

Update: IEEE Journal on Selected Areas in Information Theory (JSAIT)

Andrea Goldsmith
JSAIT EiC

ITSoc BoG Meeting
July 7, 2019

Executive Summary

Updates since February BoG Meeting

- Senior Editorial (SE) Board finalized in March.
- Ranking of potential Special Issue (SI) topics completed in March
 - **First SI to be on Mathematical Foundations of ML**
- [JSAIT website](#) launched in April
- Industrial Advisory Board finalized in April
- Email announcement of JSAIT launch and topic of 1st issue sent to ITSoc mailing list in May
- Guest Editors for first SE and the [Call for Papers](#) finalized in June
 - Papers due Oct. 1, decisions Mar. 1, issue Apr./May
- News announcement with CFP to go out in July
- 2nd SI will be on Quantum Information Science

JSAIT Editorial Board

Editor-in-Chief: Andrea Goldsmith, Stanford

Senior Editors:

- Rich Baraniuk, Rice University
- Giuseppe Caire, Technical University of Berlin
- Emmanuel Candès, Stanford University
- Alex Dimakis, The University of Texas at Austin
- Yonina Eldar, Weizmann Institute of Science
- Negar Kiyavash, Georgia Institute of Technology
- Rob Nowak, University of Wisconsin
- Alon Orlitsky, University of California San Diego
- David Tse, Stanford University
- Andreas Winter, Universitat Autònoma de Barcelona
- Aylin Yener, Pennsylvania State University
- Raymond Yeung, Chinese University of Hong Kong

Steering Committee

- **Chair:** Jeffrey Andrews, The University of Texas at Austin (2017-2023)
- A. Robert Calderbank, Duke University (2017-2022)
- Muriel Médard, Massachusetts Institute of Technology (2017-2020)
- H. Vincent Poor, Princeton University (2017-2021)
- Ruediger Urbanke, Ecole Polytechnique Fédérale de Lausanne (2017-2020)

SC will be 4 members in steady state

Industrial Advisory Board

- Corinna Cortes (Head of Research at Google New York)
- Merouane Debbah (Director of the Mathematical and Algorithmic Sciences Lab at Huawei)
- Gerhard Fettweis (Board member of National Instruments and Digades, Vodafone Chair at TU Dresden)
- Kristen Lauter (Principal Researcher and Research Manager for the Cryptography and Privacy Research Group at Microsoft)
- Nambi Seshadri (former Senior VP and CTO of Broadband and Connectivity group at Broadcom, Professor of Practice at UCSD)
- Nadia Fawaz (Staff Software Engineer in Artificial Intelligence at LinkedIn)
- Tom Richardson (Vice President of Engineering at Qualcomm)
- Amin Shokrollahi (Co-founder, CEO, and Chairman at Kandou Bus, Professor at EPFL)

JSAIT 1st Call for Papers

Deep Learning: Mathematical Foundations and Applications to Information Science

This special issue will focus on the mathematical foundations of deep learning as well as applications across information science. Prospective authors are invited to submit original manuscripts on topics within this broad scope including, but not limited to:

- Information theoretic methods for deep learning
- Robustness for training and inference
- Understanding generalization in over-parametrized models
- Efficient and compressed model representations
- Deep generative models and inverse problems
- Large-scale efficient training of large models
- Non-convex optimization in deep learning
- Deep learning for source and channel coding.

Guest Editors: *Lead Guest Editor:* Alex Dimakis, *Guest Editors:* Richard Baraniuk, Sewoong Oh, Nati Srebro, Rebecca Willett; *SE Oversight:* Orlitsky and Nowak

Important Dates: **Manuscript Due:** Oct. 1 2019, **Acceptance:** Mar. 15 2020, **Final to Publisher:** Apr. 5 2020, **Expected Publication:** April/May 2020

JSAIT 2nd Call for Papers

Topic: Quantum Information Science

Lead Guest Editor: Andreas Winter

Focus of SI: This SI could include papers on the state-of-the-art in quantum computing, communication, coding, cryptography, and compression as well as the challenges remaining, and how the information-theoretic and quantum-mechanical perspectives complement each other in building these technologies. Other topics around quantum information science are also being considered.

Timing: Guest editorial team being formed now. Goal is to launch the CFP in Sep./Oct., with papers due Dec./Jan.

Launch Plans and Logistics

- Initially 4 issues per year (maybe 3 in 2020)
- From Year 3 on, ~6 Special Issues (SIs) per year
 - 12-25 papers per issue depending on # of submissions
 - 10-15 pages/paper
 - 35 page limit for submissions (1 colm, double space)
 - 10 free pages, \$220/page for pages 11 and up.
 - Estimating 1000 pages/year at steady state (year 3 or 4 and thereafter), Could be in 1200-1400 range
- Setup of Scholar One and Xplore in progress

Appendices (Past BOG documents):

- 1. JSAIT Scope**
- 2. EiC, SC, and Editor Processes and Procedures**
- 3. Detailed Financials**

Scope

- The **IEEE Journal on Special Areas in Information Theory (JSAIT)** publishes high quality technical papers on all aspects of Information Theory. It is a multi-disciplinary journal of special issues (SIs) focusing on the intersections of information theory with fields such as machine learning, statistics, genomics, neuroscience, theoretical computer science, and physics. Many fields lean heavily on the fundamentals of information theory, including concepts such as information entropy, compression, coding and decoding, mutual information, divergence, capacity, and rate distortion theory. There will also be special issues for hot topics firmly within information theory, such as new types of codes, short-packet communication, advances in multi-terminal information theory, quantum information theory, information theoretic security, and other emerging topics.

Working List of Y1-Y3 Topics

- Machine Learning
- Quantum Information Science and Processing
- Blockchain Networks and Cryptocurrency
- Statistical Inference and Estimation
- Privacy and Utility
- Biological Information Science
- Neuroscience and Brain-Machine Interfaces
- Cryptography and Security
- Data Storage and Caching
- Network Information Science
- Theoretical Computer Science and Information Theory
- Core IT topics

More detailed description of topics and potential guest editors have also been developed

JSAIT Leadership Structure



- Steering Committee (SC) appointed by the BOG (5Y term)
 - 4 members in steady state (5 initially)
- Steering Committee Appoints EIC (3Y nonrenewable term)
 - subject to BOG Approval
- EIC appoints Senior Editors
 - 5Y term
 - Subject to SC approval
 - Not subject to BOG approval
- EIC Approves SI proposals including a Guest Editorial Team
- One or two Senior Editors serve as “Mentor” to each SI team, with further oversight by EIC

EIC Selection & Appointment Process

- The EIC will serve a single 3 year term (non-renewable). The EIC be selected (following IEEE best practices) as follows:
 1. Open call for Nominations widely distributed to all Society members and to other relevant mailing lists
 2. Steering Committee will additionally solicit high quality nominations and may make their own nominations
 3. Steering Committee selects first choice EIC, privately confirms their availability. (If unavailable, proceeds to second choice, and so on). Once selected, this person is presented to the BOG for possible discussion, and confirmation.
 4. The ITSoc BOG votes to confirm the appointment of the EIC selected by the Steering Committee (unless of course they strongly disagree with the selection)

Steering Committee Selection

- Steering Committee members will be appointed by the Society's VP of Publications (currently the Senior Past President) after consultation with existing Steering Committee members.
- SC members will serve a non-renewable 5 year term
 - However for the next several years the retirements of the founding SC members shall be staggered
 - This way there will be about one retirement and one new appointment per year extending into the future.
- The Chair of the SC shall be appointed by the SC members
 - Should have served at least one year on the SC before being appointed Chair.
 - In the event that the SC members are unable to converge on a Chair selection, the Chair will be selected by the VP of Publications (currently the Senior Past President).

JSAIT Financial Projections (from IEEE)

JSAIT 100% owned by ITSOC

Financials	2019	2020	2021	2022
<i>Variable Fulfillment Expenses</i>				
Digital Print/Manufacturing /Postage (quote for producing 30 copies)		\$ 968	\$ 1,056	\$ 1,698
<i>Total Fulfillment Expenses</i>		\$ 968	\$ 1,056	\$ 1,698
<i>Other Variable Expenses</i>				
Voluntary Page Charges		\$ 75	\$ 100	\$ 125
Overlength Page Charges		\$ 1,800	\$ 2,400	\$ 3,000
Bad debt for page charge collection		\$ 2,651	\$ 3,535	\$ 4,419
<i>Total Other Variable Expenses</i>		\$ 4,526	\$ 6,035	\$ 7,544
TOTAL EXPENSE	\$ 5,750	\$ 55,765	\$ 66,433	\$ 78,359
NET SURPLUS/(DEFICIT)	(\$5,750)	(\$1,221)	\$10,365	\$ 16,969
Society Reserves Effect***	(\$5,750)	(\$6,971)	\$3,394	\$ 20,363
*** Cumulative effect on reserve				

Into the black very quickly, according to IEEE

IEEE Journal on Selected Topics in Information Theory (JSTIT)

No print, ONLY Digital Print for ASPP

Description	2019	2020	2021	2022
Estimated # of published articles per year (12 pages per article)		50	65	80
# Pages per Year		600	800	1,000
# Issues per Year		4	4	6
# Members Online Subscriber (Bundled)		2,635	2,678	2,699
# Student Members Online Subscriber (Bundled)		465	473	476
# Non Member Online Subscribers		2	2	3
# ASPP Subscribers (Digital Print copies)		30	30	30
# General Interest Online Subscribers		170	213	255
# General Interest Student Online Subscribers		30	38	45
Prices	2019	2020	2021	2022
Member Online Rate (BUNDLED)		\$ -	\$ -	\$ -
Student Online Rate (BUNDLED)		\$ -	\$ -	\$ -
Non Member Online Sub Rate		\$ 620	\$ 650	\$ 675
General Interest Online Sub rate		\$ 38	\$ 40	\$ 42
Student General Interest Online Sub rate		\$ 19	\$ 20	\$ 21
Voluntary Page Charge Rate		\$ 110	\$ 110	\$ 110
% of Paid Voluntary Pages		0.5%	0.5%	0.5%
Overlength Page Charge Rate		\$ 200	\$ 200	\$ 200
% of Paid Overlength Pages		12%	12%	12%

PERIODICAL FINANCIAL STATEMENT

Financials	2019	2020	2021	2022
REVENUE				
Member, Student and General Interest Subscription Revenue		\$ 7,030	\$ 9,280	\$ 11,655
Non Member Revenue		\$ 1,240	\$ 1,300	\$ 2,025
Non Member sub share of Corporate Infrastructure		\$ (360)	\$ (377)	\$ (587)
Voluntary Page Charge		\$ 330	\$ 440	\$ 550
Overlength Page Charge		\$ 14,400	\$ 19,200	\$ 24,000
Periodicals Package Program (includes the following base amounts per year: \$27.9K, \$18.6K, and \$9.3K)		\$ 31,904	\$ 46,955	\$ 57,685
TOTAL REVENUE	\$ -	\$ 54,544	\$ 76,798	\$ 95,328
EXPENSE				
<i>Fixed Expenses</i>				
Promotion		\$ -	\$ -	\$ -
EIC and editor travel (Panel of Editors, AdCom)		\$ 5,000	\$ 5,000	\$ 5,000
Xplore		\$ 5,879	\$ 5,879	\$ 5,879
ScholarOne Manuscripts	\$ 5,750	\$ 7,030	\$ 7,967	\$ 8,653
Editorial (moderate-edited level)		\$ 16,800	\$ 23,080	\$ 30,240
Information Conversion (XML)		\$ 1,800	\$ 2,400	\$ 3,024
Editorial Assistant/Office (peer review support)		\$ 10,000	\$ 10,000	\$ 10,000
Indexing		\$ 120	\$ 160	\$ 202
Publication Administration		\$ 3,642	\$ 4,856	\$ 6,119
<i>Total Fixed Expenses</i>	\$ 5,750	\$ 50,271	\$ 59,342	\$ 69,117

- Note the key impact of page charges
- Budget for Admin is very tentative and about ¼ time (10 hours a week)