

**EDUCATION**

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**Gwangju Institute of Science and Technology (GIST)**

Aug. 2016 – Feb. 2021

Doctor of Philosophy in Electrical Engineering and Computer Science

Gwangju, South Korea

Thesis: Source Localization based on Received Signal Strength in Wireless Sensor Networks

Advisor : Professor Kiseon Kim

**Kyungsoo University**

Aug. 2014 – Aug. 2016

Master of Science in Electrical and Electronic Engineering

Busan, South Korea

Thesis: Nonlinear Compensation in Radio over Fiber System

Advisor: Professor Sungman Kim

**Peruvian University of Applied Science**

Mar. 2006 – Dec. 2010

Bachelor of Science in Electrical Engineering

Lima, Republic of Peru

Thesis: Development of Software Radio Modem for Data Transmission on the Analogue Voice

Band Applied to Governmental Institutions

Advisor: Professor Carlos Valdez Velasquez-Lopez

**RESEARCH INTERESTS**

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Machine learning techniques for target nodes localization and tracking, Source localization and tracking in wireless sensor networks, Evolutionary and convex optimization techniques, Multi-agent systems, Smart healthcare

**RECENT PUBLICATIONS (LAST 3 YEARS)**

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**Journal Publications** (First Author: 5, \*Corresponding Author: 3, Co-author: 2)

- J5. **L. A. Caceres-Najarro**, I. Song, S. Tomic, and K. Kim, "Evolutionary Tracking Algorithm based on Combined Received Signal Strength and Angle of Arrival Measurements," *IEEE Sensors Journal*, vol. 23, no. 19, pp. 23734-23743, Oct. 2023
- J4. **L. A. Caceres-Najarro**, I. Song, and K. Kim, "Fundamental Limitations and State-of-the-art Solutions for Target Node Localization in WSNs: A Review," *IEEE Sensors Journal*, vol. 22, no. 24, pp. 23661-53682, Dec. 2022.
- J3. **L. A. Caceres-Najarro**, I. Song, and K. Kim, "Adaptation of Population Size in Differential Evolution and Its Effects on Localization of Target Nodes," *IEEE Access*, vol. 10, pp. 107785-107798, Oct. 2022.
- J2. **L. A. Caceres-Najarro**, I. Song, S. Tomic, and K. Kim, "Fast localization with unknown transmit power and path-loss exponent in WSNs based on RSS measurements," *IEEE Communications letters*, vol. 24, no. 12, Dec. 2020
- J1. **L. A. Caceres-Najarro**, I. Song, and K. Kim, "Differential evolution with opposition and redirection (DEOR) for source localization using RSS measurements in wireless sensor networks," *IEEE Transactions on Automation Science and Engineering*, vol. 17, no. 4, pp. 1736-1747, Oct. 2020.

**Conference Publications** (First Author: 5 (two top-tiers), Corresponding Author: 4, Co-author: 3)

- C8. **L. A. Caceres-Najarro**, Y. Lee, K. E. Toshnazarov, Y. Jang, H. Kim, and Y. Noh, "WMGPT: Towards 24/7 Online Prime Counseling with ChatGPT," Presented in *Ubiquitous Computing (UbiComp 2023)*, Oct. 2023.
- C7. **L. A. Caceres-Najarro**, I. Song, A. Dadlani, and K. Kim, "Enhanced Differential Evolution based on the Population Midpoint Scheme for Solving the Localization Problem in WSNs," in *Proceedings of IEEE Global Communications Conference (GLOBECOM)*, Dec. 2022.
- C6. R. Maryam, A. Shahzad, M. Bashir, **L. A. Caceres-Najarro**, and M. Kim, "A Fall Detection Algorithm for Thigh mounted Smartphones using Random Forest and Feature Selection Techniques," in *Proceedings of IEEE International Conference on Emerging Technologies*, Nov. 2022.

- C5. **L. A. Caceres-Najarro**, I. Song, and K. Kim, "Evolutionary-Kalman Filter Algorithm for Tracking Target Nodes in Wireless Sensor Networks," in *Proceedings of Summer Conference of Korean Institute of Communications and Information Sciences*, June 2022.
- C4. **L. A. Caceres-Najarro**, I. Song, and K. Kim, "Differential Evolution with Adaptive Population Size for Target Localization in WSN," in *Proceedings of Winter Conference of Korean Institute of Communications and Information Sciences*, Feb. 2022.
- C3. C. Yang, **L. A. Caceres-Najarro**, and K. Kim, "LSTM-based stacking ensemble for electric vehicle charging demand prediction in power grid," in *Proceedings of Summer Conference of Korean Institute of Communications and Information Sciences*, June 2021.
- C2. **L. A. Caceres-Najarro**, N. Ilyas, I. Song, and K. Kim, "RSS-based Target Node Localization with a more Realistic Path Loss Model in WSN," in *Proceedings of Korean Institute of Electromagnetic Engineering and Sciences*, Aug. 2020.
- C1. N. Ilyas, **L. A. Caceres-Najarro**, and K. Kim, "DFE-Crowd: Dense feature extraction for single image crowd counting," in *Proceedings of Summer Conference of Korean Institute of Communications and Information Sciences*, Aug. 2020.

## PATENTS

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- P1. Patent application for "Analysis Method of Walking Patterns of Elderly People and Walking Assistance Device, Method, and System Using Analyzed Walking Patterns," Nov. 2022 (Reg. Number: 10-2022-0144219).

## WORK EXPERIENCE

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### Academic Experience

- Korea Institute of Energy Technology (KENTECH) Apr. 2023 – Present
- Position: Research Professor
  - Functions: Responsible for projects related to smart healthcare and localization
- Information Communication Convergence Research Center (GIST) Mar. 2021 – Mar. 2023
- Position: Principal Investigator
  - Functions: Responsible for localization and tracking related projects
- Communications and Sensor Networks Laboratory (GIST) Aug. 2016 – Feb. 2021
- Position: Research Assistant
  - Functions: Support and develop research in the laboratory
- Laboratory of Optical Communication Aug. 2014 – Aug. 2016
- Position: Research Assistant
  - Functions: Develop and support projects in the laboratory

### Industry Experience

- Connect Media May. 2013 – Jun. 2013
- Position: Support Engineer
  - Functions: Provide technical support to television media companies
- Instituto Nacional de Defensa Civil (INDECI-PERU) Apr. 2012 – Nov. 2012
- Position: Project Developer
  - Functions: Implementation of data transmission over VHF
- Josfel Iluminación May. 2011 – Mar. 2012
- Position: Business Technical Advisor
  - Functions: Development and proposition of energy saving projects
- Centro de Operaciones de Emergencia Nacional (COEN-PERU) Apr. 2010 – Feb. 2011
- Position: Project Developer Assistant
  - Functions: Technical support to the analog radio sector

## TEACHING EXPERIENCE

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- Detection and Estimation (2020, EC7204-GIST)
- Introduction to Electronic Circuits (2015, Kyungsoong University)

## ONGOING AND COMPLETED PROJECTS

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### Ongoing Projects

- **WMGPT: Toward 24/7 online prime counseling with digital phenotyping:**  
Sponsor: Hanyang University  
Period: 2023  
Position: Project Manager
- **Pervasive Mobile Healthcare Monitoring of the Elderly based on Machine Learning Techniques: Fall Detection Algorithm:**  
Sponsor: GIST – AI Department  
Period: 2023  
Position: Principal Investigator
- **Localization and Tracking of Networked Wireless Sensor Nodes Using Evolutionary and Machine Learning:**  
Sponsor: National Research Foundation of Korea  
Period: 2021 – 2024  
Position: Principal Investigator
- **Development and Performance Verification of Elderly Health Indicators Via Gait Analysis Based on Smartphone Sensors Combined with AI Techniques:**  
Sponsor: Ministry of SMEs and Startups of Korea  
Period: 2022 – 2023  
Position: Project Manager

### Completed Projects

- **Automatic Identification Monitoring System for Fishing Gears:**  
Sponsor: Ministry of Oceans and Fisheries, Republic of Korea  
Period: 2017 – 2023  
Position: Senior Researcher
- **Fast-super Resolution Algorithm for Finding and Analyzing Low Probability Intercept (LPI) Signals:**  
Sponsor: LIG Nex1  
Period: 2019 – 2021  
Position: Research Assistant
- **Radio over Fiber for the Next Generation Front End in Mobile Networks:**  
Sponsor: Electronic and Telecommunications Research Institute  
Period: 2015 – 2017  
Position: Research Assistant

## PROJECT GRANT AWARDS

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### Projects Won

- 150 million KRW (around 110,000 USD) grant from Technology Exchange Network R&D Planning Support Project (SMEs Korea) for 1-year on AI based gait analysis, in collaboration with BootCamp Inc. Grant number: 2023RP330626.
- 210 million KRW (around 155,000 USD) grant from National Research Foundation (NRF) of Korea for 3-year project on Evolutionary AI localization and tracking in WSNs. Grant number: NRF-2021R1I1A1A01041257.
- 35 million KRW (around 26,000 USD) grant from GIST for 1-year on AI based monitoring system for the elderly. Grant number: 2023AI320501.

- 80 million KRW (around 60,000 USD) grant from Hanyan University & NRF of Korea for 1-year project on Mental-health counseling service based on LLMs, in collaboration with [Professor Yountae Noh](#) from KENTECH's IMC lab. Grant number: NRF-2021R1I1A1A01041257.

## ACADEMIC ACTIVITIES

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Serving as a

- Technical program committee member of the IEEE International Conference on Digital Futures and Transformative Technologies
- Director of the research area of the Peruvian-Korean Academic Association (2021~2022)

Reviewer at

- IEEE Transactions on Automation Science and Engineering
- IEEE Transactions on Vehicular Technology
- IEEE Wireless Communications Letters
- IEEE Sensors Journal

## DISTINCTION AWARDS

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- **Research Assistant Scholarship** in Gwangju Institute of Science and Technology. (Dec. 2020)
- **Korean Government Scholarship** in Korean Government. (Aug. 2016)
- **Best Paper Award** Optical Society of Korea (COOC 2016). (Jun. 2016)
- **Korean Government Scholarship Program (KGSP)** National Institution for International Education (NIIED). (Jun. 2013)
- **Graña y Montero Peruvian Engineering [Research Award](#)** Group Graña y Montero. (May. 2013)

## LANGUAGE PROFICIENCY

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- **Spanish** (Native Proficiency).
- **English** (Professional Working Proficiency).
- **Korean** (Intermediate Working Proficiency).
- **Quechua** (Limited Proficiency).

## REFERENCES

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- **Professor Kiseon Kim** (Ph.D. Advisor). School of Electric Engineering and Computer Science, Gwangju Institute of Science and Technology, Gwangju, Republic of Korea.  
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- **Professor Ickho Song** School of Electrical Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Republic of Korea.  
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- **Professor Youngtae Noh** School of Energy AI, Korea Institute of Energy Technology, Naju, Republic of Korea.  
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- **Professor Slavisa Tomic** School of Electrical Engineering, Universidade Lusofona de Humanidades e Tecnologias, Lisbon, Portugal.  
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- **Professor Aresh Dadlani** School of Engineering and Digital Sciences, Nazarbayev University, Nur-sultan, Kazakhstan.  
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<http://areshdadlani.droppages.com/>
- **Professor Abbas Mehrabi** Department of Computer and Information Sciences, Northumbria University, Newcastle, United Kingdom.  
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