

Ad hoc committee on the future of the T-IT

Progress report, ISIT 2012

Committee members

- Helmut Bőlcskei, ETH
- Emmanuel Candès, Stanford University
- Abbas El Gamal, Stanford University (Chair)
- David Forney, MIT
- Bruce Hajek, UIUC
- Frank Kschischang, University of Toronto
- Madhu Sudan, Microsoft
- Alexander Vardy, UCSD

Committee charge

The IT Transactions is the premier publication in the field of information theory and ranks among the top IEEE publications in terms of the number of citations and eigenfactor. However, the size of the Transactions has been steadily growing in recent years, which raises the questions of whether this growth can be managed, and whether it is hurting quality. Furthermore, the Transactions has not been attracting the best papers in closely related fields, such as cryptography, complexity, learning, quantum information, and network science.

Committee charge

The charge of the committee is to investigate these issues and make recommendations based on its findings. Some particular questions are:

1. Has this growth indeed hurt quality compared to an absolute standard or top journals in cognate fields (e.g., computer science, statistics, operations research, mathematics, and physics)?
2. How have leading journals in these cognate fields managed size and growth?
3. Has this growth compromised the value of the Transactions to its readership (e.g., in timeliness or browsability)?
4. In general, how is the Transactions viewed by its readership broadly defined?
5. What actions, if any, need to be taken to ensure the future of the Transactions as a leading journal in the information sciences?

What we did

- Conducted over 25 interviews with select group of researchers in IT and cognate fields
- Collected relevant statistics and policies about leading journals in cognate fields
- Held six conference calls to discuss results and make preliminary recommendations
- On track to make final recommendations at ITW 2012

Interview questions and response summary

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4. In general, how is T-IT viewed by its readership broadly defined?

T-IT is best journal in its field, more prestigious than any other IEEE journal

T-IT is the most mathematical of the IEEE journals (except possibly T-AC); it is more concerned with technical virtuosity than with impact;

the quality of papers ranges widely, and therefore it does not give the “quality stamp” that other journals and conferences (e.g., FOCS, STOC) do

Interview questions and response summary

5. What actions, if any, need to be taken to ensure the future of the Transactions as a leading journal in the information sciences?

Little or no sentiment for splitting the Transactions, spinning off new journals, or narrowing the scope

Actions underway:

Raise minimum acceptance threshold

Reject “incremental” papers

Avoid special issues

Discussion items:

IT does not have mechanism for pointing out the papers that “everyone should read,” either in T-IT or ISIT

Other fields have highly selective journals or conferences

Start a magazine along the lines of the Signal Processing Magazine

Journal policy summary

- Policies are all over the map
- No other journal in our survey is contending with the growth that we are
- Physical Review Letters is an interesting model of highly selective journal
- JMLR is an interesting model of an on-line, open access journal
- Other IEEE journals have had success with instituting Senior Editors

Preliminary recommendations

- **Improve operations:**
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 - ▶ Recognize good reviewers, perhaps by publishing an annual inclusive list
 - ▶ Consider hierarchical editorial board with Senior AEs

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- **Highlight quality:**
 - ▶ Explore creating, with cognate societies, a broad-scope, high impact information sciences journal (\`a la Nature/Science)

Supplementary material

Interview questions and response summary-I

- Q1.** *Has the growth of T-IT hurt quality compared to an absolute standard or top journals in cognate fields (e.g., computer science, statistics, operations research, mathematics, and physics)?*

Some people said "yes," some said "no." If there was a consensus, it was that T-IT still publishes the best papers in its field, but that the "average quality" have slipped a bit, due to the inclusion of more average papers, particularly in the traditional core areas of the journal.

One respondent commented, "I have the impression that for some of the topics more central in the IT Transactions, the average quality of the papers is not as high, with many more incremental papers being published." However, another respondent remarked: "I think average quality is not a crucial metric because journals are nowadays searched, not browsed." Extremal responses: "The IT Transactions is a scholarly journal of the highest quality" (respondent's field: communications). "My understanding is that the quality of an average paper in IEEE-IT has never been very high. In particular it always lagged the quality in top journals in adjacent areas" (respondent's field: theoretical computer science).

- Q2.** *How have leading journals in these cognate fields managed size and growth?*

Respondents mentioned the following measures: page limits, paper limits, spin-off of new journals, more fast-rejects, use of on-line supplements, go all-electronic.

- Q3.** *Has this growth compromised the value of the Transactions to its readership (e.g., in timeliness or browsability)?*

Most respondents replied that browsability is not an issue because "journals are nowadays searched, not browsed." Those who cared about browsability said that it had suffered.

Remarkably, few comments were made about timeliness; apparently not much of an issue.

- Q4.** *In general, how is T-IT viewed by its readership broadly defined?*

Respondents said more or less unanimously that the T-IT was viewed as the best journal in its field, and as more prestigious than any other IEEE journal.

More nuanced comments: T-IT is the most mathematical of the IEEE journals (except possibly T-AC); it is more concerned with technical virtuosity than with impact; the quality of papers ranges widely, and therefore it does not give the "quality stamp" that other journals and conferences do (respondent's field: theoretical CS).

Interview questions and response summary-II

- Q5. *What actions, if any, need to be taken to ensure the future of the Transactions as a leading journal in the information sciences?*

Measures suggested (in addition to those mentioned under Q2 above): raise minimum acceptance threshold; reject "incremental" papers; reduce the T-IT impact factor (joke); in cognate fields, publish only papers that have a clear relation to information theory; avoid special issues. There was little or no sentiment for splitting the Transactions, spinning off new journals, or narrowing the scope.

A number of respondents commented that it would be helpful to clarify the scope of T-IT, which is not always clear to those in neighboring fields.

Several respondents commented that IT does not have a mechanism for pointing out its best papers, either in T-IT or the ISIT. Other fields have highly selective journals or conferences. It was felt that there should be some means of highlighting the papers that "everyone should read."

Two respondents suggested starting a magazine along the lines of the Signal Processing Magazine.

Several people mentioned that the quality of editors and reviewers is all-important; probably others felt that this goes without saying.

Journal policy summary-I

Annals of Applied Probability (EiC Barbour via Hajek)

Goal: top applied probability journal
No page limits, but longer papers discouraged
Discourage expanded conference papers
Open access: free to all IMS members; arXiv is free
AE's identity is blind to authors. AE not expected to spend time and effort helping authors; they can always write a report themselves. AEs not expected to be brave.

Annal of Statistics (via Candès)

Goal: top journal in mathematical statistics in the broad sense
Page limit of 30-34 pages; overage to a supplementary on-line archive
Discourage expanded conference papers
Co-editors make final decisions
Discussion papers welcomed
Reducing page budget to improve average quality
No plans for open access

Physical Review Letters and Phys. Rev. A-E (via Forney)

PRL goal: rapid publication of short reports of important fundamental research
PR A-E goal: dependable resource
PRL page limit: 4 pages
Open access: APS has just started a new free "author-pays" (\$1500) journal PR X, like PLoS ONE
On-line (free) journal, Physics, contains original comments, brief reviews, digests of highlighted papers
Offers per-article "author-pays" (\$1700-2700) open access
PRL and PR B include Editors' Suggestions, marked with a special icon
Free email alerting service
Outstanding Referee award program

Journal policy summary-II

Journal of the ACM (EiC Vianu via Sudan)

Goal: publish best research in all areas of computer science (really, theoretical CS)

Task force has been set up by ACM to look into policy changes

Fast-reject: by EiC, by AE, or AE can ask external referee for "quick review," assuming results correct

No page limits (average paper 30 pages)

Encourages "full" versions (25% new material must be added) of conference papers; invites papers from top conferences

Open access: to be studied by task force

Journal of the AMS (Sr. Production Editor Letourneau, via Candès)

Regrets cannot give a helpful response

AMS publishes current backlogs of math journals

Open access: all articles more than five years old are freely available

Journal of Machine Learning Research (EiC Saul via Forney)

Free on-line journal. "It is completely open access and always will be."

Fast-reject by either EiC or AE, but not many are.

Encourages expanded versions of conference papers; expected to be more thorough and complete.

Mathematics of Operations Research (Editor Rothblum via Hajek)

Fast-reject: either Area Editor or AE; close to 50%

Open access: being studied by INFORMS

Blind AEs; authors correspond with one of four Area Editors

Journal policy summary-III

SIAM Journal on Computing (EiC Sudan)

Goal: top journal in theoretical computer science

Page limits: none

Conference paper policies differ in SIAM and TCS communities

SIAM: publish after revision with a footnote.

TCS: no revision necessary.

In practice revision is not enforced, but in most cases there is substantial revision anyway

Special issues devoted to conferences (FOCS and STOC)

Open access: no plans

SIAM Journal on Discrete Math (EiC Tetali via Vardy)

Goal: tops in discrete math

Page limits: none, but higher bar if more than 25 pages

Welcome journal version of conference papers

Changes in past 5-10 years:

Increased acceptance threshold by rejecting narrow, insignificant papers

Diversified AEs

Cut acceptance-to-print delays (electronic publication)

IEEE Transactions on Automatic Control (EiC Antsaklis via Hajek)

Senior Editors (area editors) introduced in 2010, and "it really works well for us"

Instead of two EiCs (for papers and notes) and AEs-at-large

83% of the AEs are non-US

Fast-reject: AE, SE, EiC all involved

Page limits: 32 pages. Also page charges for long but not overlong papers.

Open access: not crazy about IEEE's direction, haven't implemented

Special issues: encourage, but selectively

AEs communicate directly with authors; "has worked out really well for us"

I didn't read the 20-page IEEE review document completely, but it seems very well done.

Journal policy summary-IV

IEEE Transactions on Networking (EiC Guerin via Hajek)

Page limits: page charges for more than 10 pages (average 13.5)

Refer to wiki for more info on policies (I didn't)

Fast-track agreements with conferences (SIGCOMM, CoNEXT, IMC, INFOCOM), 1-3 papers each

Open access: IEEE \$3000 policy useless. Trying to work with ACM.

Performance feedback to AEs

AEs not blind; only way to scale the system

IEEE Transactions on Wireless Systems (EiC Xiao via Kschischang)

Co-owned by ComSoc (75%) and SPS

Recent spinoff of IEEE Wireless Communication Letters, with 23 AEs

Eight Area Editors

Fast sub-to-pub due to 23% fast-rejects, close oversight of AEs, quick removal of underperforming AEs

Editorial Advisory Board handles problem papers, appeals

EiC Xiao has received more than 25 invitations to co-author already-written papers

Journal statistics

Sheet1

Journal	In 2010:				Fast Rejection Ratio	Pages	Paper Len.	1st Review (days)	No. of Issues	Length of A. E. Term	In Dec. 2011:	
	Papers Sub.	Papers Pub.	Accept. Ratio								Impact Factor	Eigenfactor
Annals of Applied Probability	330	85	25.00%		30.00%	2485	29.2352941		6		1.12	0.014681
Annals of Statistics	532	122	16.00%		65.35%	3841	31.4836066	54	6		2.94	0.036354
IEEE Trans. On Automatic Control	1450	360	24.83%		25.00%	2952	8.2		12		1.952	0.045482
IEEE Trans. On Information Theory	1050	485	40.00%		28.00%	6513	12.5	136(156)	12	3	2.728	0.075096
IEEE Trans. on Wireless Commun.	2300	413	17.96%		23.65%	3888	9.41404358	70	12	1(+2)(+2)	2.152	0.045198
IEEE/ACM Transactions on Networking	523	150	28.68%		27.50%	1999	13.3266667	150	6	2(+2), av. 2.4	2.292	0.014395
Journal of ACM		34				942	27.7058824		6		3.375	0.008197
Journal of AMS		35				1195	34.1428571		4		3.411	0.017754
Journal of Machine Learning Research	375	120	32.00%			3680	30.6666667	<180	12?		2.974	0.021245
Mathematics of Operations Research	200	48	25.00%		50.00%	912	19		4		1.145	0.007782
Physical Review A	4890	2934	60.00%			21625	7.37048398		12		2.861	0.238922
Physical Review B	6000	6206	60.00%			46645	7.51611344		48		3.774	0.768919
Physical Review C	1775	1065	60.00%			9500	8.92018779		12		3.416	0.082666
Physical Review D	5026.666667	3016	60.00%			34330	11.382626		24		4.964	0.335336
Physical Review E	3970	2382	60.00%			22300	9.36188077		12		2.352	0.248905
Physical Review Letters	13396	3349	25.00%			12961	3.8701048		26		7.622	1.26636
SIAM Journal on Computing	276	83	30.07%		32.00%	2265	27.2891566		4		2.321	0.011924
SIAM Journal on Discrete Mathematics	282	130	46.10%		21.00%	1762	13.5538462		4		0.626	0.007607
Pages by Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011/2002	
Annals of Applied Probability	2113	2300	3332	2462	2440	2418	2433	2498	2485	2496		
Annals of Statistics	1811	2095	2775	2999	3050	2817	2919	4312	3841	3353	4000	
IEEE Trans. On Automatic Control	2156	2327	2336	2140	2040	2432	2752	2964	2952	3046		
IEEE Trans. On Information Theory	3154	3349	3416	4444	5627	4852	5790	5848	6513	8127		
IEEE Trans. on Wireless Commun.	855	1300	2460	3105	3711	4575	5527	6143	3888	4260		
IEEE/ACM Transactions on Networking	852	1017	1178	1424	1399	1632	1488	2027	1999	1873		
Journal of ACM	858	980	1041	1023	1012	%						
Journal of AMS	1006	1032	994	1003	1014	1186	1213	1215	1195	1226		
Journal of Machine Learning Research	1461	1519	1595	2204	2769	2790	2880	2962	3680	3466		
Mathematics of Operations Research	842	887	978	1040	848	920	1024	1024	912	784		
Physical Review A	%										21625	22500
Physical Review B	%										46645	46000
Physical Review C	%										8976	9500
Physical Review D	%										34330	37000
Physical Review E	%										19818	22300
Physical Review Letters	%										12961	12000
All APS journals	119885	106789	117719	132564	130296	131038	143981	141809	149520	151300	153800	
SIAM Journal on Computing	1250	1653	1530	2053	2251	1592	2766	2100	2238	2000		
SIAM Journal on Discrete Mathematics												

Sheet1

Associate Editors by Year #	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011/2002
Annals of Applied Probability	27	25	26	25	25	27	25	21	35	35	35
Annals of Statistics	35	34	38	40	39	45	63	69	56	56	56
IEEE Trans. On Automatic Control	33	34	34	34	35	36	35	35	36	41	
IEEE Trans. On Information Theory	21	21	23	25	28	25	28	33	43	48	48
IEEE Trans. on Wireless Commun.	39	30	58	62	68	75	98	98	93	104	88
IEEE/ACM Transactions on Networking	41	43	39	37	40	41	41	50	42	38	49
Journal of ACM	22	23	22	22	25	25	25	26	28	29	27
Journal of AMS	18	18	18	18	18	18	19	20	20	28	20
Journal of Machine Learning Research	&				50	49	52	52	68	60	61
Mathematics of Operations Research		30	29	30	31	34	35	36	35	41	44
Physical Review A	5	6	6	8	8	8	8	8	8	8	8
Physical Review B	6	6	5	6	5	4	4	3	3	2	3
Physical Review C	5	6	6	6	7	7	7	7	7	7	7
Physical Review D	3	3	3	2	2	2	2	2	2	2	2
Physical Review E	8	8	8	9	9	11	11	10	9	9	8
Physical Review Letters	\$										
SIAM Journal on Computing	29	30	27	29	28	27	26	27	29	22	25
SIAM Journal on Discrete Mathematics	36	42	44	43	47	48	52	53	53	49	49

Comments

% page numbers are not counted continuously but

only Associate Editors are counted, not i.e. Ass

& at ETH this journal is only available online whe

\$ for this journal Associate Editors are listed as well as the 'Editorial Board (Divisional Associate Editors)' - what should be counted here? (in addition there are Senior Assistant Editors,

Assistant

Editors, a Consulting Editor, and Adjunct Associate Editors - refer to comment #)

** The acceptance ratio, fast rejection ratio, paper