

AMIT KUMAR BEDAKA

Robotics & Automation Researcher / Engineer

✉ akbedaka@gmail.com

☎ +34 613 117 542

📍 Barcelona, Spain

🌐 akbedaka.com

🌐 [LinkedIn](#)

🐙 [GitLab](#)



7+ years of experience across academic and industrial R&D in robotics, automation and mechanical engineering. Experienced in robotic system design, CAD/CAM software development, CAD-based path planning, kinematics, sensor fusion, SLAM and hardware-software integration. Strong in translating research problems into practical engineering systems, coordinating multidisciplinary work and moving concepts toward industrial application.

EXPERIENCE

Head of Design

Sensable

📅 May 2024 – Present

📍 Barcelona

Leading the design and development of an assistive technology product for people with visual impairments, covering product design, CAD development, prototyping and engineering integration.

Lead Scientist / Marie Skłodowska-Curie Fellow

Chordata Motion

📅 May 2022 – May 2024

📍 Barcelona

Led R&D on a novel indoor positioning system for human motion capture. Developed IMU-based position estimation using ZUPT, PDR and EKF, and evaluated RF, VR-tracking and vSLAM approaches. Collaborated with Chordata Motion, TecnoCampus Motion Capture Lab and the WiNE group at UOC.

Postdoctoral Researcher

National Taiwan University of Science and Technology

📅 April 2019 – May 2022

📍 Taipei, Taiwan

Conducted research in robotic systems, automation, kinematics, intelligent engineering design and CAD/CAM. Developed CAD-based software and computational methods connecting mechanical design with robotic implementation.

Consultant (R&D Lead)

CENZ Automation

📅 June 2019 – Aug 2022

📍 Taipei, Taiwan

Developed CAD platforms for propeller information extraction, autonomous inspection and welding offline programming.

SELECTED PROJECTS

Design and Development of an Indoor Positioning System Using Visual Simultaneous Localization and Mapping (vSLAM)

Chordata Motion

📅 May 2022 – May 2024

📍 Barcelona

[Sensor Fusion](#) [vSLAM](#) [ROS](#) [Python](#)

Designed and evaluated an indoor positioning system for human motion capture. Investigated IMU-based positional estimation using ZUPT, PDR and EKF, and compared RF, VR tracking and visual SLAM approaches.

Offline Programming Platform for Welding Applications Using 6-DOF and 2-DOF Robots

National Taiwan University of Science and Technology

📅 2019 – 2022

📍 Taipei, Taiwan

[CAD/CAM](#) [OpenCASCADE](#) [Robotics](#)

Developed a CAD-based offline programming platform for industrial

EDUCATION

Ph.D. in Mechanical Engineering (Robotics & Automation)

National Taiwan University of Science and Technology

📅 Sep 2014 – Jan 2019

📍 Taipei, Taiwan

- Robotics, automation, kinematics and CAD-based intelligent engineering systems.
- Research combining mechanical systems, computation and robotic applications.

Master of Design – Mechanical System Design

IIITDM Kancheepuram

📅 Jul 2012 – May 2014

📍 Kancheepuram, India

Mechanical system design, engineering design and automation.

Bachelor's Degree in Mechanical Engineering

Visvesvaraya Technological University

📅 Aug 2006 – Jun 2010

📍 Belgavi, India

Mechanical design, manufacturing and engineering systems.

SELECTED PUBLICATIONS

Journal Articles

- Bedaka, A.K., Cheng, Y.S., Yen, S.H., Shah, S.H., & Lin, C.Y. (2023). "Trajectory planning method with grinding compensation strategy for robotic propeller blade sharpening application." In: *Journal of Manufacturing Processes*, 86, 294–310.
- Bedaka, A.K., Lee, S.C., Mahmoud, A., & Lin, C.Y. (2021). "A Camera-Based Position Correction System for Autonomous Production Line Inspection." In: *Sensors*, 21(12), 4071.
- Bedaka, A.K., Lin, C.Y., & Huang, S.T. (2019). "Autonomous CAD Model-Based Industrial Robot Motion Planning Platform." In: *International Journal of Robotics and Automation*, 34(4).
- Bedaka, A.K., Vidal, J., & Lin, C.Y. (2019). "Automatic Robot Path Integration Using Three-dimensional Vision and Offline Programming." In: *International Journal of Advanced Manufacturing Technology*, 102(5–8), 1935–1950.
- Bedaka, A.K., Mahmoud, A., Lee, S.C., & Lin, C.Y. (2018). "Autonomous Robot-Guided Inspection System Based on Offline Programming and RGB-D Model." In: *Sensors*, 18(11), 4008.

robot welding applications, including geometry processing, robot path generation and welding parameter assignment.

Automatic Robot Path Generation Using Three-Dimensional Vision and Offline Programming

National Taiwan University of Science and Technology
2018 Taipei, Taiwan

3D Vision Path Planning Offline Programming

Developed automatic robot path-generation methods integrating three-dimensional vision with offline programming for industrial robotic applications.

CAD-Based Platform for Autonomous Inspection Based on Scanned RGB-D Model

National Taiwan University of Science and Technology
2017 – 2018 Taipei, Taiwan

CAD/CAM RGB-D Computer Vision

Developed a CAD-based platform for autonomous inspection using scanned RGB-D models and offline programming techniques.

ACTIVITIES

Technical Committee Member – ESCI 2023 – 2025
Reviewer – IJRA, ACTA Press
Reviewer – Sensors, MDPI
Invited Lecture – Robotics & Automation

RECENT PROJECTS

Robotic Wall Coverage and Painting Planner
UR10e / MoveIt2 / ROS2

ROS2 MoveIt2 Gazebo Path Planning

Developing coverage-planning methods for robotic painting and sanding, combining cellular decomposition, adaptive surface processing and trajectory smoothing.

PROFESSIONAL FOCUS

CAD/CAM Software Development Robotic System Design Offline Programming
Path Planning Industrial Automation Sensor Fusion Kinematics

CORE SOFTWARE

CAD/CAM: SolidWorks, Autodesk Inventor, CATIA, OpenCASCADE
Robotics: ROS, ROS2, MoveIt, MoveIt2, Gazebo, Isaac
Programming: C++, Python, MATLAB, PyTorch, Git, Docker

Conference Proceedings

- Bedaka, A. K., & Lin, C. Y. (2020). CAD-based offline programming platform for welding applications using 6-DOF and 2-DOF robots. In 2020 International Conference on Advanced Robotics and Intelligent Systems (ARIS)."
- Bedaka, A. K., & Lin, C. Y. (2018). CAD-based robot path planning and simulation using OPEN CASCADE. Procedia computer science, 133, 779-785."

APPRECIATION AND AWARDS

Marie Skłodowska-Curie Fellowship
Awarded the Marie Skłodowska-Curie Fellowship as part of the Tecniospring project, Barcelona, Spain. (May 2022)

NTUST Research Scholarship
Awarded a research scholarship by National Taiwan University of Science and Technology, Taiwan. (Sept. 2014)

Students Mechanism Design Competition
Shortlisted among the top 7 at the national level in the Students Mechanism Design contest held at IIT Roorkee, India. (Dec. 2013)

Pratibha Puraskar
Awarded for securing First Class with Distinction in B.E. during the academic year 2009–2010 by Karnataka Lingayat Education Society. (Sep. 2011)

LANGUAGES

English
Spanish
Hindi