

Cristian C. Beltran-Hernandez

Senior Researcher

📍 Osaka, Japan

Languages

English: Advanced

Japanese: Conversational

Spanish: Native

Interests

Robot Manipulation: Contact-rich manipulation, Assembly Automation, Task and Motion Planning

Robot Learning: Reinforcement Learning, Multimodal Learning, Force/Tactile feedback control

Skills

Robot Manipulation: Contact-rich manipulation, Peg-in-hole and object insertion, Industrial assembly automation, Food preparation (slicing, scooping), Granular and powder handling

Robot Learning: Deep reinforcement learning, Imitation learning from demonstrations, Diffusion policies, Sim-to-real transfer, Curriculum learning, Learning under partial observability

Force and Compliance Control: Variable compliance control, Hybrid trajectory-and-force learning, Force control on position-controlled arms, Haptic feedback teleoperation

Tools and Frameworks: Python, C++, ROS, MoveIt, Gazebo, MoveIt, Isaac, Robot simulation

Education

PhD	Osaka University , Engineering	Osaka, Japan
	- Learning force control for contact-rich manipulations with position controlled robots. - Industrial assembly automation with ROS and MoveIt.	Jan 2019 – Jan 2022
MEng	Osaka University , Intelligent Systems	Osaka, Japan
	- Learning robot manipulation via Reinforcement Learning. - Learning force control for contact-rich manipulations with position controlled robots.	Jan 2017 – Jan 2019
BSc	University of La Sabana , Computer Science	Chia, Colombia
	Thesis topic: Development of a fuzzy Logic-based system to monitor and control an algae bio-reactor on a PLC.	Jan 2009 – Jan 2013

Experience

OMRON SINIC X Corporation , Senior Researcher	Osaka, Japan
Leading research on robot learning of contact-rich manipulation for automation of industrial assembly task and every day tasks.	Apr 2024 – present 2 years 5 months
OMRON SINIC X Corporation , Research Engineer	Osaka, Japan
Leading research on robot learning of contact-rich manipulation from cooking robots to assembly automation.	Apr 2023 – Mar 2024 1 year
OMRON SINIC X Corporation , Visiting Researcher	Osaka, Japan
Research on contact-rich robot manipulation for a cooking robot; learning to slice food.	Oct 2022 – Mar 2023 6 months

Google Summer of Code & MoveIt , Participant Worked with the open-source organization MoveIt to develop a Simultaneous Trajectory Execution module for the popular motion planner MoveIt.	Osaka, Japan June 2021 – Oct 2022 1 year 5 months
OMRON SINIC X Corporation , Research Intern Research on robot manipulation for a cooking robot (part-time Oct 2021–Sep 2022). Full-time Mar–Sep 2021; implementation of a ROS-based autonomous robotic system for industrial assembly and motion controllers on MoveIt. System showcased at World Robot Summit (WRS2020) Industrial Robot Category - Assembly Challenge; 3rd place and special award from JSAI.	Osaka, Japan Apr 2021 – Sept 2022 1 year 6 months
Osaka University & FUJIFILM Corporation , Ph.D. Student Researcher Working with Prof Kensuke Harada and Fujifilm R&D to create motion planning solutions for industrial assembly tasks based on Reinforcement Learning techniques.	Osaka, Japan Apr 2018 – Mar 2021 3 years
La Cadena Retail Solutions Ltda , Software Developer Design and development of an administrative web application. Backend Java 8 (Spring Boot, Security, Cloud, Rest), Microsoft SQL Server. Frontend JavaScript ES6, React JS, Redux, Material Design. Restful Webservices.	Bogota, Colombia Oct 2016 – Mar 2017 6 months
Netlogistik , Software Engineer Software design and implementation for supply chain and warehouse management systems (WMS RedPrairie / JDA). Design, implementation and integration of modules and customizations; multi-language (Java, C#, C, Groovy, SQL Server, Oracle SQL and PL/SQL). Consulting for design, configuration, implementation, and go-live with national and international clients.	Bogota, Colombia Aug 2013 – Mar 2016 2 years 8 months

Grants

Grant-in-Aid for Scientific Research (B) — JSPS: Co-investigator, 2025–2028. Japan Society for the Promotion of Science.

Body Integration Learning CREST — JST: Co-investigator, 2025–2030. Japan Science and Technology Agency.

Grant-in-Aid for Scientific Research (B) — JSPS: Co-investigator, from 2023. Japan Society for the Promotion of Science.

Ph.D. scholarship — MEXT: 3-year doctoral scholarship, from 2019. Japanese Ministry of Education, Culture, Sports, Science and Technology.

M.Sc. scholarship — MEXT: 2-year master’s scholarship, from 2017. Japanese Ministry of Education, Culture, Sports, Science and Technology.

Awards

2nd Best Poster	IROS 2024 Collecting, Managing, and Utilizing Data through embodied Robots workshop Jan 2024
Best Poster	ICRA 2024 Cooking Robotics workshop Jan 2024
Best Video	ICRA 2024 Cooking Robotics workshop Jan 2024

3rd Place

Robotic competition to solve industrial assembly tasks.

World Robot Summit 2020
Industrial Assembly Chal-
lenge
Jan 2021

Japanese Society of Artificial Intelligence (JSAI) Award

Special award from the Japanese Society of Artificial Intelligence (JSAI).

World Robot Summit 2020
Industrial Assembly Chal-
lenge
Jan 2021

Best Oral Presentation (優秀講演賞) (SI2019)

20th IEEE/SICE International
Symposium on System Inte-
gration (SI2019) (第 20 回計
測自動制御学会システム
インテグレーション部門
講演会)
Jan 2019

Best Paper Award Finalist

2019 IEEE/SICE Interna-
tional Symposium on Sys-
tem Integrations (SII)
Jan 2019

Finalist of International Session Best Paper Award

The 36th Annual Conference
of the Robotics Society of
Japan (RSJ)
Jan 2018

Academic services

- **Program committee:** IEEE/SICE SII2025 Special session - Reconfigurable Manipulation Robots; IEEE/SICE SII2025 Workshop - Reconfigurable Manipulation Robots; ICRA 2022 Workshop - Reinforcement Learning for Contact-Rich Manipulation
- **Technical Program Committee:** IEEE ANDESCON 2020, Ecuador
- **Associate Editor:** ICRA 2025, ICRA 2026
- **Conference Reviewer:** RSS, ICRA, IROS, CASE, ETCM, ANDESCON
- **Journal Reviewer:** IEEE Robotics and Automation Letters; IEEE Transactions on Automation Science and Engineering; Engineering Applications of Artificial Intelligence; Experimental Techniques (EXTE)