Proceedings of the IEEE

DECEMBER 2017 / VOL. 105 / NO. 12

CONTENTS

REGULAR PAPERS ISSUE

2295 Efficient Processing of Deep Neural Networks: A Tutorial and Survey
By V. Sze, Y.-H. Chen, T.-J. Yang, and J. S. Emer
|CONTRIBUTED PAPER| This article provides a comprehensive tutorial and survey coverage of the recent advances toward enabling efficient processing of deep neural networks.

2330 System Scaling With Nanostructured Power and RF Components
By P. M. Raj, H. Sharma, S. Sitaraman, D. Mishra, and R. Tummala
|CONTRIBUTED PAPER| This article reviews the impact of nanostructured materials toward enhancing the performance and miniaturization of power and RF passive components in emerging smart systems.

2347 Nonorthogonal Multiple Access for 5G and Beyond
By Y. Liu, Z. Qin, M. Elkashlan, Z. Ding, A. Nallanathan, and L. Hanzo
|CONTRIBUTED PAPER| This article surveys the state-of-the-art research on power-domain nonorthogonal multiple access (NOMA), addressing the theoretical advances, major challenges, and opportunities.

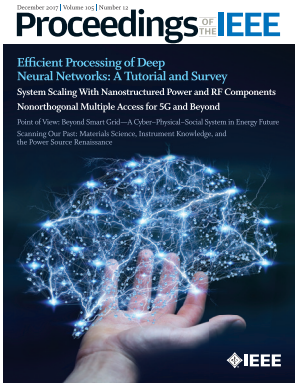
DEPARTMENTS

2290 POINT OF VIEW
Beyond Smart Grid—A Cyber–Physical–Social System in Energy Future
By Y. Xue and X. Yu

2293 SCANNING THE ISSUE

2382 SCANNING OUR PAST
Materials Science, Instrument Knowledge, and the Power Source Renaissance
By M. N. Eisler

2390 FUTURE SPECIAL ISSUE/SPECIAL SECTIONS



On the Cover: Our cover image this month highlights deep neural networks, which are increasingly used nowadays in many interesting applications.