

## Computer, Mathematics and Engineering Applications

Mathematics and Statistics Department, Bina Nusantara University

Information System Department, Bina Nusantara University Information System Department, Bina Nusantara University

Information System Department, Krida Wacana Christian University, Indonesia

Information System Department, Krida Wacana Christian University, Indonesia

Information Technology Department, Krida Wacana Christian University, Indonesia

Information Technology Department, Krida Wacana Christian University, Indonesia

Research and Development in Computer Centre, Sebelas Maret University, Indonesia

Monitoring Academic and Management Information Systems, Bina Darma University, Indonesia

Research Center for Agriculture and Forestry, Free University of Bozen-Bolzano, Italy and Laimburg

Master of Information System Management, Bina Nusantara University, Indonesia

Aquatic Product Technology Department, Bogor Agricultural Institute, Indonesia

Mathematics and Statistics Department, Bina Nusantara University, Indonesia

Technology and Environment Faculty, Prince of Songkla University, Thailand

Information Technology Department, Bina Nusantara University, Indonesia

Information Systems Department, Bina Nusantara University, Indonesia

Information Technology Department, Ciputra University, Indonesia

Information Technology Department, Ciputra University, Indonesia

Architecture Department, Bina Nusantara University, Indonesia

Civil Engineering Department, Bina Nusantara University, Indonesia

Industrial Engineering Department, Bina Nusantara University, Indonesia

Industial Engineering Department, Mercu Buana University, Indonesia

Food Technology Department, Bina Nusantara University, Indonesia

## International Editor Board

**Editor in Chief** Ngarap Imanuel Manik

Managing Editors Arta Moro Sundjaja

Noerlina

Cvnthia Havat Eddy Wiyanto Tri Pujadi Gisela Nina Sevani Daniel M. Wonohadidjojo Trianggono Wiradinata Yudhi Windarto Kiyota Hashimoto Lukas S. Tanutama Rino Nugroho Fergyanto E. Gunawan Leon Andretti Abdillah Firza Utama Irpan Hidayat Tota Pirdo Kasih Hardi Humiras Purba Dase Hunaefi Ingrid S. Surono Tati Nurhayati Wikaria Gazali

Language and Layout Editor

Dina Nurfitria	Bina Nusantara University
Karen Phang	Bina Nusantara University
Holil	Bina Nusantara University
Atmawati	Bina Nusantara University

## Secretariat

Haryo Sutanto	Bina Nusantara University
Eka Yanti Pangputri	Bina Nusantara University

## Description

COMTECH is a quadannual journal, published in March, June, September, and December. COMTECH is a forum for lecturers, academics, researchers, practitioners, and students to convey and share knowledge in the form of empirical and theoretical research articles, case studies, and review of the literature. Editors invite professional education, research, entrepreneurs and students to participate in spreading the development of science in the fields of Information Systems, Architecture, Civil Engineering, Computer Engineering, Industrial Engineering, Food Technology, Computer Science, Mathematics, and Statistics through this scientific journal. Currently, ComTech has been indexed by Bielefeld Academic Search Engine (BASE), World Catalogue (WorldCat), Google Scholar and Academic Resource Index (ResearchBib). The journal can be accessed online on http://research.binus.ac.id/journal/comtech/. Authors should refer to the guidelines below when preparing their articles.

Research and Technology Transfer Office, Bina Nusantara University, Anggrek Campus, Jl.Kebon Jeruk Raya 27, Kebon Jeruk, Jakarta Barat 11530, Tel. +621-5350660 ext. 1705/1708, Fax.+621-5300244, E-mail: asundjaja\*binus.edu, hsutanto\*binus.edu, Url: http://research.binus.ac.id/journal/comtech/, FB: https://www.facebook.com/ComTechBinus