

REGULAR PAPERS ISSUE

124 Far-Field Automatic Speech Recognition

By R. Haeb-Umbach, J. Heymann, L. Drude, S. Watanabe, M. Delcroix, and T. Nakatani

| CONTRIBUTED PAPER | This tutorial article describes the specific challenges of far-field automatic speech recognition and how they are approached.

149 A Survey of Test and Reliability Solutions for Magnetic Random Access Memories

By P. Girard, Y. Cheng, A. Virazel, W. Zhao, R. Bishnoi, and M. B. Tahoori

| CONTRIBUTED PAPER | This article comprehensively surveys existing test and reliability improvement solutions for various magneto-resistive random access memory technology generations.

170 Multidimensional Index Modulation for 5G and Beyond Wireless Networks

By S. Doğan Tusha, A. Tusha, E. Basar, and H. Arslan

| CONTRIBUTED PAPER | This article comprehensively examines the flexible utilization of existing index modulation techniques to satisfy the challenging and diverse requirements of 5G and beyond services.

DEPARTMENTS

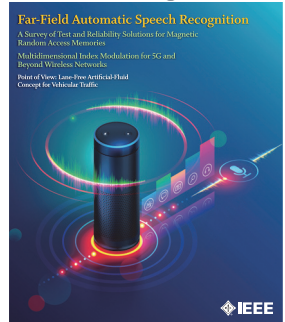
114 POINT OF VIEW

Lane-Free Artificial-Fluid Concept for Vehicular Traffic

By M. Papageorgiou, K.-S. Mountakis, I. Karafyllis, I. Papamichail, and Y. Wang

122 SCANNING THE ISSUE

200 FUTURE SPECIAL ISSUE/SPECIAL SECTIONS



On the Cover:
 This month's cover shows an artist's rendition of a personal voice assistant, where far-field speech recognition is a key enabling technology.