

SPECIAL ISSUE

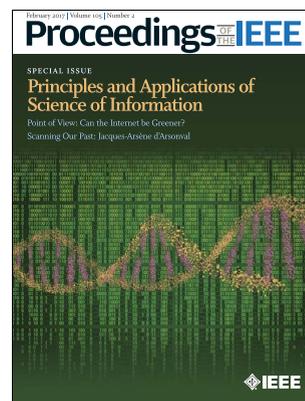
PRINCIPLES AND APPLICATIONS OF SCIENCE OF INFORMATION

Edited by T. Courtade, A. Grama, M. W. Mahoney, and T. Weissman

- 189 High-Probability Guarantees in Repeated Games: Theory and Applications in Information Theory**
By P. Delgosha, A. Gohari, and M. Akbarpour
 [CONTRIBUTED PAPER] This paper fuses ideas from both information theory and game theory to study repeated games with incomplete information in a “high-probability framework.”
- 205 Information-Theoretic Approach to Strategic Communication as a Hierarchical Game**
By E. Akyol, C. Langbort, and T. Başar
 [CONTRIBUTED PAPER] This paper studies information disclosure problems of economics through an information-theoretic lens.
- 219 Dynamic Watermarking: Active Defense of Networked Cyber-Physical Systems**
By B. Satchidanandan and P. R. Kumar
 [CONTRIBUTED PAPER] This paper investigates the problem of secure control of networked cyber-physical systems.
- 241 Decision Making With Quantized Priors Leads to Discrimination**
By L. R. Varshney and K. R. Varshney
 [CONTRIBUTED PAPER] This paper introduces an information-based model of signal detection motivated by the question of racial discrimination in decision-making scenarios such as police arrests.
- 256 An Optimization Approach to Locally-Biased Graph Algorithms**
By K. Fountoulakis, D. F. Gleich, and M. W. Mahoney
 [CONTRIBUTED PAPER] This paper investigates a class of locally-biased graph algorithms for finding local or small-scale structures in large graphs.
- 273 An Information and Control Framework for Optimizing User-Compliant Human-Computer Interfaces**
By J. Tantiongloc, D. A. Mesa, R. Ma, S. Kim, C. H. Alzate, J. J. Camacho, V. Manian, and T. P. Coleman
 [CONTRIBUTED PAPER] This paper presents a framework for a human-computer interface, which provides a simplified method based on optimal transport theory to generate optimal feedback signals between the computer and human in high dimension.
- 286 A Study of the Boltzmann Sequence-Structure Channel**
By A. Magner, D. Kihara, and W. Szpankowski
 [CONTRIBUTED PAPER] This paper presents a channel that maps sequences from a finite alphabet to self-avoiding walks in a 2-D grid.
- 306 Fundamentals of Molecular Information and Communication Science**
By O. B. Akan, H. Ramezani, T. Khan, N. A. Abbasi, and M. Kuscü
 [CONTRIBUTED PAPER] This paper considers molecular communication (MC) as a communication paradigm for nanonetwork realization.

DEPARTMENTS

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 Can the Internet Be Greener?
By S. Lambert and M. Pickavet
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 Principles and Applications of Science of Information
By T. Courtade, A. Grama, M. W. Mahoney, and T. Weissman
- 394 SCANNING OUR PAST**
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By S. Reif-Acherman
- 405 FUTURE SPECIAL ISSUES/SPECIAL SECTIONS**



On the Cover: This month’s cover image of a double-helix DNA highlights just one of the many applications of science of information.

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- 319** **Doubly Penalized LASSO for Reconstruction of Biological Networks**
By *B. Asadi, M. R. Maurya, D. M. Tartakovsky, and S. Subramaniam*
[CONTRIBUTED PAPER] This paper presents a new method for the reconstruction of dynamic biological networks and presents two case studies.
- 330** **Addressing the Need for a Model Selection Framework in Systems Biology Using Information Theory**
By *F. DeVilbiss and D. Ramkrishna*
[CONTRIBUTED PAPER] This paper develops the argument that information-theoretic model selection metrics should be extended to nonnested model comparison applications in systems biology.
- 340** **A Critical Survey of Deconvolution Methods for Separating Cell Types in Complex Tissues**
By *S. Mohammadi, N. Zuckerman, A. Goldsmith, and A. Grama*
[CONTRIBUTED PAPER] This paper focuses on *in silico* deconvolution of signals associated with complex tissues into their constitutive cell-type components and surveys a variety of models, methods, and assumptions underlying deconvolution techniques.
- 367** **An Information-Theoretic View of EEG Sensing**
By *P. Grover and P. Venkatesh*
[CONTRIBUTED PAPER] This paper explores potential advantages of high-density EEG systems for high-resolution imaging of the brain and proposes a hierarchical sensing technique.
- 385** **The Information Content of Glutamine-Rich Sequences Define Protein Functional Characteristics**
By *A. Sen, W.-C. Hsieh, and R. C. Aguilar*
[CONTRIBUTED PAPER] This paper investigates the relation of abnormally expanded glutamine (Q) repeats within specific proteins and their function.

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