

**Information Science
and
Applied Mathematics**

Vol.22, 2014

A Bulletin of the Institute of Information Science
Senshu University

Editor-in-Chief

Yoshihiro Usami, School of Business Administration

Associate Editor

Minoru Tanaka, School of Network and Information

Printed by Sasaki Printing & Publishing Co. Ltd.
Rokuchonome Nishimachi 8-45, Wakabayashi-ku
Sendai 984-0011, Japan