

## INFORMAZIONE



## MINH LONG HOANG

📍 Parma (Italy)

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## ESPERIENZA LAVORATIVA

01/11/2023 - Presente

### Ricercatore A Tempo Determinato Tipo A (RTDA) al Dipartimento di Ingegneria Elettronica, Università di Parma (Italia)

- Ricerca nell'ambito del PNRR – Progetto DARE (Digital Lifelong Prevention) sull'applicazione dell'Intelligenza Artificiale al monitoraggio della salute.
- Sviluppo di sistemi embedded, sensori intelligenti e automazione.
- Progetto sul benessere, con il machine learning, microcontrollori e comunicazione IoT.
- Collaborazione stretta con il Dipartimento di Medicina e Chirurgia e con il Centro Interdipartimentale per i Disturbi del Sonno dell'Ospedale di Parma.

**Responsabile scientifico del progetto di ricerca basata sulla collaborazione tra L'Università di Parma e L'Azienda Baumer : "L'impiego della AI per la definizione e caratterizzazione dei parametri del filtro di Kalman in un sensore angolare a 6 assi"**

#### Grant:

Erasmus+ A.A. 2024/2025 — Mobilità per insegnamento presso l'Università dei Basque Country (Bilbao, Spagna). Corso svolto: "Sensors in Automation and Artificial Intelligence Applications".

#### Attività didattiche:

- Corso Misure Elettroniche con attività di laboratorio (Università di Parma).
- Corso ICT for Health and Well-Being (Università di Parma).
- Corso Advanced Programming with Python (INES-Ruhengeri University, Ruanda).

#### Relatore/Co-Relatore dei tesi triennali e magistrali:

- IoT Smart-Bed: algoritmi per rilevamento di respiro e battito cardiaco
- Analisi del processo di smaltimento dei dispositivi elettronici
- Sistema per monitoraggio real-time dei movimenti degli arti superiori tramite unità inerziali a 9 assi
- Progettazione di sistemi di emergenza per dispositivi indossabili
- Classificazione delle posture del sonno tramite Deep Learning

01/7/2022 - 31/10/2023

### Assegno di Ricerca – Università di Parma (Progetti Industriali e in Medicina)

- Sviluppo di modelli di machine learning su sensori ed elettronica.
- Progetto sanitario per il monitoraggio di attività di persone fragili, tramite accelerometri MEMS (micro electro-mechanical systems) e IoT (Internet of Things).
- Proposta di sistema di esecuzione logica a training parallelo per rilevare tosse, cadute e attività quotidiane.
- Comunicazione cloud tramite MQTT e IoT.
- Partecipazione al progetto Organ on a Chip (OACC):

- Analisi del movimento cellulare via computer vision
- Progettazione, controllo e simulazione di apparecchiature e condizioni di incubazione.

01/06/2022 -30/06/2022

**Collaborazione Internazionale (Ricerca & Didattica) Università di Hanoi (Vietnam) — Progetto: “Data Measurement and Analysis based on Smartphone Sensors for Work-life Balance Monitoring”.**

31/10/2021- 30/5/2022

**Assegno di Ricerca – Università di Firenze (Ingegneria dell’Informazione ed Elettronica)**

- Sviluppo di una collana allarme IoT basata su una piattaforma miniaturizzata con chip Bluetooth ad alta portata e circuito esterno di supporto.
- Supporto allo sviluppo dell’app mobile.
- Tutor per tesi: “Emergency system design for wearable device”.

## EDUCAZIONE

01/11/2018-31/10/2021

**Dottorato di Ricerca in Ingegneria Industriale all’ Università di Salerno, Fisciano (Italia)**

- Progetto PON EU: “Industry 4.0 oriented enhancement of Inertial Platform performance”.
- Collaborazione con Sensor System srl (Italia) e Baumer (Germania).
- Ricerca e sviluppo su sistemi elettronici e sensori di posizionamento: accelerometri, giroscopi, magnetometri MEMS.
- Attività di misura, caratterizzazione e analisi del comportamento dei sensori.
- Software utilizzati: C/C++, Matlab, Python, Keil MDK.

Aree principali di ricerca: IMU, MEMS, misure real-time, sistemi embedded, signal processing, machine learning, AI e IoT.

10/2016-09/2018

**Laurea Magistrale in Ingegneria Elettronica**  
Università degli Studi di Salerno, Fisciano (Italia)

Voto: 110/110

## COMPETENZE PERSONALI

Lingue

Lingua	Ascolto	Lettura	Interazione	Produzione orale	Scrittura
Italiano	B2	B2	B2	B2	B2
Inglese	C1	C1	C1	C1	C1
Vietnamita	Madrelingua	—	—	—	—

Competenze organizzative e gestionali

- Collaboratore presso il Centro di Lingua e Cultura Italiana e Centro Mobilità Internazionale – Hanoi University (Vietnam).
- Ottime capacità di lavoro in team su progetti multidisciplinari e internazionali.

Competenze professionali

- Ottima conoscenza di Microsoft Office
- Matlab, Powersim, Python, C/C++, LabView, Altium Designer
- Ingegneria Elettronica: sensori di orientamento, IMU (accelerometri e MEMS), circuiti di potenza, progettazione PCB
- Applicazioni in ambito energetico: Smart House, Smart Grid, sistemi fotovoltaici .

**COMITATI TECNICI DI  
CONFERENZA**  
2024

Session Chair of the IEEE Instrumentation and Measurement Society (I2MTC 2024)

**JOURNAL EDITORIAL  
COMMITTEES**

2025-Presente

• Journal Director/ Editor in Chief "Transactions on Intelligent Sensors and AI in Measurement and Methodology", Open Academic Publishing (OAP).

2024 - Presente

• Guest Editor of Special Issue "Sensors Technologies for Measurements and Signal Processing" of MDPI Sensors.

2024 - Presente

• Topical Advisory Panel of Section "Physical Sensors" of MDPI Sensors.

2024 - Presente

• Academic Board Member of Global Open Share Publishing (GOSP).

2024 – Presente

• Youth Editorial Board Member of journal of AI+ (Artificial Intelligence +) - ISSN: 3007-7451

2024 – Presente

• Editorial Board member of Advances in Robotic Technology (ART)- ISSN :2997-6197

2023 – Presente

• Editor of Journal of Computer Vision Studies (CSV) - ISSN :2833-6070

2023 - Presente

• Editorial Board Member of journal of International Journal of Sensors and Sensor Networks(IJSSN) – ISSN: 2329-1788

2023 - Presente

• Guest Editor of Special Issue of Advanced Microelectromechanical Systems (MEMS) of MDPI journal.

**RELATORE DI CONFERENZA**

2024

"Machine learning classification for failure analysis of smart spark plugs" at ESREF 2024, 35th European Symposium on Reliability of Electron Devices, Failure Physics and Analysis, Parma, Italy.

2024

"Image Processing System Based on Mesh Technology for Cell Kinematic Measurement," 2024 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Glasgow, United Kingdom.

2021

"Noise Attenuation on IMU Measurement For Drone Balance by Sensor Fusion". 2021 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Glasgow, Scotland,

2020

"A New Technique for Optimization of Linear Displacement Measurement based on MEMS Accelerometer" 2020 International Semiconductor Conference (CAS), Sinaia, Romania, 2020

2020

"Pre-Processing Technique for Compass-less Madgwick in Heading Estimation for Industry 4.0" 2020 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Dubrovnik, Croatia, 2020, pp. 1-6, doi: 10.1109/I2MTC43012.2020.9128969.

2020

"An Effective Method on Vibration Immunity for Inclinomater based on MEMS Accelerometer" 2020 International Semiconductor Conference (CAS), Sinaia, Romania, 2020, pp. 105-108, doi: 10.1109/CAS50358.2020.9267997.

- 2020 "A new orientation method for inclinometer based on mems accelerometer used in industry 4.0" IEEE 18th International Conference on Industrial Informatics (INDIN 2020), 2020.

#### RICONOSCIMENTI ACCADEMICI

- 2025 Conseguimento dell'Abilitazione Scientifica Nazionale alle funzioni di professore universitario di Seconda Fascia nel Settore Concorsuale 09/E3 - ELETTRONICA.
- 2024 Paper "Smart Drone Surveillance System Based on AI and on IoT Communication in Case of Intrusion and Fire Accident," has been promoted as a "Feature Paper" in MDPI Drones platform.
- 2022 Research activity was recognized by the University of Hanoi, Vietnam about project 'Data Measurement and Analysis based on Smartphone Sensors for Work-life Balance'.

#### PUBBLICAZIONI

##### LIBRO

Minh Long Hoang , " Artificial Intelligence Development in Sensors and Computer Vision for Health Care and Automation Application ", Bentham Science Publishers (2024). <https://doi.org/10.2174/97898153130551240101>

##### ARTICOLI SU RIVISTA

1. Minh Long Hoang , "A Review of Developments and Metrology in Machine Learning and Deep Learning for Wearable IoT Devices," in *IEEE Access*, vol. 13, pp. 106035-106054, 2025, doi: 10.1109/ACCESS.2025.3573937
2. Minh Long Hoang and Nicola Delmonte, "Digital Twin-Based Real-Time Monitoring System for Safety of Multiple Laptops in Working Environment," in *IEEE Open Journal of Instrumentation and Measurement*, vol. 3, pp. 1-9, 2024, Art no. 2000109, doi: 10.1109/OJIM.2024.3502879.
3. Minh Long Hoang, Mirco Mongilli, Guido Matrella, Paolo Ciampolini, Artificial intelligence prediction of maximum power point tracking voltage and current based on battery for sensor reduction and complexity minimization for photovoltaic charge controller, *e-Prime - Advances in Electrical Engineering, Electronics and Energy*, Volume 14, 2025, 101110, ISSN 2772-6711, <https://doi.org/10.1016/j.prime.2025.101110> .
4. Minh Long Hoang et al . "Robust Automatic System for Spheroid Image-Processing of Kinematic Measurement and Evaluation." *Measurement*, vol. 257, 2 Aug. 2025, pp. 118632–118632, <https://doi.org/10.1016/j.measurement.2025.118632>. Accessed 2 Sept. 2025.
5. Minh Long Hoang, Guido Matrella, and Paolo Ciampolini, "Metrological Evaluation of Contactless Sleep Position Recognition Using an Accelerometric Smart Bed and Machine Learning," *Sensors and Actuators A Physical*, pp. 116309–116309, Feb. 2025, doi: <https://doi.org/10.1016/j.sna.2025.116309>.
6. Minh Long Hoang, Guido Matrella, and Paolo Ciampolini, "Artificial Intelligence Implementation into Internet of Things Embedded System for Real-time Person Presence in Bed Detection and Sleep Behaviour Monitor," Special Issue *Internet of Things, Embedded Solutions, and Edge Intelligence for Smart Health*, *Electronics*. 2024. <https://doi.org/10.3390/electronics13112210>
7. Mirko Hu , Flavia Bonalumi , Minh Long Hoang *et al.*, "Assessing the impact of air pollution on human embryonic cardioids using innovative longitudinal monitoring and machine learning," *Vascular pharmacology*, vol. 155, pp. 107326–107326, Jun. 2024, doi: <https://doi.org/10.1016/j.vph.2024.107326>.
8. Minh Long Hoang, Guido Matrella, and Paolo Ciampolini, "Comparison of Machine Learning Algorithms for Heartbeat Detection Based on Accelerometric Signals Produced by a Smart Bed," *Sensors*, vol. 24, no. 6, pp. 1900–1900, Mar. 2024, doi:

<https://doi.org/10.3390/s24061900>.

9. Armel Asongu Nkemb, N. Delmonte, P. Cova, and Minh Long Hoang, "The Design and Dynamic Control of a Unified Power Flow Controller with a Novel Algorithm for Obtaining the Least Harmonic Distortion," *Electronics*, vol. 13, no. 5, pp. 877–877, Feb. 2024, doi: <https://doi.org/10.3390/electronics13050877>.
10. Minh Long Hoang and N. Delmonte, "K-centroid convergence clustering identification in one-label per type for disease prediction," *IAES International Journal of Artificial Intelligence*, vol. 13, no. 1, pp. 1149–1149, Mar. 2024, doi: <https://doi.org/10.11591/ijai.v13.i1.pp1149-1159>.
11. Minh Long Hoang, "Smart Drone Surveillance System Based on AI and on IoT Communication in Case of Intrusion and Fire Accident," *Drones*, vol. 7, no. 12, pp. 694–694, Dec. 2023, doi: <https://doi.org/10.3390/drones7120694>.
12. Minh Long Hoang, Marco Carratù, Vincenzo Paciello, Antonio Pietrosanto, "Fusion Filters between the No Motion No Integration Technique and Kalman Filter in Noise Optimization on a 6DoF Drone for Orientation Tracking," *Sensors*, vol. 23, no. 12, pp. 5603–5603, Jun. 2023, doi: <https://doi.org/10.3390/s23125603>
13. Minh Long Hoang, Armel Asongu Nkemb, and Phuong Ly Pham. 2023. "Real-Time Risk Assessment Detection for Weak People by Parallel Training Logical Execution of a Supervised Learning System Based on an IoT Wearable MEMS Accelerometer" *Sensors* 23, no. 3: 1516. <https://doi.org/10.3390/s23031516>
14. Minh Long Hoang, "Object size measurement and camera distance evaluation for electronic components using Fixed-Position camera," *Computer Vision Studies*, Mar. 2023, doi: <https://doi.org/10.58396/cvs020101>
15. Minh Long Hoang, Antonio Pietrosanto "Yaw/Heading Optimization by Machine Learning Model based on MEMS Magnetometer under Harsh Conditions" in *Measurements*, Elsevier, Volume 193, 2022, <https://doi.org/10.1016/j.measurement.2022.111013>
16. Minh Long Hoang, Antonio Pietrosanto, "Yaw/Heading optimization by drift elimination on MEMS gyroscope" in *Sensors and Actuators A: Physical*, Science Direct, Vol. 325, 2021, DOI: [10.1016/j.sna.2021.112691](https://doi.org/10.1016/j.sna.2021.112691)
17. Minh Long Hoang, Marco Carratù, Vincenzo Paciello, Antonio Pietrosanto, "Body Temperature—Indoor Condition Monitor and Activity Recognition by MEMS Accelerometer Based on IoT-Alert System for People in Quarantine Due to COVID-19" in *Sensors MDPI*, Special Issue Instrument and Measurement, 2021 DOI: [10.3390/s21072313](https://doi.org/10.3390/s21072313)
18. Minh Long Hoang and Antonio Pietrosanto, "New Artificial Intelligence Approach to Inclination Measurement based on MEMS Accelerometer," in *IEEE Transactions on Artificial Intelligence*, 2021 doi: 10.1109/TAI.2021.3105494.
19. Minh Long Hoang, "Photovoltaic system optimization by new maximum power point tracking (MPPT) models based on analog components under harsh condition" *Energy Harvesting and Systems*, vol., no., 2021. <https://doi.org/10.1515/ehs-2020-0001>
20. Minh Long Hoang, Antonio Pietrosanto "A New Technique on Vibration Optimization of Industrial Incliner for MEMS Accelerometer Without Sensor Fusion" in *IEEE Access*, vol. 9, 2021, pp. 20295-20304, doi: 10.1109/ACCESS.2021.3054825.
21. Minh Long Hoang, Antonio Pietrosanto "A Robust Orientation System for Incliner With Full-Redundancy in Heavy Industry" in *IEEE Sensors Journal*, vol. 21, no. 5, 2021, pp. 5853-5860, doi: 10.1109/JSEN.2020.3040374.
22. Minh Long Hoang, Salvatore Dello Iacono, Vincenzo Paciello, Antonio Pietrosanto "Measurement Optimization for Orientation Tracking Based on No Motion No Integration Technique" in *IEEE Transactions on Instrumentation and Measurement*, vol. 70, 2021, pp. 1-10, Art no. 9503010, doi: 10.1109/TIM.2020.3035571.

**ARTICOLI DI CONFERENZA**

1. Minh Long Hoang et al., "Image Processing System Based on Mesh Technology for Cell Kinematic Measurement," 2024 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Glasgow, United Kingdom, 2024, pp. 1-6, doi: 10.1109/I2MTC60896.2024.10561037.
2. Minh Long Hoang, Marco Carratù, Vincenzo Paciello, Antonio Pietrosanto "Noise Attenuation on IMU Measurement For Drone Balance by Sensor Fusion". 2021 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Glasgow, Scotland, 2021, pp 1-6, doi: 10.1109/I2MTC50364.2021.9460041
3. Minh Long Hoang, Marco Carratù, Moise Avoci Ugwiri, Vincenzo Paciello, Antonio Pietrosanto "A New Technique for Optimization of Linear Displacement Measurement based on MEMS Accelerometer" 2020 International Semiconductor Conference (CAS), Sinaia, Romania, 2020
4. Minh Long Hoang, Antonio Pietrosanto, Salvatore Dello Iacono, Vincenzo Paciello "Pre-Processing Technique for Compass-less Madgwick in Heading Estimation for Industry 4.0" 2020 IEEE International Instrumentation and Measurement Technology Conference (I2MTC), Dubrovnik, Croatia, 2020, pp. 1-6, doi: 10.1109/I2MTC43012.2020.9128969.
5. Minh Long Hoang, Antonio Pietrosanto "An Effective Method on Vibration Immunity for Inclinometer based on MEMS Accelerometer" 2020 International Semiconductor Conference (CAS), Sinaia, Romania, 2020, pp. 105-108, doi: 10.1109/CAS50358.2020.9267997.
6. Minh Long Hoang, Marco Carratù, Vincenzo Paciello, Antonio Pietrosanto "A new orientation method for inclinometer based on mems accelerometer used in industry 4.0" IEEE 18th International Conference on Industrial Informatics (INDIN 2020), 2020.
7. Marco Carratù, Salvatore Dello Iacono, Minh Long Hoang, Antonio Pietrosanto "Energy characterization of attitude algorithms" 2019 IEEE 17th International Conference on Industrial Informatics (INDIN), Helsinki, Finland, 2019, pp. 1585-1590.