SPRINGER LINK

Log in

☰ Menu   🔍 Search   🛒 Cart

Mobile Networks and Applications
Publishing model: **Hybrid**

← **Back to Overview**

Advances in Protocols and Algorithms for Mobile and Wireless P2P Networks

Data has become a crucial tool in almost all fields. Along with the advancements in the collection of data, there are a lot of research and technological innovations in the way the data is processed and shared. A Peer-to-peer (P2P) network is one such method which enables the seamless sharing of information across a connected system of computers or devices. Depending on the type of application and other crucial parameters involved, advancements and modifications have been continuously made to the existing protocols and algorithms. Both mobile ad-hoc networks (MANETs) and P2P networks work independently of a central entity. But the major concern in integrating these two frameworks is the fact that the network layers are different. In order to solve this, a lot of advanced protocols and algorithms have been proposed.

One such method is called the mobile peer-to-peer protocol (MPP). This method allows the smooth operation of P2P networks over mobile and wireless ad-hoc networks. This is made possible using the following network architecture: application layer protocol (MPP protocol), interlayer communication protocol (Mobile Peer Control Protocol (MPCP)), and the

network routing protocol (Enhanced Dynamic Source Routing (EDSR)). Likewise, ORION is another technology that offers the functionalities of a P2P network in a MANET system. However, unlike the previous method, only file-sharing applications are possible in this setup. Ad-hoc On-demand Distance Vector (AODV) and simple multicast and broadcast algorithms support ORION. Future research and advancements can work on designing and developing intrusion-resistant techniques for developing ad-hoc routing algorithms. Another interesting advancement aims to solve the black hole attack. In a black hole attack, the identity of a legitimate node is taken by a malicious node. Such an incident happens because of the higher sequence numbers and forged answers created by the malicious node thus forcing the legitimate victim node to choose the malicious node as the relay. This can be solved with the help of an AODV routing protocol where the behaviour of each participating node is taken into consideration. There are a lot of research opportunities in solving the security problems associated with mobile and wireless P2P networks. Future research can focus on solving these critical issues to safeguard the privacy and improve reliability.

LIST OF TOPICS:

- Design and development of a special-purpose mobile ad-hoc P2P network.

- Innovative protocols and algorithms for overcoming the security issues associated with mobile P2P networks.

- Hybrid network for ensuring reliable connectivity in mobile P2P networks.

- Disruptive computing algorithms for enhanced performance in mobile and wireless P2P networks.

- Innovative network protocol for blockchain-enabled P2P networks.

- Methods to enable semantic query support in mobile and wireless P2P networks.

- Novel algorithms and protocols to overcome the P2P network vulnerability to malicious attacks.

- Innovative system architecture to address the load balancing problem associated with P2P networks on MANETs.

- Evaluation and validation of effective routing protocols for enhanced and secured P2P networks. Evaluation and validation of P2P network protocols using intelligent simulation systems.

GUEST EDITORS:

Managing Guest Editor: Dr. Tri Gia Nguyen

Affiliation: Professor, FPT University, Da Nang 50509, Vietnam

Short Bio: Tri Gia Nguyen (Senior Member, IEEE) received the B.Ed. degree in computer science from the Hue University of Education, Vietnam, in 2011, the M.Sc. degree in computer science from Duy Tan University, Vietnam, in 2013, and the Ph.D. degree in computer science from Khon Kaen University, Thailand, in 2017. He is currently a Faculty Member with the Faculty of Information Technology, FPT University, Danang, Vietnam. His research interests include the Internet of Things, sensor networks, wireless communications, wireless energy harvesting networks, mobile computing, edge computing, software-defined networking, network functions virtualization, and network security.

Email: tri@ieee.org [↗] , tringfptu@gmail.com [↗]

Google Scholar: https://scholar.google.com/citations?user=Wowp4OoAAAAJ [↗]

Co-Guest Editor: Dr. Tra Huong Thi Le

Affiliation: Department of Computer Science and Engineering, Kyung Hee University, Yongin-si 17104, Korea

Short Biography: Tra Huong Thi Le received the B.S. and M.S. degrees in electric and electronics engineering from the Ho Chi Minh City University of Technology, Ho Chi Minh City, Vietnam, in 2010 and 2012, respectively, and the Ph.D. degree from the Department of Computer Science and Engineering, Kyung Hee University, Seoul, South Korea, in 2021. Her research interests include resource management, game theory, and machine learning.

Email: huong_tra25@khu.ac.kr [↗]

Google Scholar: https://scholar.google.com/citations?user=BcbEuj0AAAAJ [↗]

Co-Guest Editor: Dr. Chakchai So-In

Affiliation: Department of Computer Science, College of Computing, Khon Kaen University, Khon Kaen, 40002 Thailand

Short Biography: Chakchai So-In is a Professor of Computer Science in the Department of Computer Science, Khon Kaen University, KK, TH. He received B.Eng./M.Eng. degrees from Kasetsart University, BKK, TH in 1999/2001 and M.S./Ph.D. degrees from Washington University in St. Louis, MO, USA in 2006/2010, all in Computer Engineering. His research interests include computer networking and the internet, wireless and mobile networking, the Internet of Things, wireless sensor networks, signal processing, cybersecurity, cyber-physical systems, and applied intelligent systems.

Email: chakso@kku.ac.th [↗]

Google Scholar: https://scholar.google.com/citations?user=0jtFgaAAAAAJ [↗]

TIMELINE:

Manuscript Submission Deadline: **10th June 2023**

Authors Notification: **15th September 2023**

Revised Papers Due:**20th December 2023**

Final notification:**25th March 2024**

For authors

Submission guidelines   →

Language editing services   ⬀

Ethics and disclosures   →

How to publish with us   →

Open Access fees and funding   →

Contact the journal   →

Collections and calls for papers   →

Language quality checker

Get your manuscript edited for free →

Use our pre-submission checklist →

Avoid common mistakes on your manuscript.

This journal's calls for papers →

Collections this journal is participating in.

Sign up for alerts →

Get notified when new articles are published.

Explore

Articles →

Volumes and issues →

Collections →