CV Date	14/07/2025

Part A. PERSONAL INFORMATION

First Name	Juliana		
Family Name	Manrique Cordoba		
Sex	Female	Date of Birth	25/07/1995
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CURRICULUM NARRATIVE SUMARY

I am an Industrial Automation engineer, graduated in 2019 from the Universidad del Cauca, Colombia. On 2013, I obtained B2 TOEFL certification in English. During my undergraduate studies I had the opportunity to participate in two different exchange programs, in 2015, I was a beneficiary of the Erasmus Mundus PUEDES program (Action 2), doing a 6-month stay at the Aristotle University of Thessaloniki, in Greece. The second stay was at the Miguel Hernández de Elche, Spain, where I participated in the research group of Biomedical Neuroengineering (nBio), this stay was carried out in 2018 and it's when my interest in medical and service robotics and informatics began. On September 2019, I entered the Industrial Electronic and Automatic Engineering program at the Miguel Hernández University of Elche, finishing in 2020 with the best undergraduate thesis award. On October 2022, I finished my Master's studies in Industrial Engineering at the Miguel Hernandez University, with a nomination of best final master's thesis.

The research I carried out during my undergraduate theses was titled "Mathematical model of a pancreas with type 1 diabetes integrated into a closed-loop insulin regulation system." The results of this research were disclosed on two occasions; in September 2018, during the XXIX Jornadas de Automática held in Badajoz, and in 2020, an article titled "Mathematical modeling of food intake and insulin infusion in a patient with type 1 diabetes in closed loop" was published in the Ibero-American Journal of Automatics and Industrial Informatics (RIAI), Vol. 17, No. 2, which has been externally cited 3 times in 2021. Subsequently, I performed another research project on Diabetes technologies titled "Modeling the influence of the menstrual cycle in patients with diabetes mellitus", this last project was also presented in the Jornadas de Robótica, Educación y Bioingeniería in Málaga 2022, as a paper and a poster, getting one of the best publications awards and the opportunity to be published in the RIAI; results of this research have also been published as poster and abstracts in the Advanced Technologies & Treatments for Diabetes International Conference on 2022. As of 2020, I contribute to the RitaDiab (Red Iberoamericana de Tecnologías Aplicadas a la Diabetes) project for technology transfer, taking part in different investigation projects, guiding undergraduate thesis in the subject. Since 2021 I participated in the RACE (Robotic Anastomosis Competence Evaluation) project as a full-time researcher.

In 2022 I was invited lecturer to the international seminar "X Seminario de Automática" at the Universidad del Cauca; I participated in the results dissemination session of the Innoavi project titled "Sistema no invasivo para la caracterización bioquímica, detección de components, y reconstrucción biomédica 3D de tejidos biológicos", and participated in teaching innovation programs on undergraduate level (Prodic). Also, during my studies I participated as a volunteer in the project "Red Experimenta y Comparte del Cauca" (ID-4399), where I carried out training and dissemination activities on educational robotics, focused on different institutions of primary and secondary education.

I am currently doing my predoctoral research at the Miguel Hernandez University of Elche, in the bioengineering doctoral program.

1. RESEARCH, KNOWLEDGE TRANSFER AND EXCHANGE ACTIVITIES

1.1. PROJECTS AND CONTRACTS FOR RESEARCH AND KNOWLEDGE TRANSFER AND EXCHANGE

1.1.1. Projects

1 **Project**. Collaborative Intraoperative path planning for precision robotic neurosurgery (CIPPO). Generalitat Valenciana. José María Sabater Navarro. (Universidad Miguel Hernández de Elche). 01/09/2023-01/09/2027. 234.900 €.
2 **Project**. 220RT0004, Red Iberoamericana de Tecnologías Aplicadas a la Diabetes. CYTED. (International consortium). 01/01/2020-31/12/2023. 134.000 €.
3 **Project**. Modelado de la influencia del ciclo menstrual en pacientes con diabetes mellitus. Resolución Rectoral 00940/2020 de 01 de julio de 2020, Ayudas a la inicación a la investigación. Juliana Manrique Cordoba. (Universidad Miguel Hernández de Elche). 01/10/2020-23/12/2020. 3.600 €.

1.1.2. Contracts

1 **Contract**. Robotic Anastomosis Competence Evaluation José María Sabater Navarro. From 01/09/2021.
2 **Contract**. Desarrollo de cohetes sonda y meteorología Fase I 01/07/2019-31/12/2019.
3 **Contract**. Sistema predictivo del brain-shift basado en mediciones de distancia no invasivas José María Sabater Navarro. 01/01/2017-01/01/2020.

1.2. RESULTS AND DISSEMINATION OF RESEARCH AND KNOWLEDGE TRANSFER AND EXCHANGE ACTIVITIES

1.2.1. Research activity

AC: corresponding author. (nº x / nº y): position / total authors. If applicable, indicate the number of citations

1 **Scientific paper**. (1/4) Juliana Manrique Cordoba; Carlos Martorell Llobregat; Miguel Ángel de la Casa Lillo; José María Sabater Navarro. 2025. Trajectory Learning Using HMM: Towards Surgical Robotics Implementation. Sensors. MDPI. 25-11, pp.3487. ISSN 1424-8220.
https://doi.org/10.3390/s25113487
2 **Scientific paper**. (1/3) Juliana Manrique Cordoba; Miguel Ángel de la Casa Lillo; José María Sabater Navarro. 2025. N-Dimensional Reduction Algorithm for Learning from Demonstration Path Planning. Sensors. MDPI. 25-7, pp.2145. ISSN 1424-8220.
https://doi.org/10.3390/s25072145
3 **Scientific paper**. Juan David Romero Ante; Esther Chicharro Luna; Juliana Manrique Cordoba; José María Vicente Samper; Alba García Sanchez; José María Sabater Navarro. 2024. Validation of a New Ankle Brachial Index Measurement System Using Pulse Wave Velocity. Biosensors. MDPI. 14-5, pp.251.
https://doi.org/10.3390/bios14050251
4 **Scientific paper**. Juliana Manrique Cordoba; Carlos Martorell; Juan David Romero Ante; José María Sabater Navarro. 2024. Neural Tract Avoidance Path-Planning Optimization: Robotic Neurosurgery. Applied Sciences. MDPI. 14-9, pp.3687.
https://doi.org/10.3390/app14093687
5 **Scientific paper**. Juan Sebastián Montenegro Bravo; Juan David Ruiz Flórez; Juan David Romero Ante; Juliana Manrique Cordoba; Oscar Andrés Vivas Albán; José María Sabater Navarro. 2023. Generador 3D de trayectorias libres de colisiones para un manipulador UR3e con pinza blanda. Revista Iberoamericana de Automática e Informática Industrial. Comité Español de Automática. 21-1.
https://doi.org/10.4995/riai.2023.19332

6 **Scientific paper**. Juliana Manrique Cordoba; Juan David Romero Ante; José María Vicente Samper; José María Sabater Navarro. 2023. Modelado de la influencia del ciclo menstrual en el sistema glucosa-insulina en individuas sanas. Revista Iberoamericana de Automática e Informática Industrial. Comité Español de Automática. 21-1. https://doi.org/10.4995/riai.2023.18533

7 **Scientific paper**. David Zambrana Vinaroz; José María Vicente Samper; Juliana Manrique Cordoba; José María Sabater Navarro. 2022. Wearable Epileptic Seizure Prediction System Based on Machine Learning Techniques Using ECG, PPG and EEG Signals. Sensors. MDPI. 22-23, pp.9372. ISSN 1424-8220. https://doi.org/10.3390/s22239372

8 **Scientific paper**. Juliana Manrique Cordoba; Juan David Romero Ante; José María Sabater Navarro; José María Vicente Samper. 2022. Menstrual Cycle Influence In A Glucose-Insulin Model: Dynamics And OGTT Validation. Diabetes Technology & Therapeutics. 24, pp.A10-A11. ISSN 1520-9156. https://doi.org/10.1089/dia.2022.2527.abstracts

9 **Scientific paper**. J Manrique-Córdoba; JD Romero-Ante; A Vivas; JM Vicente; JM Sabater-Navarro. 2022. Modelado matemático de ingestas de alimento e infusión de insulina en un paciente con diabetes tipo 1 en lazo cerrado. Revista Iberoamericana de Automática e Informática Industrial. Comité Español de Automática. 17-2, pp.156-168. ISSN 1697-7912. https://doi.org/10.4995/riai.2019.11161

10 **Scientific paper**. Juan Camilo Solarte Orozco; Juliana Manrique Cordoba; Óscar Andrés Vivas Albán; Juan David Romero Ante; José María Sabater Navarro. 2022. Voice-Based AI-Powered Bolus Calculator. Diabetes Technology & Therapeutics. 24, pp.A10-A10. ISSN 1520-9156. https://doi.org/10.1089/dia.2022.2527.abstracts

11 **Scientific book or monograph**. Juliana Manrique Cordoba; Juan David Romero Ante. 2019. Modelo matemático de un páncreas con diabetes tipo 1 integrado a un sistema de regulación de insulina en lazo cerrado. Universidad del Cauca. Repositorio Universidad del Cauca.

12 **Congress.** Juan David Romero Ante; José María Vicente Samper; Juliana Manrique Cordoba; Vicente Steve Sala; Miguel Ángel De la Casa Lillo; José María Sabater Navarro. Actividad electrodérmica como indicador preventivo de complicaciones por neuropatía periférica. XLV Jornadas de Automática. Universidad de Málaga. 2024. Spain.

13 **Congress.** Marina Poveda Pérez; Juan David Romero Ante; Juliana Manrique Cordoba; Carlos Jara Bravo; José María Sabater Navarro. Modelado del efecto del ciclo menstrual de una paciente DM1 usando SimBiology. XLV Jornadas de Automática. Universidad de Málaga. 2024. Spain.

14 **Congress.** Matteo Ricci; Juliana Manrique Cordoba; Juan David Romero Ante; José María Vicente Samper; Francesca Cordella; José María Sabater Navarro. Apnea Detection in Newborns Using Abdominal IMU. 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. 2024. United States of America. Conference.

15 **Congress.** Juan David Romero Ante; Juliana Manrique Cordoba; José María Vicente Samper; Jesús Cases Hurtado; Miguel Ángel de la Casa Lillo; José María Sabater Navarro. New Insulin on Board Estimation for Artificial Pancreas Systems. 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. 2024. United States of America. Conference.

16 **Congress.** Carlos Juan Poveda; Enrique Bronchalo; Benjamin Potelon; Cedric Quendo; Víctor Fernando Muñoz Martínez; José Manuel Ferrandez; Juliana Manrique Cordoba; José María Sabater Navarro. Estudio de selectividad frente a disoluciones multicomponente de sensores de glucosa mediante tecnología planar de microondas. XLIV Jornadas de Automática. Universidad de Zaragoza, Escuela de Ingeniería y Arquitectura. 2023. Spain.

17 **Congress.** Iliana María Rumbo; Jesús Cases Hurtado; Juliana Manrique Cordoba; Juan David Romero Ante; Carlos Martorell; Oscar Andrés Vivas Albán; José María Sabater Navarro. Plataforma experimental para la obtención de las fuerzas de interacción en cirugía mínimamente invasiva. XLIV Jornadas de Automática. Universidad de Zaragoza, Escuela de Ingeniería y Arquitectura. 2023. Spain.

18 **Congress.** Juliana Manrique Cordoba; Jesús Cases Hurtado; Juan David Romero Ante; Miguel Ángel De la Casa Lillo; José María Sabater Navarro. Reducción de puntos de una trayectoria 3D basada en el algoritmo Douglas-Peucker. Aplicación a robótica quirúrgica. XLIV Jornadas de Automática. Universidad de Zaragoza, Escuela de Ingeniería y Arquitectura. 2023. Spain.

19 **Congress.** Natividad Bermejo; Juan David Romero Ante; Juliana Manrique Cordoba; José María Sabater Navarro; Carlos G. Juan. Augmented Reality Holographic Visualization System for Surgery Auxiliary Visualization: Proof of Concept for Surgical Training. 45th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. 2023. Australia. Conference.

20 **Congress.** Juliana Manrique Cordoba; Jesus Cases Hurtado; Miguel Ángel de la Casa; José María Sabater Navarro. Comparison of forces in surgical tip, trocar and robot end-effector in laparoscopic surgical trajectories. 45th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. 2023. Australia. Conference.

21 **Congress.** Alvaro Garcia; Juliana Manrique Cordoba; Miguel Ángel de la Casa; José María Sabater Navarro; Carlos G. Juan. Enhancing task performance in endoscopic surgery on simulated surgical emergency situations: A study of the impact of computer vision support on novice surgeons' gaze strategies. 45th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. 2023. Australia. Conference.

22 **Congress.** Jesús Cases Hurtado; Juliana Manrique Cordoba; Juan David Romero Ante; Arnau Busque Nadal; José María Vicente Samper; José María Sabater Navarro. Setup para la comparación de fuerzas en cirugía mínima invasiva robotizada. Jornadas Nacionales de Robótica y Bioingeniería. COMITE ESPAÑOL DE AUTOMATICA DE LA IFAC. 2023. Spain. Conference.

23 **Congress.** Juan Camilo Solarte Orozco; Juliana Manrique Cordoba; Óscar Andrés Vivas Albán; Juan David Romero Ante; Carlos Gabriel Juan Poveda; José María Vicente Samper; José María Sabater Navarro. Calculador inteligente de bolo de insulina en skill Alexa Amazon para pacientes con diabetes mellitus y deficiencia visual. XLIII Jornadas de Automática. Universidad de La Rioja. 2022. Spain. Conference.

24 **Congress.** Guillermo Elvira Soler; Juliana Manrique Cordoba; José María Vicente Samper; José María Sabater Navarro. Monitorización de fuerzas de mecanizado con un robot UR3e. XLIII Jornadas de Automática. Universidad de La Rioja. 2022. Spain. Conference.

25 **Congress.** Juliana Manrique Cordoba; Juan David Romero Ante; José María Vicente Samper; José María Sabater Navarro. Modelado y Validación de la Influencia del Ciclo Menstrual en el Sistema Glucosa-Insulina. Jornadas de Robótica, Educación y Bioingeniería. Universidad de Málaga. 2022. Spain. Conference.

26 **Congress.** José María Sabater Navarro; Juan David Romero Ante; Juliana Manrique Cordoba; José María Vicente Samper; Carlos Gabriel Juan Poveda. Nueva Estimación de IOB para Sistemas de Páncreas Artificial. Jornadas de Robótica Educación y Bioingeniería. Universidad de Málaga. 2022. Spain. Conference.

27 **Congress.** Juliana Manrique Cordoba; Juan David Romero Ante; José María Sabater Navarro; José María Vicente Samper. Menstrual Cycle Influence In A Glucose-Insulin Model: Dynamics And OGTT Validation. Advanced Technologies & Treatments for Diabetes. Global Education of Medicine and Science. 2022. Spain. Conference.

28 **Congress.** Juan Camilo Solarte Orozco; Juliana Manrique Cordoba; Oscar Andrés Vivas Albán; Juan David Romero Ante; José María Sabater Navarro. Voice-Based AI-Powered Bolus Calculator. Advanced Technologies & Treatments for Diabetes. Global Education of Medicine and Science. 2022. Spain. Conference.

29 **Congress.** J Manrique-Cordoba; JD Romero-Ante; A Vivas; JM Vicente; JM Sabater-Navarro. Simulador de Paciente T1D en Tiempo Real. XXXIX Jornadas de Automática. Comité Español De Automática (IFAC). 2018. Spain. Conference.

1.2.2. Transfer and exchange of knowledge and professional activity

Actividad de carácter profesional

1 **Predoctoral researcher:** Universidad Miguel Hernández de Elche. 2022- actual. Full time.
2 **Researcher:** Universidad Miguel Hernández de Elche. 01/09/2021. (1 year). Temporary employment contract.
3 **Assistant researcher:** CITAE - Fuerza Aérea Colombiana. 07/2019. (6 months).

1.3. STAYS AT UNIVERSITIES AND RESEARCH CENTRES

1.3.1. Stays

1 **Stay:** Universidad Miguel Hernández de Elche. (Spain). 20/02/2018-31/07/2018.
2 **Stay:** Erasmus MUNDUS PUEDES. Aristotle University of Thessaloniki. (Greece). 01/09/2015-28/02/2016.

2. TEACHING ACTIVITY

2.1. TEACHING EXPERIENCE

2.1.1. Dedicación docente (se acredita con el certificado que se adjunta en la sede electrónica de ANECA)

2.2. EVALUATION OF TEACHING QUALITY AND INNOVATION

Assessment by certificate (DOCENTIA) which is attached at ANECA's headquarters

2.2.1. Quality of teaching activity

Evaluation by means of self-report attached at ANECA's site