

# SAQI HUSSAIN KALAN

PKNU, Busan, South Korea

Email: saqih@pukyong.ac.kr

Contact: +82-10-2142-9019

LinkedIn: <https://shorturl.at/gCR2H>

## RESEARCH INTERESTS

LiDAR-based object detection | Computer vision for robotic navigation | SLAM and sensor fusion for robotic perception | AI-driven control systems and path planning | Deep learning

## EDUCATION

### Master's degree, Artificial Intelligence Convergence

Pukyong National University \*SOUTH KOREA\* Sep. 2023 - Aug 2025 4.33/4.5

### Bachelor of Technology in Computer science and engineering

IKG Punjab Technical University \*INDIA\* Sep. 2018 - Aug 2022 7.66/10

## RESEARCH EXPERIENCE

### Researcher

Pukyong National University 01.Sep 2023 – Present, Busan, South Kora

As a researcher, my work focuses on indoor localization using LiDAR and camera vision. I have presented at domestic conferences, such as the KICSP (Korea Institute of Convergence Signal Processing), and have authored several journal articles, which are detailed in the pub. section

## JOB EXPERIENCE

### Software Developer

Innovates IT Solutions LLP 18. October 2022 – 18. August 2023, Mohali, Punjab, India

- Developed 50+ features and modules for a web application that recorded a total of 5 million users and made enhancements to existing features to improve performance by 30%.
- Designed and implemented front-end and back-end functionalities to optimize performance, resulting in a 40% increase in overall system efficiency.

## SKILLS

- Programming Languages & Tools:** ROS (Robot Operating System), Python, C++, Java, PHP, SQL
- Artificial Intelligence & Machine Learning:** Deep Learning frameworks (TensorFlow, PyTorch), Machine Learning algorithms, CNN-RNN architectures, AI model development and optimization
- Robotics & Automation:** Robotics systems, SLAM (Simultaneous Localization and Mapping), LiDAR-based mapping, IMU (inertial measurement units), sensor fusion, indoor localization
- Computer Vision:** Image and video processing, object detection and tracking, point cloud analysis, OpenCV, real-time pose detection using ml5.js and p5.js
- Web Development & APIs:** Web scraping (BeautifulSoup), API integration (TMDB), Flask-based web applications, front-end development using HTML, CSS, JavaScript
- Data Science & Analytics:** Data analysis with Python (Pandas, NumPy)

## PUBLICATIONS

### Journal Articles

Saqi Hussain, Wan Young Chung. "Multi-Modal Data Fusion with CNN-RNN Hybrid Architecture for Enhanced Indoor Localization Using **LiDAR-SLAM**" *IEEE Transactions on Automation Science and Engineering* (Under review). 2024

## Conference Presentations

**Saqi Hussain**, Wan Young Chung. "SLAM and ML Based Indoor Localization for Improved Emergency Response" *Proceedings of the KICSP, Busan, South Korea, August 2024*

## PROJECTS

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### Content-Based Movie Recommender System with Sentiment Analysis [Link](#)

*Associated with Punjab technical university*

- Developed a movie recommender system that suggests movies like those a user likes based on content similarity.
- Integrated TMDB API to fetch movie details (title, genre, runtime, rating, poster) and utilized BeautifulSoup for web scraping user reviews from IMDb
- Implemented sentiment analysis on user reviews to enhance movie recommendations by analyzing user feedback.
- Used cosine similarity to measure the relevance between movies, based on movie details.
- Designed a front-end API using Flask and deployed the project on Heroku for live demo access.

**Tools & Libraries:** Python, Flask, TMDB API, BeautifulSoup, Cosine Similarity, Sentiment Analysis.

### Posture Detection using Camera [Link](#)

*p5.js, ml5.js, TensorFlow.js, Frontend Development*

- Developed a posture detection system using ml5.js and p5.js for real-time detection without training custom models.
- Utilized ml5.js, a high-level interface to TensorFlow.js, to implement pre-trained machine learning models for pose estimation.
- Integrated p5.js for creative coding and building the interactive front-end of the project.
- Designed and structured the project to run seamlessly in the browser using HTML, CSS, and JavaScript.

**Tools & Libraries:** p5.js, ml5.js, TensorFlow.js, Visual Studio Code.

## CERTIFICATIONS

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**IBM** data science professional certificate [View](#)

**Google** Data analytics professional certificate [View](#)

## REFERENCES

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**Prof. Wan Young chung** [\[Link\]](#)

Professor, Department of Artificial intelligence convergence  
Pukyong National University, South Korea  
Email: [wychung@pknu.ac.kr](mailto:wychung@pknu.ac.kr)

**Prof. BOON GIIN LEE**

Associate Professor in Computer Science  
University of Nottingham China  
Email: [BOON-GIIN.LEE@nottingham.edu.cn](mailto:BOON-GIIN.LEE@nottingham.edu.cn)