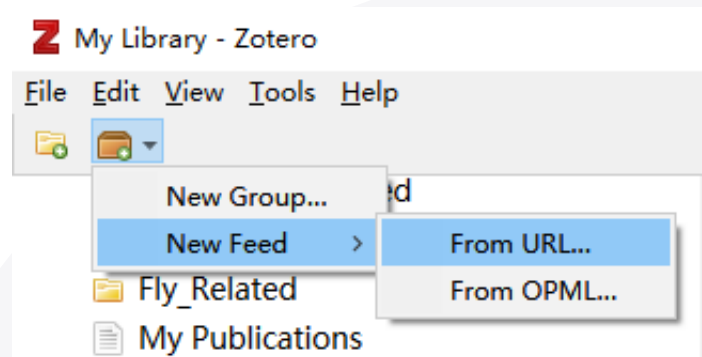
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(现场示范)

/ 如何跟踪前沿

• 2. Google Scholar Alerts



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标签状态



为何用纸



只有两点



Vijay Kumar

Professor of Mechanical Engineering and Applied Mechanics, University of Pennsylvania

Verified email at seas.upenn.edu - Homepage

[Robotics](#)

 FOLLOWING

Google Scholar	
Alerts	Fei Gao - new articles
Alerts for lijinnie362@gmail.com	Sihao Sun - new articles
Vijay Kumar - new articles	Pieter Abbeel - new articles
Mark W. Mueller - new articles	Zijian Wang - new articles
Hongkai Dai - new articles	Nathan Michael - new articles
Helen Oleynikova - new articles	Francesco Borrelli - new articles
Jonathan P. How - new articles	Dario Floreano - new articles
Sebastian Scherer - new articles	Melanie Zeilinger - new articles
Rose Yu - new articles	Quan Quan - new articles
Davide Scaramuzza - new articles	Markus Ryll - new articles
	Randal Beard - new articles
	Yisong Yue - new articles
	Yunlong Song - new articles
	Nicholas Roy - new articles
	Raffaello D'Andrea - new articles
	Amanda Prorok - new articles
	Guido de Croon - new articles
	Pakpong Chirarattananon - new articles
	Roland Siegwart - new articles
	Sikang Liu - new articles
	Alcherio Martinoli - new articles
	Guanya Shi - new articles
	Jemin Hwangbo - new articles
	Ming Liu - new articles
	Shaojie Shen - new articles



/ 如何搜索文献

• 3. Connected Papers

<https://www.connectedpapers.com>



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为何用纸



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Neural-MPC: Deep Learning Model Predictive Control for Quadrotors and Agile Robotic Platforms

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Origin paper
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 Tim Salzmann, Elia Kaufmann, M. Pavone, D. Scaramuzza, ... 2022

Data-Driven MPC for Quadrotors
 G. Torrente, Elia Kaufmann, Philip Föhn, D. Scaramuzza 2021

NeuroBEM: Hybrid Aerodynamic Quadrotor Model
 L. Bauersfeld, Elia Kaufmann, Philipp Foehn, Sihao Sun, D... 2021

A Benchmark Comparison of Learned Control Policies for Agile Quadrotor Flight
 Elia Kaufmann, L. Bauersfeld, D. Scaramuzza 2022

Time-optimal planning for quadrotor waypoint flight
 Philipp Foehn, Angel Romero, D. Scaramuzza 2021

TOAST: Trajectory Optimization and Simultaneous Tracking using Shared Neural Network Dynamics
 Taekyung Kim, Hojin Lee, S. Hong, Wonsuk Lee 2022

CPC: Complementary Progress Constraints for Time-Optimal Quadrotor Trajectories
 Philipp Foehn, D. Scaramuzza 2020

Range, Endurance, and Optimal Speed Estimates for Multicopters
 L. Bauersfeld, D. Scaramuzza 2021

A Comparative Study of Nonlinear MPC and Differential-Flatness-Based Control for Quadrotor Agile Flight

Created on Apr 20 2022

KNODE-MPC: A Knowledge-Based Data-Driven Predictive Control Framework for Aerial Robots
 K. Y. Chee, Tom Z. Jiahao, M. A. Hsieh
 2021, IEEE Robotics and Automation Letters
 0 Citations, 31 References

Open in:

In this letter, we consider the problem of deriving and incorporating accurate dynamic models for model predictive control (MPC) with an application to quadrotor control. MPC relies on precise dynamic models to achieve the desired closed-loop performance. However, the presence of uncertainties in complex systems and the environments they operate in poses a challenge in obtaining sufficiently accurate representations of the system dynamics. In this letter, we make use of a deep learning tool, knowledge-based neural ordinary differential equations (KNODE), to augment a model obtained from first principles. The resulting hybrid model encompasses both a nominal first-principle model and a neural network learnt from simulated or real-world experimental data. Using a quadrotor, we benchmark our hybrid model against a state-of-the-art Gaussian Process (GP) model and show that the hybrid model provides more accurate predictions of the quadrotor dynamics and is able to generalize beyond the training data. To improve closed-loop performance, the hybrid model is integrated into a novel MPC framework, known as KNODE-MPC. Results show that the integrated framework achieves 60.2% improvement in simulations and more than 21% in physical experiments, in terms of trajectory tracking performance.



/ 如何跟踪前沿

- 4. 公众号

量子位、机器之心、机器人大讲堂等等，群内分享

要保存到Zotero中，才算OK



文献分类



前沿追踪



标签状态



为何用纸



只有两点

/ 一篇文献的奇幻漂流

- 打标签：一种与Collection不同的分类方式

优点：灵活；缺点：无法构建知识体系

1. 收入一篇文献 → **Abstract Unread**
2. 若读完摘要，简要记录，无标签
3. 若全文读完，详细记录 → **Intensive Reading**
4. 若复现过或论文中使用过 → **Used or Reproduced**

平行标签：

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Abstract Unread Valuable

Intensive Reading Used or Reproduced

Tutorials and Surveys \$H_infty\$ filters



文献分类



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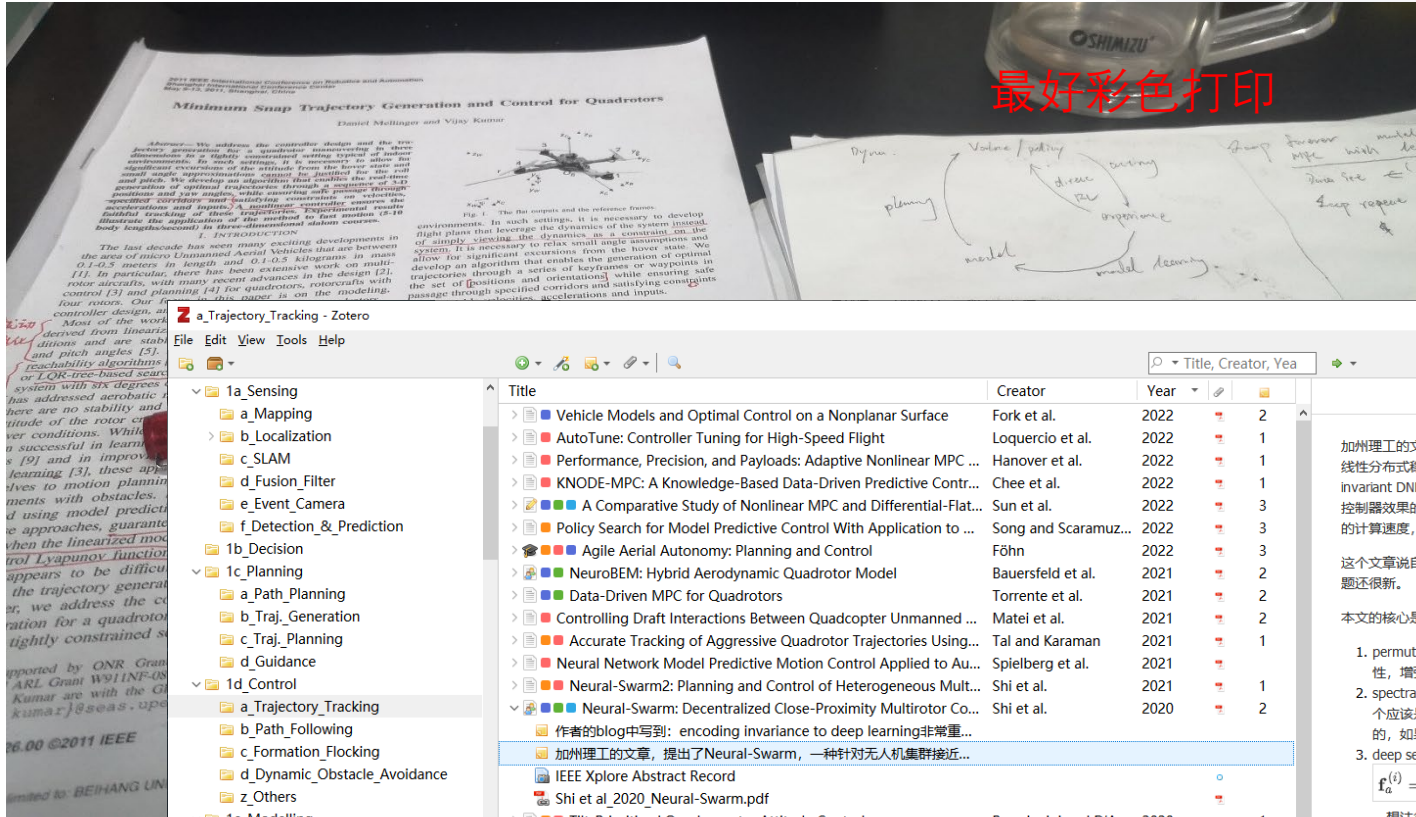
为何用纸



只有两点



我的old-school做派



文献分类

前沿追踪

标签状态

为何用纸

只有两点

2 a_Trajectory_Tracking - Zotero

File Edit View Tools Help

- 1a_Sensing
 - a_Mapping
 - b_Localization
 - c_SLAM
 - d_Fusion_Filter
 - e_Event_Camera
 - f_Detection_& Prediction
 - 1b_Decision
 - 1c_Planning
 - a_Path_Planning
 - b_Traj_Generation
 - c_Traj_Planning
 - d_Guidance
 - 1d_Control
 - a_Trajectory_Tracking
 - b_Path_Following
 - c_Formation_Flocking
 - d_Dynamic_Obstacle_Avoidance
 - z_Others
 - 1e_Modelling
 - a_Aero_Classical
 - b_Aero_Deep_Learning
 - z_Others
 - 1f_Structure
- Top, Nature, Science, PNAS, SRobotics, IJRR, ...
- Abstract Unread Valuable
- Intensive Reading Used or Reproduced
- Tutorials and Surveys Acceleration
- Adaptation models Adaptive control
- Adaptive systems Aerial robotics
- Aerial systems
- aerial systems: mechanics and control

Title	Creator	Year	Count
Vehicle Models and Optimal Control on a Nonplanar Surface	Fork et al.	2022	2
AutoTune: Controller Tuning for High-Speed Flight	Loquerio et al.	2022	1
Performance, Precision, and Payloads: Adaptive Nonlinear MPC ...	Hanover et al.	2022	1
KNODE-MPC: A Knowledge-Based Data-Driven Predictive Contr...	Chee et al.	2022	1
A Comparative Study of Nonlinear MPC and Differential-Flat...	Sun et al.	2022	3
Policy Search for Model Predictive Control With Application to ...	Song and Scaramuz...	2022	3
Agile Aerial Autonomy: Planning and Control	Föhn	2022	3
NeuroBEM: Hybrid Aerodynamic Quadrotor Model	Bauersfeld et al.	2021	2
Data-Driven MPC for Quadrotors	Torrente et al.	2021	2
Controlling Draft Interactions Between Quadcopter Unmanned ...	Matei et al.	2021	2
Accurate Tracking of Aggressive Quadrotor Trajectories Using...	Tal and Karaman	2021	1
Neural Network Model Predictive Motion Control Applied to Au...	Spielberg et al.	2021	1
Neural-Swarm2: Planning and Control of Heterogeneous Mult...	Shi et al.	2021	1
Neural-Swarm: Decentralized Close-Proximity Multitrotor Co...	Shi et al.	2020	2
作者的博客中写到: encoding invariance to deep learning非常重...			
加州理工的文章, 提出了Neural-Swarm, 一种针对无人机集群接近...			
IEEE Xplore Abstract Record			
Shi et al_2020_Neural-Swarm.pdf			
Tilt-Prioritized Quadcopter Attitude Control	Bresciani and D'A...	2020	1
Adaptive Digital PID Control of a Quadcopter with Unknown Dyna...	Goel et al.	2020	1
Low-Level Control of a Quadrotor With Deep Model-Based Rein...	Lambert et al.	2019	2
Data-Driven Model Predictive Control for Trajectory Tracking Wi...	Carron et al.	2019	1
Neural Lander: Stable Drone Landing Control Using Learned...	Shi et al.	2019	2
Position and attitude control of multi-rotor aerial vehicles: A s...	Nascimento and Sa...	2019	1
PAMPC: Perception-Aware Model Predictive Control for Quadro...	Falanga et al.	2018	1
Agile Coordination and Assistive Collision Avoidance for Quad...	Zhou et al.	2018	1
Differential Flatness of Quadrotor Dynamics Subject to Rotor Dr...	Faessler et al.	2018	1
Characterization of the Aerodynamic Ground Effect and Its Inf...	Sanchez-Cuevas et al.	2017	2
Improving quadrotor trajectory tracking by compensating for ...	Svacha et al.	2017	1
Estimation, Control, and Planning for Aggressive Flight With a...	Loianno et al.	2017	1
Model Predictive Control for Trajectory Tracking of Unmanned...	Kamel et al.	2017	2
Learning quadrotor dynamics using neural network for flight c...	Bansal et al.	2016	1
A nonlinear quadrotor trajectory tracking controller with distur...	Cabecinhas et al.	2014	2

加州理工的文章, 提出了Neural-Swarm, 一种针对无人机集群接近飞行的非线性分布式稳定控制器。本文将一个nominal模型和一个permutation-invariant DNN组合, 用DNN去描述高阶的多飞机间的气流干扰。实验验证了控制器效果的改善(最差的情况改善了四倍), 使用反馈线性化保证了足够的计算速度, 也验证了向更大规模集群的泛化性。

这篇文章说自己是第一篇研究多个多旋翼之间气动干扰的文章, 说明这个问题还很新。

本文的核心是这个permutation-invariant DNN, 用了三种技巧:

- permutation-invariant, 这个是Rose Yu讲过的, 用不变性提供恒定性, 增强网络的泛化性能, 是神经网络描述流体的一种常用方法。
- spectral normalization, 确保DNN是Lipschitz连续的, 即导致有界, 这个应该是便于证明。这个非常重要, 因为IMU等传感器都是有噪声的, 如果不保证这个最后学出的网络毛刺很多, 容易不稳定。
- deep sets,

$$\mathbf{f}_a^{(i)} = \mathbf{f}_a(\mathcal{N}^{(i)}) \approx \rho \left(\sum_{\mathbf{x}^{(ij)} \in \mathcal{N}^{(i)}} \phi(\mathbf{x}^{(ij)}, \boldsymbol{\theta}_\phi), \boldsymbol{\theta}_\rho \right) = \hat{\mathbf{f}}_a^{(i)}$$

想法很简单, 就是把几个神经网络加起来, 再用一个神经网络代替。每个子神经网络都表征了不同邻居的“contribution”。这种方法的优点是计算量随个体数量线性叠加。

训练流程: cumulative/curriculum learning approach

step1: 收集两个无DNN的四旋翼的飞行数据, 学习model.

step2: 重复数据收集的过程, 使用learned-model作为前馈项, 以促进两架飞机更近的飞行。

step3: 重复上述过程, 使用更多数量的飞机和现有的最佳DNN模型。

收集方式: random walk和swapping。前者是在一个区域内随机飞点, 使用一个简单的人工势场避障方法。后者是两架飞机在不同高度交换, 轨迹中有

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标签状态



为何用纸

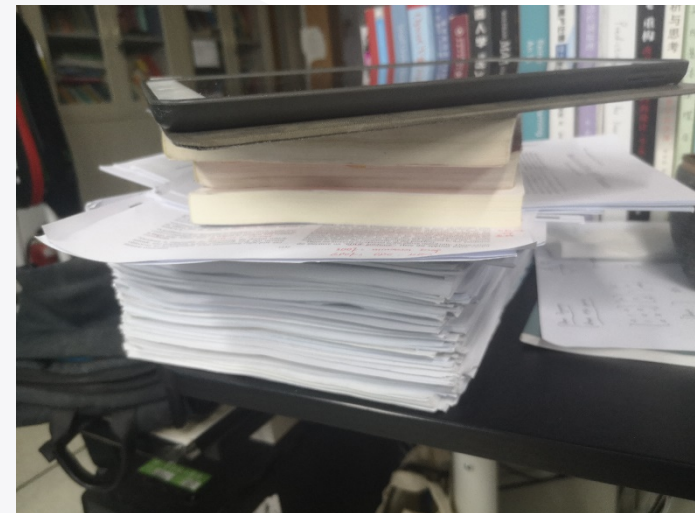


只有两点

/ 为什么我不用Notability和MarginNote3读文献

Notability和MarginNote3的优势：详细的、可存储的笔记，直接画思维导图

- 阅读中的详细过程是否需要保留？
- 自然而又强迫的总结过程（Summary Writing）
- PPT作图：一举两得
- 仪式感、巴甫洛夫的狗





文献分类



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为何用纸



只有两点

/ 升华一下

$$1.01^{365} = (1 + 0.01)^{365} = 37.7834$$

• 1. 复利

$$1.01^{730} = (1 + 0.01)^{730} = 1427.5879$$

• 2. 主动熵减

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生命以负熵为生。

——薛定谔《生命是什么》

解决方案：开放系统+引入外力

THANKS

— 李谨杰 —

2022年4月29日