

# Scientific Writing, Integrity and Ethics I

Introduction

Guoqiang Li School of Software



**Course Information** 

# **Important Notifications**



This lecture is oriented to students major in computer sciences, as well as in software engineering!

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The evaluation criterion of academic papers in computer sciences is quite different from other majors.

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Students other than School of Software and Department of CST are suggested to quit this lecture (Almost all departments have their own lectures).

## Instructor



Guoqiang LI

#### Instructor



#### Guoqiang LI

• Homepage: https://basics.sjtu.edu.cn/%7Eliguoqiang

• Canvas: https://oc.sjtu.edu.cn/courses/58243

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# **Score Policy**



Attendee 40%

A report 60%

# Report



A team with two members

## Report



A team with two members

Well-organized, with references, with examples, in Chinese

### Report



#### A team with two members

Well-organized, with references, with examples, in Chinese

- lecture notes 2-7 (type: L2-L7)
- integrity and ethics in computer science and software engineering.
- registration link: https://docs.qq.com/sheet/DRFZVSORESHBVWGVt
- each group at most 2 teams

#### **Candidates**



- A Computer Architecture
- **B** Parallel and Distributed Computing
- C Computer Networks
- D Security
- **E** Software Engineering
- **F** System Software
- **G** Programming Languages
- H Database and Data Mining
- I Theoretical Computer Science
- J Computer Graphics and Multimedia
- K Artificial Intelligence
- M Human Machine Interaction
- N Interdisciplinary
- O Big data
- P LLM

- Privacy
- Freedom and Control
- Intellectual Property
- Orime and Security
- 6 Employment
- 6 Error, Failure and Risks

٠.

Why Papers





How to write a paper?

How to respond to the reviewers/editors?

How to make a good presentation?



How to write a paper?

How to respond to the reviewers/editors?

How to make a good presentation?

What are the rules for publishing a paper?

What are the rules for saving and sharing data?

What are the ethics in engineering design?

What are the ethics in computer science study?



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How to make a good presentation?

What are the rules for publishing a paper?

What are the rules for saving and sharing data?

What are the ethics in engineering design?

What are the ethics in computer science study?

but, before that...



Why Papers?



Why Papers?

What Is a Paper?



Life is like a journey.



Life is like a journey.

Research is a part of life.



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Research is a part of life.

Thus, research is like a journey.



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Papers are like photos when you are on a journey.



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## **Papers as Photos**



A good explorer is not necessarily to be a good photographer.



## **Papers as Photos**



A good explorer is not necessarily to be a good photographer.



A good photographer is not necessarily to be a good explorer.



Some Terminologies





Peer review

Chinese characteristics



#### Peer review

• Conference papers

Chinese characteristics



#### Peer review

Conference papers

#### Chinese characteristics

Journal papers



#### Peer review

Conference papers

#### Chinese characteristics

- Journal papers
  - SCI, EI ...



#### Peer review

Conference papers

#### Chinese characteristics

- Journal papers
  - SCI, EI ...
  - so called Stupid Chinese Index...



#### Peer review

Conference papers

#### Chinese characteristics

- Journal papers
  - SCI, EI ...
  - so called Stupid Chinese Index...

black list Vs. white list

## **CCF** Ranking



Link: https://www.ccf.org.cn/Academic\_Evaluation/By\_category/



## **CCF Ranking- SE as Example**



#### Journal series

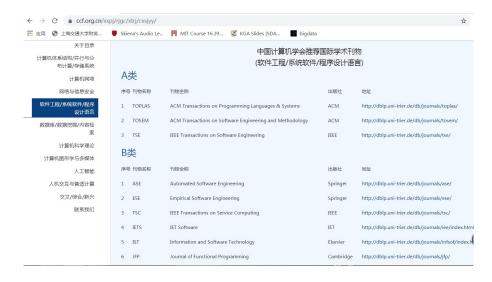
- Ranking A: 3
- Ranking B: 13
- Ranking C: 8

#### Conference series

- Ranking A: 9
- Ranking B: 20
- Ranking C: 25

## **CCF Ranking- SE as Example**





## **CCF** Ranking- SE as Example



		中国计算机学会推荐国际学术会议						
	(软件工程/系统软件/程序设计语言) A类							
	序	号 刊物名称	刊物全称	出版社	地址			
	1	PLDI	ACM SIGPLAN Symposium on Programming Language Design &	ACM	http://dblp.uni-trier.de/db/conf/pldi/			
			Implementation					
	2	POPL	ACM SIGPLAN-SIGACT Symposium on Principles of Programming	ACM	http://dblp.uni-trier.de/db/conf/popl/			
			Languages					
	3	FSE/ESEC	ACM SIGSOFT Symposium on the Foundation of Software	ACM	http://dblp.uni-trier.de/db/conf/sigsoft/			
			Engineering/ European Software Engineering Conference					
	4	SOSP	ACM Symposium on Operating Systems Principles	ACM	http://dblp.uni-trier.de/db/conf/sosp/			
	5	OOPSLA	Conference on Object-Oriented Programming Systems,	ACM	http://dblp.uni-trier.de/db/conf/oopsla/			
			Languages, and Applications					
	6	ASE	International Conference on Automated Software Engineering	IEEE/ACM	http://dblp.uni-trier.de/db/conf/kbse/			
	7	ICSE	International Conference on Software Engineering	ACM/IEEE	http://dblp.uni-trier.de/db/conf/icse/			
	8	ISSTA	International Symposium on Software Testing and Analysis	ACM	http://dblp.uni-trier.de/db/conf/issta/			
	9	OSDI	USENIX Symposium on Operating Systems Design and	USENIX	http://dblp.uni-trier.de/db/conf/osdi/			

## 期刊分区





中科院分区 ● 一区-四区

## 期刊分区





中科院分区

● 一区-四区

JCR分区:

• Q1-Q4

## Other Terminologies: IF



Impact factor (IF)

## Other Terminologies: IF



## Impact factor (IF)

$$JCR(J,Y) = c(Y; Y - 2, Y - 1)/p(Y - 2, Y - 1)$$

#### where

- p(Y-2, Y-1): number of articles published in journal J in the previous two years (Y-1) and (Y-2),
- c(Y; Y-2, Y-1) is the number of citations in year Y of papers published during the previous two years in journal J.

## Other Terminologies: ESI



Essential Science Indicators (ESI)

## Other Terminologies: ESI



### Essential Science Indicators (ESI)

Entity	Percentile	Data Years
Researchers	1%	10
Institutions	1%	10
Countries	50%	10
Journals	50%	10
Highly Cited Papers	1%	10
Hot Papers	0.1%	2

## Other Terminologies: ESI



#### Essential Science Indicators (ESI)

Entity	Percentile	Data Years
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Journals	50%	10
Highly Cited Papers	1%	10
Hot Papers	0.1%	2

e.g. Highly Cited Papers are papers that have received enough citations to place them in the top 1% when compared to all other papers published in the same year in the same field.

## 交大 A、B类



## 交大 A、B类





**Conference Selections** 

## **Conference Papers**



Jordi Cabot, Javier Luis Cánovas Izquierdo, Valerio Cosentino. Are CS Conferences (Too) Closed Communities? Communications of the ACM, Vol. 61 (10), 32-34, 2018

## **Viewpoint Are CS Conferences (Too) Closed Communities?**

Assessing whether newcomers have a more difficult time achieving paper acceptance at established conferences.

UBLICATION IN TOP CONFERences is a key factor, albeit controversial.34 in the dissemination of ideas and career promotion in many areas of computer science. Therefore, it is a major goal for every CS researcher. However, many researchers believe publishing in a top conference is something reserved for the established members of the conference community. For newcomers, this is a tough nut to crack. Indeed, when talking with fellow researchers the assumed unspoken truth is always the same: If you are not one of "them," you have no chance to get "in" on your own.

If this were true, it would imply that senior researchers wishing to change fields during their research career may have a difficult time doing so. And the impact would be even more dramatic for junior researchers: they could only access top venues by going together with their supervisor, limiting their options to make a name for the mselves-exactly the opposite of what evaluation commit-



change it)? Our goal in this Viewpoint is to shed some light on these issues.

Looking at the Data To assess whether it is actually true that newcomers have a difficult time of CORE as ranking system is based on

Computer Software category, for which we were able to find available data in the DBLP dataset, the well-known online reference for computer science bibliographic information The choice

## **Conference Papers**



Results show that newcomers' papers are indeed scarce. Most conferences (88%) show a percentage of newcomer papers under 40%. This value is significantly lower in top conferences, with a median value of 14%. As specific examples, well-regarded conferences show the following values: ICSE (5%), OOPSLA (13%), ICFP (11%), RE (6%). We may be tempted to quickly dismiss these numbers by attributing the low percentage of newcomers papers to a lack of newcomer submissions. While it is true that CS communities are shrinking (at least based on ACM tables for SIG memberships), which could imply that the "newcomers pool" is smaller, our analysis suggests that newcomer paper submissions represent at least one-third of the total number of submissions.





**AAAI** 



#### **AAAI**

• AAAI 2017: 639/2571



#### **AAAI**

• AAAI 2017: 639/2571

• AAAI 2018: 938/3808



#### **AAAI**

AAAI 2017: 639/2571

• AAAI 2018: 938/3808

• AAAI 2019: 1150/7745



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• AAAI 2020: 1591/8881



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• AAAI 2017: 639/2571

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AAAI 2020: 1591/8881

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AAAI 2017: 639/2571

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• AAAI 2021: 1692/9034

AAAI 2022: 1349/11000+(9251)



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AAAI 2017: 639/2571

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**ICSE** 



#### **AAAI**

AAAI 2017: 639/2571

• AAAI 2018: 938/3808

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• AAAI 2020: 1591/8881

• AAAI 2021: 1692/9034

AAAI 2022: 1349/11000+(9251)

#### **ICSE**

• ICSE 2017: 67/415



#### **AAAI**

• AAAI 2017: 639/2571

• AAAI 2018: 938/3808

• AAAI 2019: 1150/7745

• AAAI 2020: 1591/8881

AAAI 2021: 1692/9034

AAAI 2022: 1349/11000+(9251)

#### **ICSE**

• ICSE 2017: 67/415

• ICSE 2018: 105/502



#### **AAAI**

AAAI 2017: 639/2571

• AAAI 2018: 938/3808

• AAAI 2019: 1150/7745

• AAAI 2020: 1591/8881

AAAI 2021: 1692/9034

AAAI 2022: 1349/11000+(9251)

#### **ICSE**

ICSE 2017: 67/415

• ICSE 2018: 105/502

• ICSE 2019: 109/529



#### **AAAI**

AAAI 2017: 639/2571

• AAAI 2018: 938/3808

• AAAI 2019: 1150/7745

• AAAI 2020: 1591/8881

AAAI 2021: 1692/9034

AAAI 2022: 1349/11000+(9251)

#### **ICSE**

ICSE 2017: 67/415

• ICSE 2018: 105/502

• ICSE 2019: 109/529

• ICSE 2020: 131/546



#### **AAAI**

AAAI 2017: 639/2571

AAAI 2018: 938/3808

• AAAI 2019: 1150/7745

AAAI 2020: 1591/8881

AAAI 2021: 1692/9034

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#### **ICSE**

ICSE 2017: 67/415

• ICSE 2018: 105/502

• ICSE 2019: 109/529

• ICSE 2020: 131/546

• ICSE 2021: 138/615



#### **AAAI**

AAAI 2017: 639/2571

• AAAI 2018: 938/3808

• AAAI 2019: 1150/7745

AAAI 2020: 1591/8881

AAAI 2021: 1692/9034

AAAI 2022: 1349/11000+(9251)

#### **ICSE**

ICSE 2017: 67/415

• ICSE 2018: 105/502

• ICSE 2019: 109/529

• ICSE 2020: 131/546

• ICSE 2021: 138/615

• ICSE 2022: 197/751

### **Conference Papers**



### For experience:

Out of 7583 total #ICLR2020 reviews:

1078 "do not know much about this area"

2484 "have read many papers in this area"

2604 "have published 1 or 2 papers"

1417 "have published in this field for many years"

47% of reviews haven't published in this area!





IEEE Transactions on Industrial Informatics





# IEEE Transactions on Industrial Informatics

• 2012: 3.381





## IEEE Transactions on Industrial Informatics

• 2012: 3.381

2013: 8.785





## IEEE Transactions on Industrial Informatics

• 2012: 3.381

2013: 8.785

• 2014: **0** 

#### **Journal Selections**





# IEEE Transactions on Industrial Informatics

• 2012: 3.381

• 2013: 8.785

• 2014: **0** 

• 2015: 4.708

• 2016: 6.764

2017: 5.43

• 2018: 7.377

• 2019: 9.112

• 2020: 10.215

• 2021: 11.648

## A Sample Journal



Limin Hou, Wenhao Li, Hesong Shen, Taochang Li:

Fuzzy Sliding Mode Control for Systems With Matched and Mismatched Uncertainties/Disturbances Based on ENDOB. 666-673

Ze Yu, Wenjiao Chen, Peng Xiao, Chunsheng Li:

AgileSAR: Achieving Wide-Swath Spaceborne SAR Based on Time-Space Sampling. 674-686

Hui Zhu, Hongbin Liang, Lian Zhao, Dai-Yuan Peng, Ling Xiong:

τ-Safe (l,k)-Diversity Privacy Model for Sequential Publication With High Utility. 687-701

Qingqing Yang, Yanqing Ye:

 $\textbf{A Dual-Channel Equilibrium Management Model for Service Products Under Electronic Commerce Environment.} \ 702-713$ 

Lijuan Zhang, Wenlong Liu, Qian Liu, Minglu Jin, Sang-Jo Yoo:

Unsupervised Clustering for Nonlinear Equalization in Indoor Millimeter-Wave Communications. 714-727

Young-Rae Cho, Seung-Jun Shin, Sung-Hyuk Yim, Kyeongbo Kong, Hyun-Woong Cho, Woo-Jin Song:

Multistage Fusion With Dissimilarity Regularization for SAR/IR Target Recognition. 728-740

Mingda Zhai, Aming Hao, Xiaolong Li, Zhiqiang Long:

 $\textbf{Research on the Active Guidance Control System in High Speed Maglev Train.} \ 741-752$ 

Rui Lai, Juntao Guan, Yintang Yang, Ai Xiong:

Spatiotemporal Adaptive Nonuniformity Correction Based on BTV Regularization. 753-762

Jiabin Cui, Guo-Wei Lu, Hongxiang Wang, Yuefeng Ji:

On-Chip Optical Vector Quadrature De-Multiplexer Proposal for QAM De-Aggregation by Single Bi-Directional SOA-Based Phase-Sensitive Amplifier. 763-772

Jianhua Zhong, Jun Zhang, Jiejunyi Liang, Haiqing Wang:

Multi-Fault Rapid Diagnosis for Wind Turbine Gearbox Using Sparse Bayesian Extreme Learning Machine. 773-781

Yuzhen Niu, Yini Zhong, Wenzhong Guo, Yiqing Shi, Peikun Chen:

2D and 3D Image Quality Assessment: A Survey of Metrics and Challenges. 782-801

## A Sample Journal



Junxiu Liu, Jinlei Zhang, Yuling Luo, Su Yang, Jinling Wang, Qiang Fu:

Mass Spectral Substance Detections Using Long Short-Term Memory Networks. 10734-10744

Syed Umar Amin, M. Shamim Hossain, Ghulam Muhammad, Musaed Alhussein, Mohamed Abdur Rahman:

Cognitive Smart Healthcare for Pathology Detection and Monitoring. 10745-10753

Zheng Tang, Yen-Shuo Lin, Kuan-Hui Lee, Jenq-Neng Hwang, Jen-Hui Chuang:

ESTHER: Joint Camera Self-Calibration and Automatic Radial Distortion Correction From Tracking of Walking Humans. 10754-10766

Mengjun Zeng, Nanfeng Xiao:

Effective Combination of DenseNet and BiLSTM for Keyword Spotting. 10767-10775

Li Zhihui, Cao Qian, Yonghua Zhao, Tao Pengfei, Zhuo Rui:

Krill Herd Algorithm for Signal Optimization of Cooperative Control With Traffic Supply and Demand. 10776-10786

Cheng Chen, Wenxiang Yang, Fang Wang, Dan Zhao, Yang Liu, Liang Deng, Canqun Yang:

 $\textbf{Reverse Offload Programming on Heterogeneous Systems.}\ 10787\text{-}10797$ 

Bo Li, Zheng Pei, Keyun Qin, Mingming Kong:

 $\textbf{TT-Miner: Topology-Transaction Miner for Mining Closed Itemset.}\ 10798-10810$ 

Yongsuk Lee, Gyungho Lee:

HW-CDI: Hard-Wired Control Data Integrity. 10811-10822

Tong Wang, Azhar Hussain, Wang Xi Bo, Sabita Maharjan:

Artificial Intelligence for Vehicle-to-Everything: A Survey. 10823-10843

Jaber Al-Khori, Galymzhan Nauryzbayev, Mohamed M. Abdallah, Mounir Hamdi:

Secrecy Performance of Decode-and-Forward Based Hybrid RF/VLC Relaying Systems. 10844-10856

Li Feng, Qinghai Yang, Kyehyun Kim, Kyung Sup Kwak:

Two-Timescale Resource Allocation for Wireless Powered D2D Communications With Self-Interested Nodes. 10857-10869

## **Academic Discrimination?**





#### **Academic Discrimination?**









## However...



#### (g) 论文定级标准:

奖学金评审论文/会议定级标准(普通标准,如有级别冲爽,按照高等级计算)		
论文/会议等级	计分	
交大 SCI 期刊 A/B 档	A 档 30 分, B 档 15 分	
其他 SCI 課期刊	10 分	
其他 EI 源期刊	3 分	
北大核心期刊	2 分	
交大各学科重要国际学术会议目录A类国际会议	6 分	

7/18

交大各学科重要国际学术会议目录B类国际会议	4分
交大各学科重要国际学术会议目录(英国际会议	2 分
其他 EI 源会议	2 分
其他会议	1分

奖学金评审论文/会议定级补充标准(自动化系适用,如有级别冲爽,按照高等级计算)			
论文/会议等级	计分		
CCF 期刊 A/B 档	A 梅 30 分, B 梅 15 分		
5 个指定中文期刊:中国科学、科学通报、计算机学报、电子学报、自动化学报	12 分		

# Blue Pill or Red Pill





# **A**nyway





**Conference Papers VS. Journal Papers** 

#### Conference VS. Journal



D. Patterson, L. Snyder, and J. Ullman. Best practices Memo: Evaluating Computer Scientists and Engineers for Promotion and Tenure. Computer Research Association, 1999.

J. Chen and J. A. Konstan, Conference Paper Selectivity and Impact. Communications of the ACM, Vol. 53(6), 79-83, 2010

C. E. Glassick, M. T. Huber, and G. I. Maeroff, Scholarship Assessed: Evaluation of the Professoriate. Jossey-Bass, 1997.

M. Y. Vardi, Conferences vs. Journals in Computing Research. Communications of the ACM, Vol. 52(5), 5–5, 2009

# **Why Choose Conferences**



Conferences are more timely than journals.

Conferences have higher standards of novelty.

# **Conference Selectivity**



#### Two purposes:

- pick the best submitted papers
- signal prospective authors and readers about conference quality.

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Acceptance rates of 15-20% is optimal for generating the highest number of future citations for both the proceedings and the top papers submitted.

## **Conference Selectivity**



#### Two purposes:

- pick the best submitted papers
- signal prospective authors and readers about conference quality.

Acceptance rates of 15-20% is optimal for generating the highest number of future citations for both the proceedings and the top papers submitted.

Conferences rejecting 85% or more of their submissions risk discouraging overall submissions and inadvertently filtering out high-impact research.



In most scientific fields, journals have higher standards than conferences.



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 $\label{eq:many-problem} \mbox{Many universities evaluate faculty on the basis of journal publications}.$ 



In most scientific fields, journals have higher standards than conferences.

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Journals may have longer page limits and journal reviews tend to be more detailed.



In most scientific fields, journals have higher standards than conferences.

Many universities evaluate faculty on the basis of journal publications.

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Journal papers are more likely to be correct and readable than conference papers.

#### C&J in CS



In CS, conference publication is preferred to journal publication, at least for experimentalists.

The Computer Research Association asserts that conference publication is superior to journal publication in computer science.

The typical conference submission receives four to five evaluations, whereas the typical journal submission receives only two to three evaluations.

Computing researchers are right to view conferences as an important archival venue and use acceptance rate as an indicator of future impact.

# **Time Consuming**



Usually, journal submission may spend more time to obtain a result.

# **Time Consuming**



Usually, journal submission may spend more time to obtain a result.

Maybe too long...

## **Time Consuming**



Usually, journal submission may spend more time to obtain a result.

Maybe too long...



# 中文期刊



# 计算领域高质量科技期刊分级目录

编制单位:中国计算机学会(CCF)

顺号	T1 类	CN 号	语种	主办单位
1	计算机学报	11-1826/TP	中文	中国科学院计算技术研究所、中国计算机学会
2	软件学报	11-2560/TP	中文	中国科学院软件研究所、中国计算机学会
3	计算机研究与发展	11-1777/TP	中文	中国科学院计算技术研究所;中国计算机学会
4	中国科学:信息科学	11-5846/TP	中文	中国科学院、国家自然科学基金委员会
5	计算机科学技术学报(英文) Journal of Computer Science and Technology	11-2296/TP	英文	中科院计算所、中国计算机学会
6	电子学报	11-2087/TN	中文	中国电子学会
7	中国科学:信息科学(英文版) SCIENTIA SINICA Informationis	11-5847/TP	英文	中国科学院、国家自然科学基金委员会
8	计算机科学前沿(英文版) Frontiers of Computer Science	10-1014/TP	英文	高等教育出版社有限公司、北京航空航天大学
9	自动化学报	11-2109/TP	中文	中国科学院自动化研究所、中国自动化学会
10	电子学报(英文) Chinese Journal of Electronics	10-1284/TN	英文	中国电子学会、电子工业出版社
11	信息与电子工程前沿(英文) Frontiers of Information Technology & Electronic Engineering	33-1389/TP	英文	中国工程院、浙江大学
12	通信学报	11-2102/TN	中文	中国通信学会
13	计算机辅助设计与图形学学报	11-2925/TP	中文	中国计算机学会、北京中科期刊出版有限公司
14	自动化学报(英文版) Journal of Automatica Sinica	10-1193/TP	英文	中国自动化学会、中国科学院自动化研究所、中国科技出版传媒股份有限公司
15	中文信息学报	11-2325/N	中文	中国中文信息学会、中国科学院软件研究所
16	科学通报	11-1784/N	中文	中国科学院、国家自然科学基金委员会

All the opinions in this lecture are only for Computer Sciences and Software Engineering, and only my opinions!