

Research Paper



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Research

- Research is defined as the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings.

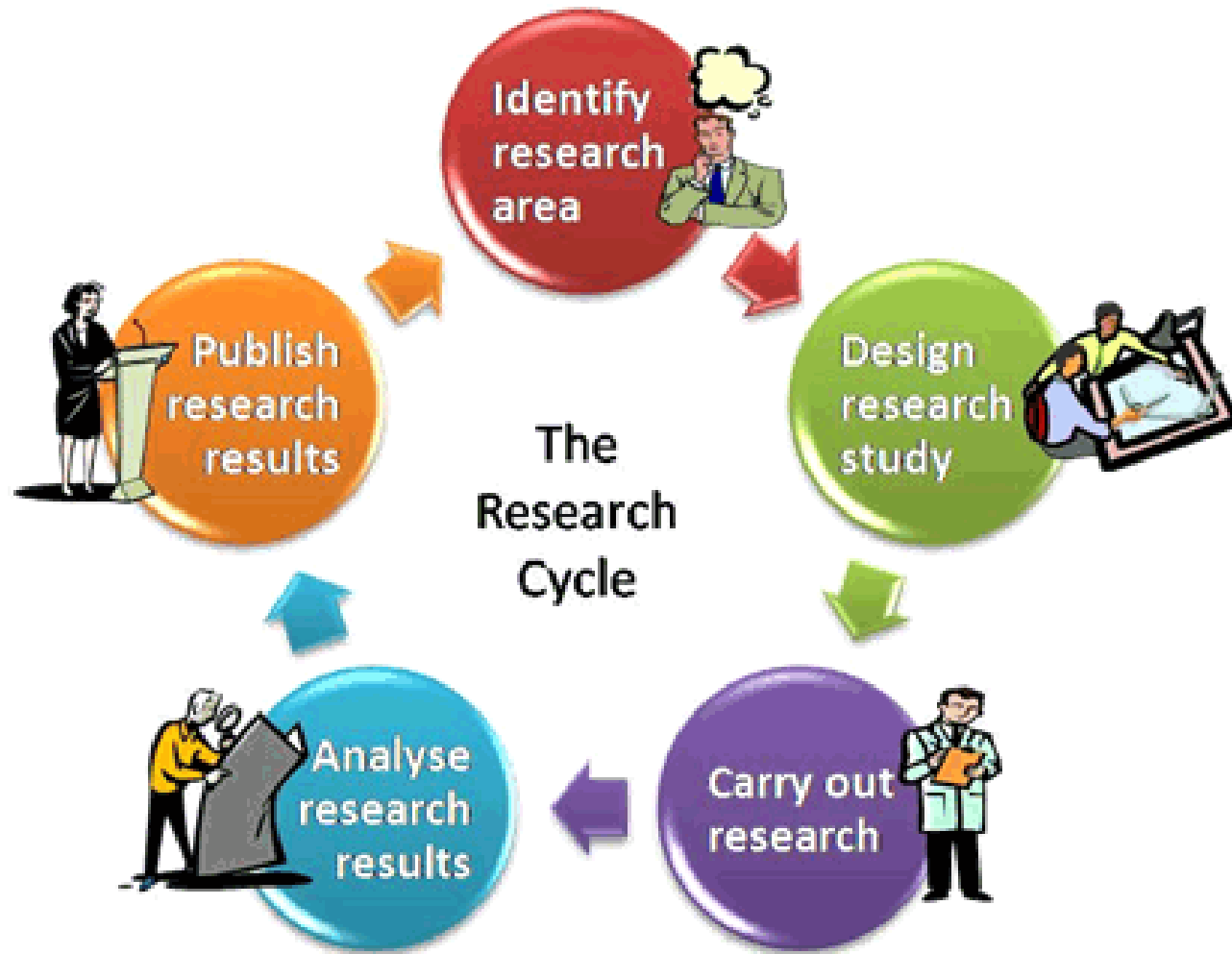


Steps in conducting research

- Identification of research problem
- Literature review
- Specifying the purpose of research
- Determine specific research questions or hypotheses
- Data collection
- Analyzing and interpreting the data
- Reporting and evaluating research



Research cycle



How to Identify Research Problem?

Read, Read and Read!



Writing

Structure of Research Paper

- Title
- Abstract
- Introduction
- Related Work
- Problem Formulation
- Experimental/Methodology Section
- Results and Discussion
- Conclusions
- Acknowledgments
- References
- Supporting Information/ appendices



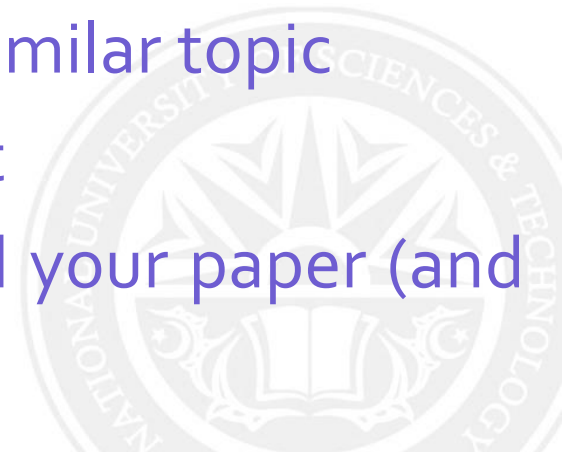
Research Paper-I

Title

As you craft a name for your paper, you should consider these potential objectives for the title you choose.

A title should:

- Describe the content of the paper
- Distinguish the paper from others on a similar topic
- Catch the reader's attention and interest
- Match search queries so people will find your paper (and cite it)



Research Paper-II

Abstract

150 – 250 words

Comprises of four parts

- Introduction/motivation/application
- Method
- Results
- Conclusion



FedRSU: Federated Learning for Scene Flow Estimation on Roadside Units

Title

Shaoheng Fang[†], Rui Ye[†], Wenhao Wang[†], Zuhong Liu, Yuxiao Wang, Yafei Wang *Member*, Siheng Chen *Senior Member*, Yanfeng Wang

What? introduction

Abstract—Roadside unit (RSU) can significantly improve the safety and robustness of autonomous vehicles through Vehicle-to-Everything (V2X) communication. Currently, the usage of a single RSU mainly focuses on real-time inference and V2X collaboration, while neglecting the potential value of the high-quality data collected by RSU sensors. Integrating the vast amounts of data from numerous RSUs can provide a rich source of data for model training. However, the absence of ground truth annotations and the difficulty of transmitting enormous volumes of data are two inevitable barriers to fully exploiting this hidden value. In this paper, we introduce FedRSU, an innovative federated learning framework for self-supervised scene flow estimation. In FedRSU, we present a recurrent self-supervision training paradigm, where for each RSU, the scene flow prediction of points at every timestamp can be supervised by its subsequent future multi-modality observation. Another key component of FedRSU is federated learning, where multiple devices collaboratively train an ML model while keeping the training data local and private. With the power of the recurrent self-supervised learning paradigm, FL is able to leverage innumerable underutilized data from RSU. To verify the FedRSU framework, we construct a large-scale multi-modality dataset RSU-SF. The dataset consists of 17 RSU clients, covering various scenarios, modalities, and sensor settings. Based on RSU-SF, we show that FedRSU can greatly improve model performance in ITS and provide a comprehensive benchmark under diverse FL scenarios. To the best of our knowledge, we provide the first real-world LiDAR-camera multi-modal dataset and benchmark for the FL community.

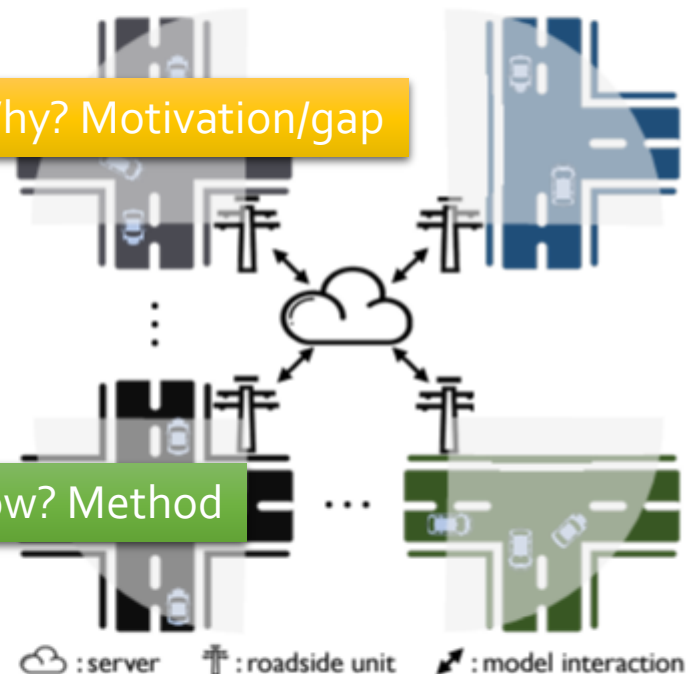
Index Terms—Roadside unit, scene flow estimation, federated learning, self-supervised learning.

Why? Motivation/gap

How? Method

Results

Conclusion



U system overview, where multiple roadside units (RSUs) train a scene flow estimation model without transmitting raw data under the coordination of a cloud server. Iteratively, each RSU trains a local model in a self-supervised manner, and the server aggregates local models to update the global model. This process significantly alleviates the challenges of tedious labeling for a single RSU.

arxiv.org/pdf/2401.12862.pdf

Research Paper-III

Don't use abbreviations or citations in the abstract. It should be able to stand alone without any footnotes.

Key words

- Use to search a paper
- Editor might use it to find reviewers
- Should be a part of abstract/title

***Index Terms*—Roadside unit, scene flow estimation, federated learning, self-supervised learning.**



Research paper -IV

Introduction

Introduction of a paper comprises of following

- Motivation
- Application
- What, why and how you are doing?
- List of contribution/objective
- Paper organization

What and why?



NOTE: Paragraphs should be linked/there should have continuity.

Research paper

- Contribution

- Paper organization/
outline

potential for further improvement of FedRSU in tandem with ongoing advancements in both the fields of self-supervised scene flow learning and federated learning.

Overall, the key contributions of this work are as follows:

- We propose a new and practical federated learning framework on roadside units (FedRSU), where multiple RSUs collaboratively train a scene flow estimation model in a self-supervised manner.
- We propose a novel multi-modal scene flow learning method on each RSU client, which leverages image data to guide scene flow learning.
- We construct a diverse and practical scene flow dataset RSU-SF to promote the development of FedRSU and FL.
- We conduct extensive experiments on multiple baselines and scenarios to provide more insights and call for more future explorations.

Outline. This paper is structured as follows: In section II, we introduce related works. In Section III, we formulate the proposed setting, introduce the FedRSU framework, and our proposed federated multi-modal self-supervised learning algorithm. In Section IV, we introduce the constructed dataset RSU-SF for scene flow estimation and federated learning. In Section V, we conduct extensive experiments on diverse baselines and scenarios. In Section VI, we provide discussions on future directions and limitations. In Section VII, we summarize the paper.

FedRSU: Federated Learning for Scene Flow Estimation on Roadside Units

Shaoheng Fang[†], Rui Ye[†], Wenhao Wang[†], Zuhong Liu, Yuxiao Wang, Yafei Wang *Member*, Siheng Chen *Senior Member*, Yanfeng Wang

Introductory diagram

Abstract—Roadside unit (RSU) can significantly improve the safety and robustness of autonomous vehicles through Vehicle-to-Everything (V2X) communication. Currently, the usage of a single RSU mainly focuses on real-time inference and V2X collaboration, while neglecting the potential value of the high-quality data collected by RSU sensors. Integrating the vast amounts of data from numerous RSUs can provide a rich source of data for model training. However, the absence of ground truth annotations and the difficulty of transmitting enormous volumes of data are two inevitable barriers to fully exploiting this hidden value. In this paper, we introduce FedRSU, an innovative federated learning framework for self-supervised scene flow estimation. In FedRSU, we present a recurrent self-supervision training paradigm, where for each RSU, the scene flow prediction of points at every timestamp can be supervised by its subsequent future multi-modality observation. Another key component of FedRSU is federated learning, where multiple devices collaboratively train an ML model while keeping the training data local and private. With the power of the recurrent self-supervised learning paradigm, FL is able to leverage innumerable underutilized data from RSU. To verify the FedRSU framework, we construct a large-scale multi-modality dataset RSU-SF. The dataset consists of 17 RSU clients, covering various scenarios, modalities, and sensor settings. Based on RSU-SF, we show that FedRSU can greatly improve model performance in ITS and provide a comprehensive benchmark under diverse FL scenarios. To the best of our knowledge, we provide the first real-world LiDAR-camera multi-modal dataset and benchmark for the FL community.

Index Terms—Roadside unit, scene flow estimation, learning, self-supervised learning.

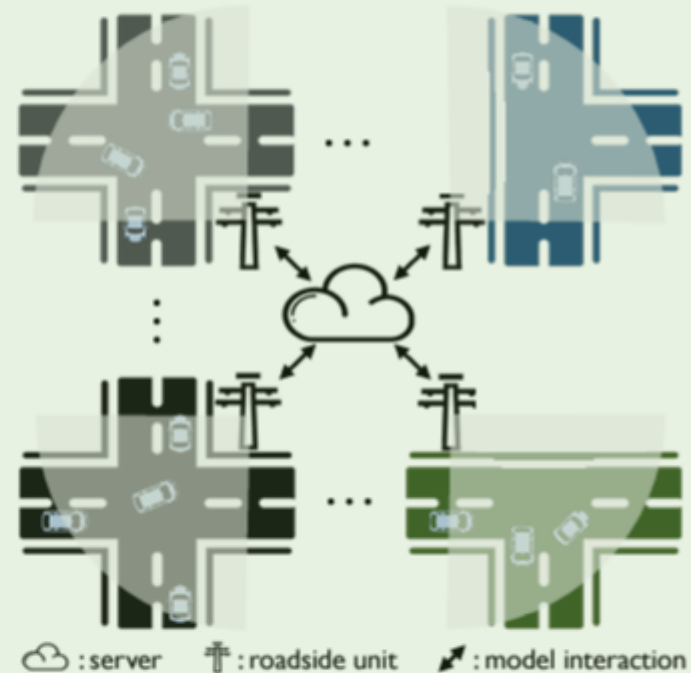


Fig. 1. FedRSU system overview, where multiple roadside units (RSUs) collaboratively train a scene flow estimation model without transmitting raw data under the coordination of a cloud server. Iteratively, each RSU trains a local model in a self-supervised manner, and the server aggregates local models. FedRSU can significantly alleviate the challenges of tedious labeling and limited data for one single RSU.

Caption

to offer significant added value for intelligent autonomous

Research paper -V

Which, when, where

Related work/literature review



- How to find papers? Which papers should be prefer to cite in a paper?
- How to read reference? How audience/readers' see the reference?

[1] A. Behl, D. Paschalidou, S. Donné, and A. Geiger. Point-flownet: Learning representations for rigid motion estimation from point clouds. In *CVPR*, 2019.

- How to write related work? Allow to answer an important question "NOVELTY!"

Research paper -V

Related work/literature review

- Theoretical table/ analysis (comparison)

Theoretical comparison among the characteristics of transition matrices with different methods.

References/ Technique	Reanalyze Data	Effectuated with sparsity of data	Temporal Time Dependent	GSs	Discrete level	Precise
[15] Baum-Welch	✓	✓	✓	x	x	x
[19] Multi-canonical Method	✓	✓	x	x	x	x
[13,14] Frequentist Approach	✓	✓	✓	x	x	x
[20] Markov State Model	✓	✓	✓	x	✓	x
Proposed method	x	x	x	✓	✓	✓

- Include 8 – 10 papers/methods (Good)



Research paper -VI

Problem formulation/math

• Introduction (mathematical) t

Nomenclature

Math symbol	Description
$\tilde{\mathbf{X}}, \mathbf{X}^{(l)}$	Generalized States (GS) and l th times derivative
x	Zero-order time derivative $X^{(0)}, n = 1$
v	First-order time derivative $X^{(1)}, n = 1$
\mathbf{x}	Zero-order time derivative $\mathbf{X}^{(0)}, n = 2$
\mathbf{v}	First-order time derivative $\mathbf{X}^{(1)}, n = 2$
$\hat{\mathbf{x}}_{k+1 k}$	Prediction of next state
$\mathbf{x}^{(l)}$	Coordinate system, $[\mathbf{x}^{(0)}, \mathbf{x}^{(1)}, \dots, \mathbf{x}^{(L)}]^T$
$\mu_i^{(l)}$	Unit vector defining the attractor i
\mathbf{P}_i	Defines line of the attractor i
\mathbf{p}_i^0	Defines the position vector of attraction \mathbf{P}_i
m_i	Position of i th attractor with
k	Time indexes

III. FEDRSU: FEDERATED LEARNING ON RSUs

In this section, we formulate the problem of scene flow estimation, describe our novel design of multi-modal recurrent self-supervised learning for scene flow estimation at each RSU, and finally present the overall FedRSU system.

A. Problem Formulation

The focused task is scene flow estimation that describes the motion vector of points in 3D space, which is a crucial component to support various downstream tasks, including segmentation [19], instance segmentation [20], object detection [21], motion prediction [22], trajectory prediction [24], and more. To achieve this, our core goal is to train a scene flow estimation model on the constant stream of RSU data in a recurrent self-supervised paradigm. As is shown in Fig. 2, in the data stream of RSU sensors, the prediction at each frame can be supervised by its following future frame. Therefore, in our method, the denotation t can be any frame in the data stream.

Denote the dataset as $\mathcal{D} = \{(\mathbf{X}_i^{(pc)}, \mathbf{X}_i^{(img)})\}_{i=1}^N$, where N is the number of samples of the dataset. $\mathbf{X}_i^{(pc)} = (\mathbf{P}_i^{t-1}, \mathbf{P}_i^t)$, where source point cloud $\mathbf{P}_i^{t-1} = \{p_a^{t-1} \in \mathbb{R}^3\}_{a=1}^{n_1}$ and target point cloud $\mathbf{P}_i^t = \{p_b^t \in \mathbb{R}^3\}_{b=1}^{n_2}$ are from two consecutive time frames. $\mathbf{X}_i^{(img)} = (\mathbf{I}_i^{t-1}, \mathbf{I}_i^t)$ are the corresponding images.

Basically, the objective of scene flow estimation is to estimate a motion vector $f_a \in \mathbb{R}^3$ of point $p_a^{t-1} \in \mathbb{R}^3$ from the first frame \mathbf{P}_i^{t-1} to its possible new position in the second frame \mathbf{P}_i^t . Due to the data sparsity of LiDAR point clouds and occlusion caused by moving objects, p_a may not have its corresponding point in \mathbf{P}_i^t and the point numbers n_1 and n_2 may differ. Therefore, the predicted flow $\mathbf{F}_i = \{f_a \in \mathbb{R}^3\}_{a=1}^{n_1}$ is not the point-to-point correspondences between \mathbf{P}_i^{t-1} and \mathbf{P}_i^t , but the motion representation describing the scene.

Research paper -VI

Problem formulation/math

- Introduction (mathematical) t

III. FEDRSU: FEDERATED LEARNING ON RSUs

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Research paper -VI

Methodology

- Block diagram, table of
- Try to avoid mathematical
- Should be a generic diagram

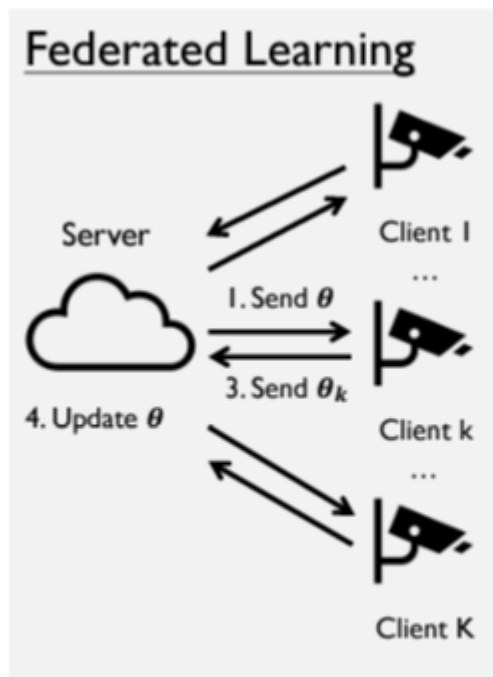


Fig. 3. Overview of FedRSU framework. FedRSU consists of four steps. 1) The server sends the global model to all available clients, 2) each client updates local model supervised by Chamfer loss and smoothness regularization, 3) each client sends local model to the server, 4) the server updates global model by aggregating received local models. These four steps will iterate for multiple rounds.

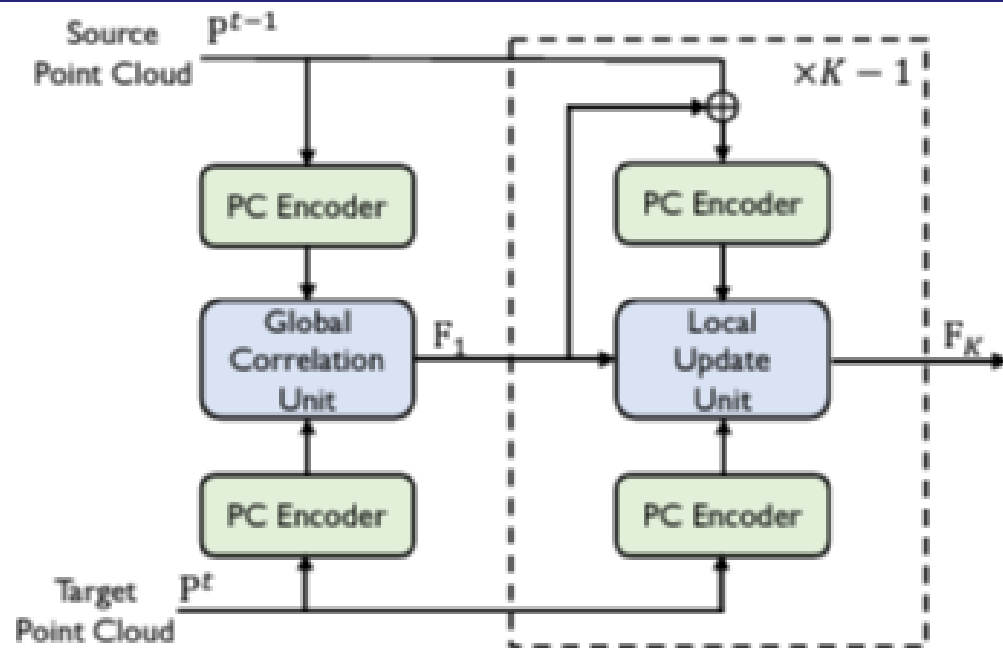
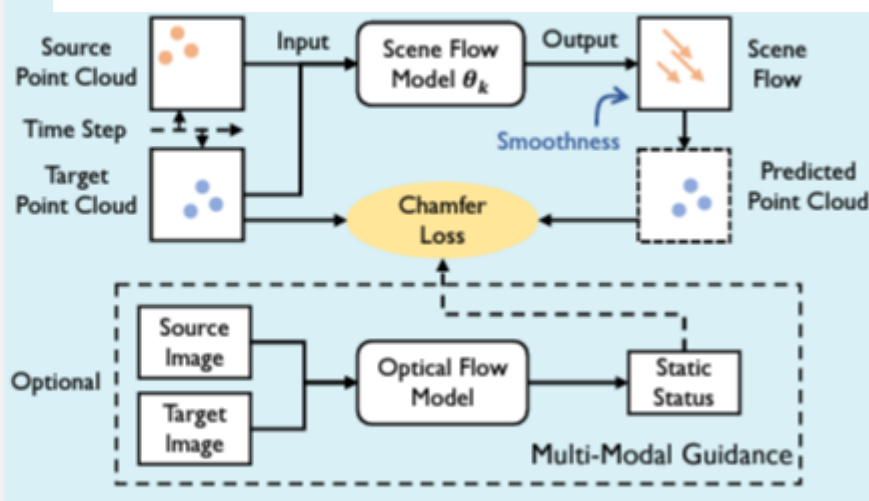


Fig. 4. Overview of the scene flow model architecture. We follow the architecture of Flowstep3d [27] and predict the scene flow in a coarse to fine manner.



Research paper -VI

- Subsections: each sub section is linked with other, should be like story telling
- End of a sub-section provide an intro of the next subsection
- Every figure, table etc. should discussed/cited



Research paper -VII

Results and discussion

- Figure/results labelling, discussion should call each figure and provide discussion
- Position of figure/table in paper/report
- Discuss whatever you **claim** in your methodology/ introduction and related work section
- Prove it with figures and numbers
- Qualitative analysis vs quantitative analysis

Repeat the headings from your methodology!
Prove what you claim!

Research paper -VII

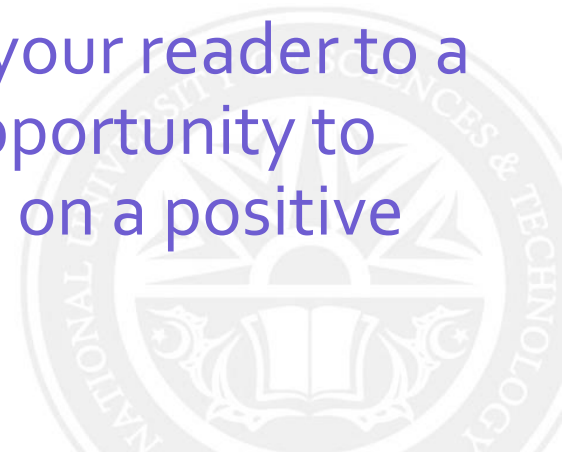
Results and discussion

- Comparison
 - With state of art method
 - Test your methodology with various public datasets
 - Provide ablation study
 - Quantitative comparison
- You don't necessarily have to include all the data you've gotten during the semester. **This isn't your diary.**
- Use appropriate methods of showing data. Don't try to manipulate the data to make it look like you did more than you actually did.

Research paper -VIII

Conclusion and future work

- Should have continuity with your abstract
- Your conclusion is your chance to have the last word on the subject. The conclusion allows you to have the final say on the issues you have raised in your paper, to summarize your thoughts, to demonstrate the importance of your ideas, and to propel your reader to a new view of the subject. It is also your opportunity to make a good final impression and to end on a positive note.



Research paper -IX

References/ acknowledgement

- It is important to properly and appropriately cite references in scientific research papers in order to acknowledge your sources and give credit where credit is due.



Research paper -X

Appendices

- Additional result, not much important but comprises of the interesting findings!

Experimental dataset

- Description of the dataset; whether its public dataset or not



How to start writing a paper?

- Start with methodology
- Then result and discussion
- Observe the “conclusion”
- And then write introduction and related work/literature review



Plagiarism

- Self-plagiarism
- AI generated content
- Plagiarism vs novelty
- How much plagiarism is allowed?



Research platform

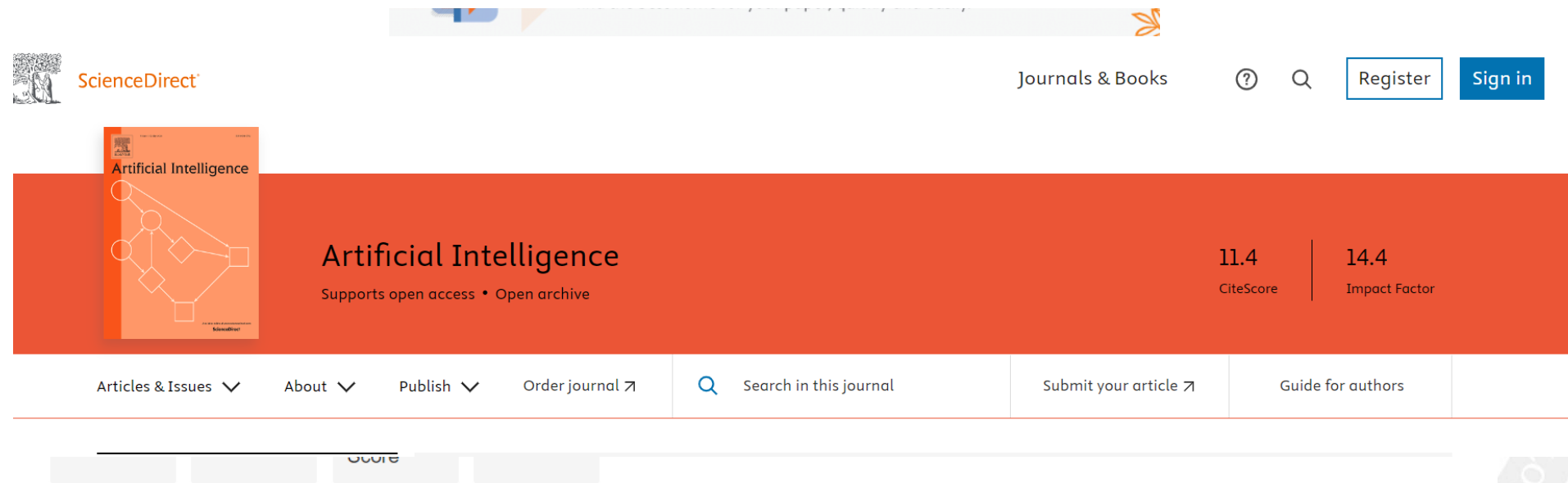
- Researchgate (<https://www.researchgate.net/>)
- Google scholar (<https://scholar.google.com/>)
- Web of science (<https://www.webofscience.com/>)
- Scopus (<https://www.scopus.com/>)

etc.



Ranking Matrices

- Hindex
- Impact factor
- Cite score (journal)
- Citation score (researchers) etc.



The screenshot displays the ScienceDirect website interface. At the top, the ScienceDirect logo is on the left, and navigation links for "Journals & Books", a help icon, a search icon, "Register", and "Sign in" are on the right. Below the header, a large orange banner features the "Artificial Intelligence" journal cover on the left. To the right of the cover, the journal title "Artificial Intelligence" is prominently displayed, followed by the text "Supports open access • Open archive". Further right, two metrics are shown: "11.4 CiteScore" and "14.4 Impact Factor". At the bottom of the banner, a navigation bar contains links for "Articles & Issues", "About", "Publish", "Order journal", a search bar labeled "Search in this journal", "Submit your article", and "Guide for authors".

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IEEE Conference Search Results



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Sort by: Relevance



Conference Title

Dates

Location

Virtual



Displaying results 1 - 10 of 191 for *robotics  Results on Map

2024 International Conference on Intelligent Computing and Robotics (ICICR)

12 - 14 April 2024 | Dalian, China | Event Format: Hybrid (In-person and Virtual)

Sponsors: University of Huddersfield; IEEE Robotics and Automation Society; Wuhan Institute of Technology

Field of Interest: Components, Circuits, Devices and Systems; Computing and Processing; Robotics and Control Systems; Signal Processing and Analysis

2024 IEEE 7th International Conference on Soft Robotics (RoboSoft)

14 - 17 April 2024 | San Diego, California, USA | Event Format: In-person

Sponsors: IEEE Robotics and Automation Society

Field of Interest: Robotics and Control Systems

< Previous

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Next >

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☒ Enter keywords, key phrases, or article title

Keywords you entered:
robotics

☐ Extract keywords from your article

Enter your abstract or drag your article file here
(PDF, DOC, DOCX, TEX).

+ ADD YOUR FILE

Narrow by date:
(Optional)

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Update Recommendation

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EMAIL RESULTS

Result current as of: 2024-Mar-20 07:33:02Z

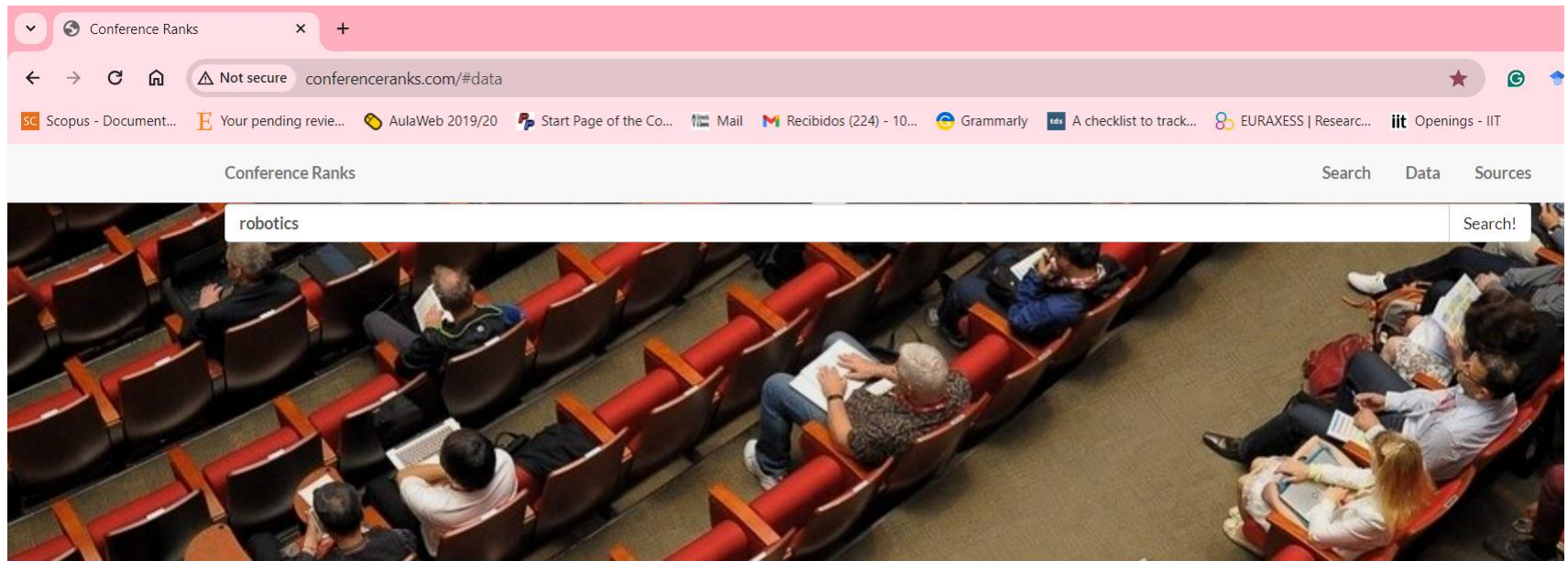
▼ Periodicals: (181 results)

Sort By: Keyword Match (relevance)

Title	Open Access Availability	Impact Factor	Submission to Publication Time in Xplore
Robotics, IEEE Transactions on	Open Access Available	7.8	23.9 Weeks
IEEE Robotics and Automation Letters	Open Access Available	5.2	19 Weeks
IEEE Robotics & Automation Magazine	Open Access Available	5.7	Not yet available
Medical Robotics and Bionics, IEEE Transactions on	Open Access Available	3.7	27 Weeks

31

<http://www.conferenceranks.com/#data>



Conference Data

Search:

Name	⇅ Abbv.	⇅ Rank	⇅ Source ⇅
2008 International Conference on Biomedical Robotics and Biomechatronics	BIO ROB	B	ERA
Australasian Conference on Robotics and Automation	ACRA	B	ERA
Automation and Robotics International Symposium	ISARC	B	ERA

Submission platform

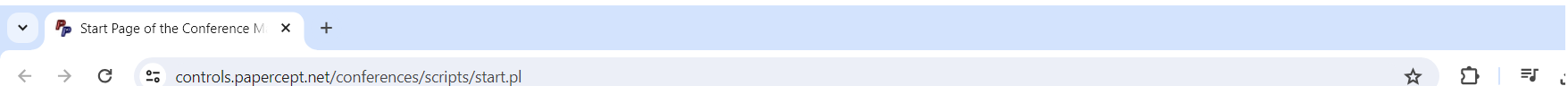
<https://cmt3.research.microsoft.com/>

The screenshot shows a web browser window with the URL <https://cmt3.research.microsoft.com/Conference/Recent>. The page has a blue header with the text "Conferences" and a search bar containing "Search help articles" and a user profile "Hafsa Iqbal". Below the header, there is a "Conference List" section with two tabs: "My Conferences (1)" and "All Conferences". A search filter box with the text "type to filter..." is located to the right of the tabs. The conference list is displayed as a table with the following data:

Name	Start Date	Location	External URL	Contact
2024 1st International Conference on Innovative Engineering Sciences & Technological Research	5/14/2024	Muscat, Oman	http://CIESTR.com	Email Chairs

At the bottom of the page, there is a footer with the text "© 2024 Microsoft Corporation" and links to "About CMT", "Docs", "Terms of Use", "Privacy & Cookies", and "Request Free Site". The Windows taskbar is visible at the bottom of the screen, showing various application icons and the system clock indicating 12:29 PM on 3/20/2024.

<https://controls.papercept.net/conferences/scripts/start.pl>



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- **Login REQUIRED:** For **Administrative or Editorial activities**, to **submit a review** or to **update/reupload your paper, or to see the reviews of your paper**; and to **submit the final version of your paper** you **MUST** log in. Once logged in, kindly use "Access" link to switch your roles. Follow the link [Log in](#).
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Upcoming Conferences

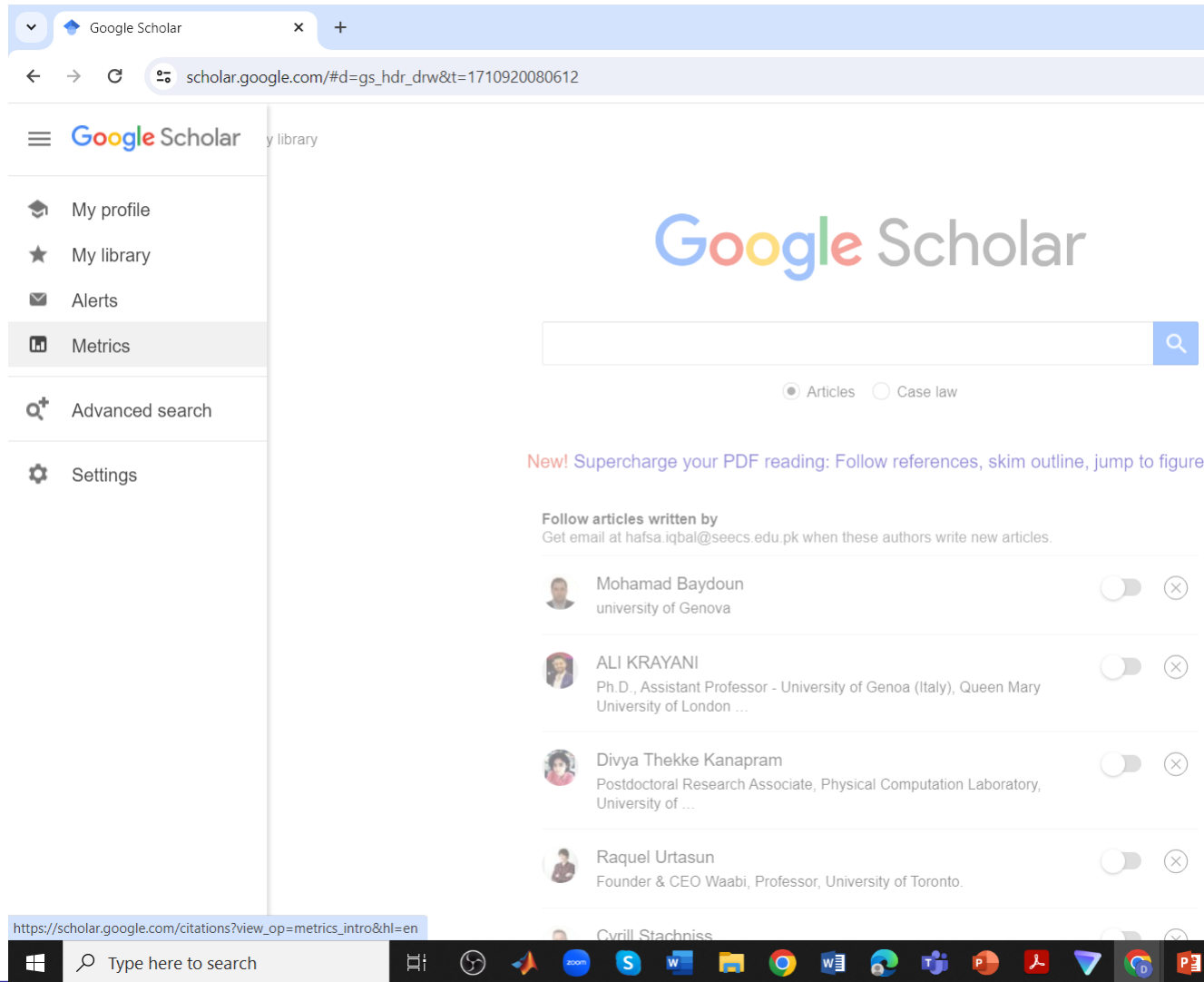
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Download Get Started manuals for [authors](#) and [reviewers](#)

Conferences in 2024

ISCS 2024	 <div>2024 SICE International Symposium on Control Systems March 18-20, 2024 Hiroshima University, Hiroshima, Japan</div> 	2024 SICE International Symposium on Control Systems (ISCS) March 18-20, 2024, Higashi-Hiroshima, Japan	<ul style="list-style-type: none">▪ Submit a contribution to ISCS 2024▪ Contact the ISCS 2024 organizers▪ Log in
Control 2024	 <div>Control 2024 The 14th United Kingdom Automatic Control Council International Conference on Control April 10-12, 2024 Winchester, UK</div> 	2024 UKACC 14th International Conference on Control (CONTROL) April 10-12, 2024, Winchester, UK	<ul style="list-style-type: none">▪ Submit a contribution to Control 2024▪ Control 2024 online program now available▪ Contact the Control 2024 organizers▪ Log in
IACAS 2024	 <div>The 63rd Israel Annual Conference on Aerospace Sciences 9 May, 2024</div> 	63rd Israel Annual Conference on Aerospace Sciences May 9, 2024, Haifa, Israel	<ul style="list-style-type: none">▪ Submit a contribution to IACAS 2024▪ Contact the IACAS 2024 organizers▪ Log in

Ranking Matrices

<https://scholar.google.com/>



The screenshot shows the Google Scholar Metrics page. The browser's address bar displays the URL `scholar.google.com/#d=gs_hdr_drw&t=1710920080612`. The left sidebar contains navigation links: My profile, My library, Alerts, Metrics (selected), Advanced search, and Settings. The main content area features the Google Scholar logo, a search bar, and radio buttons for 'Articles' (selected) and 'Case law'. A promotional banner reads: 'New! Supercharge your PDF reading: Follow references, skim outline, jump to figures'. Below this, a section titled 'Follow articles written by' lists authors with their profiles and affiliations, each with a toggle switch and a close button. The authors listed are:

- Mohamad Baydoun, university of Genova
- ALI KRAYANI, Ph.D., Assistant Professor - University of Genoa (Italy), Queen Mary University of London ...
- Divya Thekke Kanapram, Postdoctoral Research Associate, Physical Computation Laboratory, University of ...
- Raquel Urtasun, Founder & CEO Waabi, Professor, University of Toronto.

The bottom of the image shows a Windows taskbar with various application icons and a search bar.



computer vision - Google Scholar

scholar.google.com/citations?hl=en&view_op=search_venues&vq=computer+vision&btnG=

computer vision

Top 20 publications matching *computer vision*

	Publication	h5-index	h5-median
1.	IEEE/CVF Conference on Computer Vision and Pattern Recognition	422	681
2.	European Conference on Computer Vision	238	390
3.	IEEE/CVF International Conference on Computer Vision	228	366
4.	Procedia Computer Science	113	166
5.	IEEE/CVF Computer Society Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)	108	176
6.	IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)	95	150
7.	IEEE Transactions on Visualization and Computer Graphics	90	126
8.	International Journal of Computer Vision	88	165
9.	British Machine Vision Conference (BMVC)	77	128
10.	IEEE/CVF International Conference on Computer Vision Workshops (ICCVW)	66	102
11.	Computer Science Review	62	116
12.	Asian Conference on Computer Vision (ACCV)	60	92
13.	Computer Graphics Forum	59	90
14.	International Journal of Advanced Computer Science and Applications	55	81
15.	IEEE Symposium on Foundations of Computer Science (FOCS)	50	74
16.	Computer Vision and Image Understanding	49	94
17.	Social Science Computer Review	48	81

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3		Neural Information Processing Systems 12-12-2023 - 14-12-2023 - New Orleans	38.50
4		International Conference on Learning Representations 01-05-2023 - 05-05-2023 - Kigali	35.70
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2	IEEE	IEEE Conference and Exhibition on Global Telecommunications 04-12-2023 - 08-12-2023 - Kuala Lumpur	6.80
3	IEEE	International Electron Devices Meeting 09-12-2023 - 13-12-2023 - San Francisco	6.50
4	IEEE	Power and Energy Society General Meeting 17-07-2022 - 21-07-2022 - Denver	6.30
5	IEEE	International Conference on Robotics and Automation 29-05-2023 - 02-06-2023 - London	6.30

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**IEEE
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Submission Deadlines Extended

After multiple requests, the organization committee has decided to extend the submission deadline. These **new deadlines are strict**, and no further extensions will be granted.

New Conference deadlines

~~April 08, 2024~~ **April 22, 2024**: Proposals due for invited sessions

~~April 15, 2024~~ **May 01, 2024**: Submission deadline for regular and invited session papers

~~May 30, 2024~~ **June 07, 2024**: Proposals due for workshops and tutorials

~~June 30, 2024~~ **July 07, 2024**: Decision notification

July 31, 2024: Final paper submission deadline

Invited session papers must be submitted via Papercept, using the code of the approved session with the approved proposers (to be shared with authors) before May 1st. Regular papers are submitted via Papercept.

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- IEEE Transactions on Automation Science and Engineering

The screenshot displays the IEEE Robotics & Automation Society website. The browser address bar shows the URL <https://www.ieee-ras.org/publications/t-ase/special-issues-t-ase>. The page header includes navigation links such as "IEEE.org", "IEEE Xplore Digital Library", "IEEE Standards", "IEEE Spectrum", and "More Sites". The main navigation bar features a search bar and buttons for "Resource Center", "Robotics History", and "Join IEEE RAS". A horizontal menu lists various sections: "About RAS", "Membership", "Conferences & Workshops", "Publications", "Technical Committees", "Education, Outreach and Career", "Awards & Recognition", and "Industry & Government". The breadcrumb trail indicates the current location: "Home > Publications > T-ASE > Special Issues". On the left sidebar, a list of links includes "Subscription Information", "Video Submission Guidelines", "RA-L", "RA Magazine", "T-ASE" (highlighted with a checkmark), "Information for Authors", "Submission Procedures", "Special Issues" (highlighted with a checkmark), "Information for Reviewers", "Editorial Board", "ToH", "T-MRB", "T-RO", and "T-FR". The main content area is titled "T-ASE Topic-Based Special Issues & Conference-Based Special Issues" and lists several special issues with their guest editors. The list includes: "Format for Special Issue/Section Proposals", "Sample Special Issue/Section Proposal", "Special Issue on Automation and AI in Construction and Building" (Guest Editors: Jingang Yi, Dikai Liu, Wei Yan, Vineet R. Kamat, Chao Wang, Jee-Hwan Ryu), "Special Issue on Beyond Classic Deep Learning: Algorithms for Dealing with Real-World Applications in Industrial Automation" (Guest Editors: Gian Antonio Susto, Olga Fink, Seokho Kang, Lars Moench, Davide Dalle Pezze), "Special Issue on Engineering and Operating Digital Twins for Automated Production or Construction Systems" (Guest Editors: Birgit Vogel-Heuser, Min-Hsiung Hung, Manuel Wimmer, Ilya Kovalenko, Xun Xu), "Special Issue on Smart Coordination for Logistics Operational Control in Manufacturing under the Evolution Trend of Digital Economy" (Guest Editors: Wenfeng Li, Mariagrazia Dotoli, Xiaou Li, Walter Lucia, Jianbin Xin), and "Special Issue on Emerging trends in Safety-critical Issues for Intelligent Automation Systems" (Guest Editors: Huang Chao, Qinglai Wei, Huaguang Zhang, Andrey Savkine, Mohammed Chadli, Hailong Huang, Gaurav Pandey).

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