

E ISSN 2829-6257

P ISSN 2962-5629

# JARINA

Journal of Artificial Intelligence in Architecture

Vol.1, Issue No.1, February 2022

Volume

1

Issue  
Number

1

FEBRUARY  
2022



UNIVERSITAS  
ATMA JAYA YOGYAKARTA  
serviens in lumine veritatis



## EDITORIAL TEAM

### Editor in Chief

**Floriberta Binarti, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0002-3688-5635 ; SCOPUS ID: 55505273800 ; SINTA ID : 5975177

### Co-Editor in Chief

**Khaerunnisa, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0001-7088-1171 ; SINTA ID: 6111677

### Editorial Boards

**Christina Eviutami Mediastika, Universitas Kristen Petra, Indonesia**  
ORCID ID: 0000-0002-9049-4897 ; SCOPUS ID: 55888608400

**Marc Aurel Schnabel, Victoria University of Wellington, New Zealand**  
ORCID ID: 0000-0002-2923-1609 ; SCOPUS ID: 44861619400

**Mohd Hamdan bin Ahmad, Universiti Teknologi Malaysia, Malaysia**  
ORCID ID : 0000-0003-0483-0290; SCOPUS ID: 55839984300

**Rizal Muslimin, The University of Sydney, Australia**  
ORCID ID : 0000-0002-1031-6135; SCOPUS ID: 36247318100

### Editor

**A.A.Ayu Ratih T.A.K., Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0002-0253-7608; SINTA ID : 6758534; GoogleScholar ID: bohXtSgAAAAJ

**Mutiara Cininta, Universitas Atma Jaya Yogyakarta, Indonesia, Indonesia**  
ORCID ID : 0000-0002-3030-5855; SINTA ID : 6777008

**Nimas Sekarlangit, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0002-5018-5811; ; SCOPUS ID: 57211626051; SINTA ID : 6728635; GoogleScholar ID: rtNPFi8AAAAJ

### Reviewer

**Amos Setiadi, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0003-0081-746X ; SCOPUS ID: 57219489690

**Prasasto Satwiko, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0003-2795-4413 ; SCOPUS ID: 55350593700

**Djoko Budiyanto, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 00000-0003-0797-2083; SCOPUS ID: 6678103500

**Djoko Istiadji, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0002-6804-6545; SCOPUS ID: 11939569900



## Reviewer

**Lucia Asdra Rudwiarti, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0002-3162-4735; SCOPUS ID: 57216522794

**Sushardjanti Felasari, Universitas Atma Jaya Yogyakarta, Indonesia**  
ORCID ID : 0000-0003-2385-0318; SCOPUS ID: 55348348600

**LMF Purwanto, Unika Soegijapranata, Indonesia**  
ORCID ID: 0000-0002-7081-489X; SCOPUS ID: 57204532925

**Gagoek Hardiman, Universitas Diponegoro, Indonesia**  
ORCID ID : 0000-0002-5793-8599; SCOPUS ID: 55898352600

**Jeffrey Kindangen, Sam Ratulangi University, Indonesia**  
ORCID ID : 0000-0003-0126-5193; SCOPUS ID: 6603328841

**Aswin Indraprastha, Institut Teknologi Bandung, Indonesia**  
ORCID ID : 0000-0002-7507-6953; SCOPUS ID: 50161466200

**Mochamad Donny Koerniawan, Institut Teknologi Bandung, Indonesia**  
ORCID ID : 0000-0002-1566-9124; SCOPUS ID : 57193790258

**Beta Paramita, Indonesian University of Education, Indonesia**  
ORCID ID : 0000-0002-3553-1974; SCOPUS ID: 56141391300

**Agus Hariyadi, Universitas Gadjah Mada, Indonesia**  
ORCID ID : 0000-0003-3617-3790; SCOPUS ID: 57193549567

**Nedyomukti Imam Syafii, Universitas Gadjah Mada, Indonesia**  
ORCID ID : 0000-0002-9547-465X; SCOPUS ID: 36646928800

**Supra Wimbarti, Universitas Gadjah Mada, Indonesia**  
ORCID ID : 0000-0003-2821-2403; SCOPUS ID: 6505795337



## TABLE OF CONTENTS

<b>EDITORIAL TEAM .....</b>	<b>i</b>
<b>TABLE OF CONTENTS.....</b>	<b>iii</b>
<b>PREFACE .....</b>	<b>iv</b>
<b>Development of Application Based on Augmented Reality as A Learning of History and Culture in Architecture Case Study: Pathok Negoro Mosques Yogyakarta.....</b>	<b>1</b>
Hendro Trieddiantoro Putro <sup>1</sup> , Endang Setyawati <sup>2</sup> .....	1
<b>Design of Simple Acoustic Materials for High School Hall Using Software CATT .....</b>	<b>10</b>
Maria Christina Prasetya <sup>1</sup> .....	10
<b>Application of Artificial Intelligence in Digital Architecture to Identify Traditional Javanese Buildings .....</b>	<b>20</b>
Sri Winiarti <sup>1</sup> , Heri Pramono <sup>2</sup> , Andri Pranolo <sup>3</sup> .....	20
<b>A Bibliometric Analysis of Generative Design, Algorithmic Design, and Parametric Design in Architecture .....</b>	<b>30</b>
Brigitta Michelle <sup>1</sup> , Maria Putri Gemilang <sup>2</sup> .....	30
<b>The Influence of Circulation Patterns on The Visitor Distribution in A Shopping Mall Case Study Palembang Icon Shopping Center, Palembang City .....</b>	<b>41</b>
Jessica Oktaviana <sup>1</sup> , Dhita Wahyu Anggraeni <sup>2</sup> .....	41
<b>JARINA Manuscript Template .....</b>	<b>52</b>



## **PREFACE**

Nowadays, digital technology in architectural design is not limited to 3D modeling, building information modeling (BIM), and building performance simulation. Artificial intelligence (AI) seems to revolutionize architectural design. The current development in architecture shows that AI makes the architectural design process much easier by providing access to big data, creating models, interpreting the built environment, and estimating costs. Spatial experience in architectural design is possible to obtain virtually. Virtual reality enables our brain to utilize spatiotemporal orientation and problem-solving capabilities, thus, making the textures, lighting, and finer details more believable and providing an immersive experience. This rapid change in the disruptive era demands updates on knowledge and upgrades on skills.

Journal of Artificial Intelligence in Architecture (JARINA) aims to provide information about new research results about AI in Architecture, supported by relevant, firm, and ample proof of its reliability. We are glad to publish five papers for the first issue that have been rigorously reviewed before being accepted. One article describes how the role of AI evolved in architectural design. The others present research results about the applications of AI in architectural design and learning of architecture history. The studies comprise the use of supervised learning to identify Javanese traditional building typology based on the ornaments and elements, augmented reality as a learning tool, the space syntax to analyze the influence of circulation pattern on the visitor distribution in a commercial building, and a simulation program for improving the acoustic performance.

We believe that all the papers published in this first issue could enrich the architectural design process and learning process of the history of architecture. We thank all authors who have dedicated their time to contribute to this first issue. We appreciate it very much.

**Floriberta Binarti**  
**EDITOR IN CHIEF**

**J A R I N A**

Journal of Artificial Intelligence in Architecture