



Nam-Jin Park

ASSISTANT PROFESSOR

DEPARTMENT OF CONTROL & INSTRUMENTATION ENGINEERING,
PUKYONG NATIONAL UNIVERSITY

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Last updated: September 8, 2026

Research Interests

Principle Topics

- Control theory
- Multi-agent system
- Robotic & Automation system

Application 1: Multi-Agent Control Systems

- Distance and position-based formation control for multi-agent systems
- Onboard localization for multi-agent systems

Application 2: Robotic Automation Systems

- Multi-drone system for cooperative localizations
- Delta-robot-based intelligent pick & place systems

Education

Gwangju Institute Science and Technology

M.S./PH.D., MECHANICAL ENGINEERING, TOP STUDENT AWARD

Gwangju, Korea

Aug. 2024

- **Thesis:** Controllability and Controllable Subspaces of Structured Networks: A Graph-Theoretical Approach
- **Advisor:** Prof. Hyo-Sung Ahn

Pukyong National University

B.S., CONTROL AND INSTRUMENTATION ENGINEERING

Busan, Korea

Feb. 2018

Professional Experience

Pukyong National University

ASSISTANT PROFESSOR - DEPARTMENT OF CONTROL AND INSTRUMENTATION ENGINEERING

Busan, Korea

Mar. 2026 - Current

Kunsan National University

ASSISTANT PROFESSOR - DEPARTMENT OF ELECTRICAL ENGINEERING

Jeonbuk, Korea

Mar. 2025 - Feb. 2026

Gwangju Institute Science and Technology

POSTDOCTORAL FELLOW - DISTRIBUTED CONTROL AND AUTONOMOUS SYSTEMS LAB.

Gwangju, Korea

Aug. 2024 - Feb. 2025

Publications

Journal Under Review (International)

* Corresponding Author

9. S.-H. Kwon, B.-H. Lee, Q. V. Tran, and **N.-J. Park***, "Rigid Platoon Control of Virtually Coupled Trains as Double-Integrator Networks With Disturbances".
8. J.-M. Ma, K.-K. Oh, H.-S. Ahn, and **N.-J. Park***, "Targeted Topological Clustering in Directed Consensus Networks: Minimum-Cost Design of Edge Modifications".
7. J.-H. Yang, S.-W. Kang, and **N.-J. Park***, "An Online Matheuristic Scheduling Framework for Multi-Robot Pick-and-Place Systems".
6. **N.-J. Park** and K.-H. Lee*, "Target Controllability of Hierarchical Directed Acyclic Networks".
5. S.-B. Won and **N.-J. Park***, "A Construction of Connected Dominating Set with Predetermined Nodes".
4. **N.-J. Park**, Q. V. Tran, and Y.-B. Bae*, "Cluster Target Controllability in Multi-Agent Systems: Bridging Consensus and Functional Target Control".
3. S.-B. Won, Y.-U. Kim, H.-S. Ahn, and **N.-J. Park***, "FoRCE: Scalable Energy-Efficient Target Control of Complex Networks".

2. T.-W. Um and **N.-J. Park***, “Deployable Onboard Vision-based Pick-and-Place Automation System for Unstructured Environments”.
1. Y.-U. Kim, S.-B. Won, H.-S. Ahn, and **N.-J. Park***, “Energy-Optimal Target Control via Edge Optimization on Structured Networks”.

Journal Publications (International)

13. K.-H. Lee and **N.-J. Park***, “An exact gamma–beta scale-mixture law for the squared norm of a complex-Gaussian-scaled sum of hyperspherical random vectors”, *AIMS Mathematics*, 2026 - **JCR: 8.8%**.
12. J.-H. Son, J.-M. Ma, H.-G. Lee, **N.-J. Park**, and H.-S. Ahn*, “Ad-hoc Network for Unmanned Mobile Vehicles: Implementation and Experiments”, *IEEE Access*, 2026.
11. **N.-J. Park**, Y.-U. Kim, K.-H. Oh and H.-S. Ahn*, “Controllable Subspaces in Structured Networks of Hierarchical Directed Acyclic Graphs: Controllability of Individual Nodes”, *IEEE Transactions on Automatic Control*, 2025 - **JCR: 8.8% (IF 7.0)**.
10. H.-G. Lee, J.-M. Ma, **N.-J. Park**, and H.-S. Ahn*, “A Distributed Influence Measurement Algorithm in Leader-Follower Networks”, *Systems & Control Letters*, 2025 - **JCR: 42%**.
9. **N.-J. Park**, Y.-U. Kim, and H.-S. Ahn*, “Bio-inspired projected gradient method for leader selection in minimum cost problem”, *Journal of Control, Artificial Life and Robotics*, 2025 - **SCOPUS (Invited Paper)**.
8. **N.-J. Park**, Y.-U. Kim, and H.-S. Ahn*, “A Distributed Framework for the Minimum Cost Problem Based on Graph Decomposition”, *Journal of the Franklin Institute*, 2025 - **JCR: 8.5%**.
7. **N.-J. Park**, S.-H. Kwon, Y.-B. Bae, B.-Y. Kim, and H.-S. Ahn*, “Merging Rules for Strong Structural Controllability and Minimum Input Problem in Undirected Graphs”, *Journal of the Franklin Institute*, 2025 - **JCR: 8.5%**.
6. **N.-J. Park** and H.-S. Ahn*, “Network Controllability of Structured Networks: A Survey on Graph-Theoretical Approaches”, *SICE Journal of Control, Measurement, and System Integration*, 2025 - **SCOPUS (Invited Paper)**.
5. **N.-J. Park**, K.-H. Kim, J.-M. Ma, J.-H. Son, H.-S. Ahn*, “Implementation of a Multi-Drone System for UWB-Based Onboard Localization with Free Structural Anchors”, *Mechatronics*, 2024 - **JCR: 29.8%**.
4. **N.-J. Park**, Y.-U. Kim, and H.-S. Ahn*, “Fixed node determination and analysis in directed acyclic graphs of structured networks”, *Journal of the Franklin Institute*, 2024 - **JCR: 8.5%**.
3. **N.-J. Park**, Y.-U. Kim, Kevin L. Moore, and H.-S. Ahn*, “Strong Structural Controllability and Observability of Individual Nodes: A Graph-Theoretical Approach”, *IEEE Transactions on Automatic Control*, 2024 - **JCR: 8.8% (IF 7.0)**.
2. J.-M. Ma, **N.-J. Park**, H.-G. Lee, and H.-S. Ahn*, “Comments on On multi-consensus and almost equitable graph partitions [Automatica 103 (2019) 53–61]”, *Automatica*, 2024 - **JCR: 14.6%**.
1. K.-H. Kim, **N.-J. Park**, H.-G. Lee, and H.-S. Ahn*, “3-D Localization With Coplanar Anchors”, *IEEE Communications Letters*, 2022 - **JCR: 32.1%**.

Conference Proceedings (International)

4. S.-W. Kang, **N.-J. Park**, T.-W. Um, H.-S. Ahn*, “Implementation of Intelligent Robotic Systems for Pick and Place based on Image Processing”, *14th Asian Control Conference (ASCC)*, 2024.
3. **N.-J. Park**, Y.-B. Bae, Kevin L. Moore, and H.-S. Ahn*, “Controllability Matrix Analysis of Structured Networks: A Tight Lower Bound on the Dimension of Controllable Subspace”, *22nd European Control Conference (ECC)*, 2024.
2. **N.-J. Park**, Y.-U. Kim, and H.-S. Ahn*, “Strong Structural Controllability of Directed Graphs via Zero Forcing Sets”, *22nd IFAC World Congress*, 2023.
1. Y.-U. Kim, **N.-J. Park**, J.-W. Lee, and H.-S. Ahn*, “Distributed Continuous-Time Newton Method via Blended Dynamics”, *9th IFAC Conference on Networked Systems NECSYS*, 2022.

Conference Proceedings (Domestic)

2. **N.-J. Park**, H.-G. Lee, and H.-S. Ahn*, “Building Temperature Control using Control Centrality”, in *20th International Conference on Control, Automation and Systems (ICCAS)*, 2020.
1. S.-H. Park, **N.-J. Park**, and H.-S. Ahn*, “Distance-based Localization using Ultra-Wideband Sensor and Implementation of a UAV Control Platform”, in *34th Institute of Control, Robotics, and Systems (ICROS) Conference*, 2019.

Research Experiences

Growth Pathway Support Program for Outstanding Talent in Science and Engineering

FUNDED BY THE MINISTRY OF EDUCATION THROUGH PUKYONG NATIONAL UNIVERSITY (₩80,000,000)

Busan, Korea

Sep. 2026 - Present

- **Role:** Principal Investigator

Development of a Self-Protective Smart Battery Module

FUNDED BY THE KUNSAN NATIONAL UNIVERSITY (₩50,000,000)

Jeonbuk, Korea

Oct. 2025 - Feb. 2026

- **Role:** Principal Investigator

Development of AI-based Dynamic Graph Generation and UAM Autonomous Operation Optimization System with Real-time Data

FUNDED BY THE GWANGJU INSTITUTE SCIENCE AND TECHNOLOGY (₩30,000,000)

Gwangju, Korea

Jan. 2025 - Feb. 2025

- **Role:** Principal Investigator

Establishment and Core Technology Development for Fresh Produce Fulfillment Center

FUNDED BY THE KOREA INSTITUTE OF PLANNING AND EVALUATION FOR TECHNOLOGY IN FOOD, AGRICULTURE, AND FORESTRY
(₩800,000,000)

- **Role:** Principal Manager

Gwangju, Korea

Apr. 2022 - Feb. 2025

Development of Autonomous Operation Technology for Multi-UAVs for Stable Control of End-Effector Drones

FUNDED BY THE NATIONAL RESEARCH FOUNDATION OF KOREA (₩123,030,000)

- **Role:** Researcher

Gwangju, Korea

Mar. 2022 - Feb. 2025

Development of Autonomous Formation and Collaborative Control for Multi-UAVs

FUNDED BY THE NATIONAL RESEARCH FOUNDATION OF KOREA (₩125,000,000)

- **Role:** Principal Manager

Gwangju, Korea

Sep. 2018 - Feb. 2022

Formation Control of Multi-Agent Systems with Robustness and Security

FUNDED BY THE NATIONAL RESEARCH FOUNDATION OF KOREA (₩100,000,000)

- **Role:** Researcher

Gwangju, Korea

Oct. 2019 - Feb. 2021

Development of Next-Generation 3D Perception Composite Sensor Module Integrating 3D Image Sensors and Micro LiDAR

FUNDED BY THE KOREA AEROSPACE RESEARCH INSTITUTE (₩170,000,000)

- **Role:** Researcher

Gwangju, Korea

Sep. 2018 - Jul. 2019

Patents

Application (Domestic)

* **Primary Inventor**

1. **N.-J. Park**^{*}, “자동복구 기능을 갖는 보호회로 및 이를 포함하는 배터리 시스템”, KR pending, 10-2026-0030922, 2026.

Registration (Domestic)

* **Primary Inventor**

4. H.-G. Lee, **N.-J. Park**, S.-H. Kwon, Y.-H. John, and H.-S. Ahn, “무인 비행체의 측위 성능 분석 시스템 및 방법”, KR, 10-2847977, 2025.
3. **N.-J. Park**^{*}, K.-H. Kim, J.-M. Ma, H.-G. Lee, J.-G. Lee, and H.-S. Ahn, “다중 무인 비행시스템 및 그 시스템의 제어방법”, KR, 10-2630845, 2024.
2. **N.-J. Park**^{*}, K.-H. Kim, J.-M. Ma, J.-O. Park, J.-H. Son, H.-G. Lee, and H.-S. Ahn, “무인 비행체 편대 제어 시스템 및 그 방법”, KR, 10-2573312, 2023.
1. K.-H. Kim, **N.-J. Park**, J.-M. Ma, H.-G. Lee, J.-O. Park, J.-H. Son, and H.-S. Ahn, “위치 측정 방법”, KR, 10-2591036, 2023.

Professional Services

Journal Editors

International Journal of Control, Automation, and Systems (IJCAS)

ASSOCIATE EDITOR

Dec. 2025 - Present

Journal Reviewers

- IEEE Transactions on Automatic Control (ISSN: 0018-9286)
- IEEE Transactions on Control of Network Systems (ISSN: 2325-5870)
- IEEE Transactions on Network Science and Engineering (ISSN: 2327-4697)
- Automatica (ISSN: 0005-1098)
- Systems & Control Letters (ISSN: 0167-6911)
- Journal of the Franklin Institute (ISSN: 0016-0032)
- IET Control Theory & Applications (ISSN: 1751-8644)
- IEEE Systems Journal (ISSN: 1932-8184)
- International Journal of Control, Automation, and Systems (ISSN: 1598-6446)
- Journal of Supercomputing (ISSN: 0920-8542)

Conference Reviewers

- Conference on Decision and Control
- Asian Control Conference
- European Control Conference
- Chinese Control and Decision Conference
- IFAC World Congress

Teaching Experience

Gwangju Institute Science and Technology

TEACHING ASSISTANT

- General Physics Lecture
- General Physics Experiment

Gwangju, Korea

Mar. 2021 - Dec. 2023

Kunsan National University

ASSISTANT PROFESSOR

- Control Engineering
- Modern Control Engineering
- Logical Circuit Design
- Microprocessor
- Artificial Intelligence

Jeonbuk, Korea

Mar. 2025 - Feb. 2026

Pukyong National University

ASSISTANT PROFESSOR

- Hardware System Design
- Electromagnetics
- Linear Algebra
- Linear Systems
- Applied Robotics
- Capstone Design

Busan, Korea

Mar. 2026 - Present