FAC-SIMILE   **ALLEGATO B**

DICHIARAZIONI SOSTITUTIVE DI CERTIFICAZIONI

(art. 46 D.P.R. n. 445/2000)

DICHIARAZIONI SOSTITUTIVE DELL'ATTO DI NOTORIETÀ

(art. 47 D.P.R. n. 445/2000)

I sottoscritto <u>SAMARATHUNGA MUDIYANSELAGE</u>   <u>Buddhika Piyumal Bandara Samarathunga</u>
                        (Cognome)   (Nome)

Nato a .... Prov..... ... il...

Attualmente residente a... ..... Prov..... ..

Indirizzo:... .... CAP:..... ...

Telefono:.... ....

Visto il D.P.R. 28 dicembre 2000, n. 445 concernente "T.U. delle disposizioni legislative e regolamentari in materia di documentazione amministrativa" e successive modifiche ed integrazioni;

Vista la Legge 12 novembre 2011, n. 183 ed in particolare l'art. 15 concernente le nuove disposizioni in materia di certificati e dichiarazioni sostitutive (*);

Consapevole che, ai sensi dell'art.76 del DPR 445/2000, le dichiarazioni mendaci, la falsità negli atti e l'uso di atti falsi sono punite ai sensi del Codice penale e delle leggi speciali vigenti in materia, dichiara sotto la propria responsabilità:

che quanto dichiarato nel seguente curriculum vitae et studiorum comprensivo delle informazioni sulla produzione scientifica corrisponde a verità

Curriculum vitae et studiorum

WORK EXPERIENCE AND TRAINING

Nov 2021 - Present	**PhD candidate in Mechanical and Industrial Engineering (XXXVII Cycle)** Department of Mechanical and Industrial Engineering, University of Brescia. **Research Topic:** Physical Human-Robot Interaction and Collision Models This research activity primarily focuses on ensuring the safety of physical interactions between humans and robots in a collaborative workplace environment. The research efforts are particularly focused on investigating the unintended impact of robots on humans, considering quasi-static and transient contact as the two primary types of contact. Given that the collision model proposed in ISO/TS 15066 is simplistic, this study is aimed at developing new collision models that can account for various physical contact scenarios of collaborative systems. Biofidelic sensors, capable of replicating specific human body regions, are employed to test physical human-robot impacts. This research work emphasizes the characteristics of the biofidelic sensors and proposes a comprehensive sensor model that can address the limitations of the current sensors available.

<u>23/01/2024</u>   ....
    Data   Firma

Jun 2016 – Sep 2016   **Automation Engineer**

Leo Engineering Services, Biyagama, Sri Lanka.

The main responsibilities were to design and implement process improvements using PLCs and HMIs, as well as to lead cross-functional teams in the design, development, and deployment of manufacturing and process automation solutions.

- Actively involved in an automated batching plant process improvement project in the new Defence Headquarters Complex, Sri Jayawardenapura Kotte, Sri Lanka.
- Involved in designing and installation of packing machines in Unilever Sri Lanka.
- Guiding and instructing in PLC and CAD operations.

Oct 2015 – May 2016   **Trainee Engineer (Solar PV Systems)**

Nikini Automation Systems (Pvt.) Ltd., Kirulaponne, Sri Lanka.

The core roles included designing and directing solar system installations for both residential and commercial properties, as well as analysing site characteristics to determine the best locations for PV system installation using the Solmetric SunEye device.

- Conducted engineering site audits to collect structural, electrical, and necessary site information, to design residential and commercial solar PV systems.
- Created electrical single-line diagrams, panel schedules, and connection diagrams for solar PV systems using computer-aided design (CAD).
- Responsible for sales, customer inquiry handling, and quotation making.

Jun 2015 – Oct 2015   **Industrial Trainee (Automation and Mechanical Workshop)**

Nikini Automation Systems (Pvt.) Ltd., Kirulaponne, Sri Lanka.

- Practiced PLC Programming, Pneumatic and Electro-pneumatic operations, and applications of sensors.
- Designed human machine interphases (HMIs)
- Practiced CNC operations and programming.
- Received sound knowledge of welding methods (Arc, TIG, MIG, and Gas Welding)
- Read and interpreted blueprints, technical drawings, schematics, and computer-generated reports.
- Installation of pneumatic systems, control panels, and sensors.

EDUCATIONAL QUALIFICATIONS

Post-graduate Studies

Nov 2021 - Present   **PhD candidate in Mechanical and Industrial Engineering (XXXVII Cycle)**

Department of Mechanical and Industrial Engineering, University of Brescia, Brescia, Italy.

Research Topic: Physical Human-Robot Interaction and Collision Models

PhD research study focuses on safety in physical human-robot interaction, studies on biofidelic sensors, and the development of impact models and their validation with real-world experiments.

- A systematic literature review was carried out to study the novel technologies and research experiments.
- Conducted experiments on impact forces using KMG500 and F300 force/pressure sensors in National Research Council (STIIMA-CNR).
- Modelling and simulating mechanical system collisions.

Relevant course / workshops attended:
- Introduction to risk assessment and safety evaluation for collaborative robot applications (workshop).
- Technical and scientific writing (PhD course).
- Exoskeleton robots (PhD course).
- Robo-etica (PhD course).
- Reference management tools (PhD course).

23/01/2024
Data   Firma

Sep 2018 – Mar 2021   **Master of Engineering (M. Eng.) in Automation Engineering**
Faculty of Engineering and Architecture, University of Bologna, Bologna, Italy.

Thesis: Dynamic Modelling of a Deformable Linear Object for Robotic Manipulation Purposes.

The dynamic modelling of Deformable Liner Object (DLO) was proposed in this dissertation. For an accurate description of industrial applications which are dealing with robotized manipulations, this thesis shows that a flexible cable can be represented as a flexible joint model. This flexible joint model is an extended model that expressed as a two-link 3 degree of freedom revolute joint robot manipulator, which the revolute joints of the manipulator have consisted of torsional springs. By using the Lagrangian mechanical theories, and forward kinematics, the dynamic model of the cable is proposed.

Final Grade: 90/110

Bachelor

Oct 2011 – Oct 2015   **Bachelor of Technology (B. Tech.). Mechatronics Special**
Faculty of Applied Sciences, Uva Wellassa University, Badulla, Sri Lanka.

Thesis: Two Wheeled Self-Balancing Robot.

A method for designing and controlling a two-wheeled self-balancing robot was presented in this thesis. The method focused on the hardware description, the Complimentary filter algorithm, system modelling, and the design of a Proportional-Integral-Derivative (PID) back stepping controller.

Final Grade: General with GPA 2.96/4

PERSONAL SKILLS

Mother tongue	Sinhala				
Other languages	**Understanding**		**Speaking**		**Writing**
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2
Italian	B1	B1	B1	A1	A1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user

Digital skills and software application

Programming:
- Python
- C
- C++
- LUA
- ROS

PLC Application:
- Siemens (Step 7, LOGO) - TIA Portal
- Omron - Sysmac Studio
- B&R - Automation Studio

Operating System:
- Microsoft Windows
- Ubuntu
- Linux

Software Application:
- MATLAB
- RobotStudio (ABB)
- CoboSafe Vision
- LTspice
- Visual Studio

Mechanical modelling:
- SolidWorks
- AutoCAD
- Creo

Office Automation:
- Microsoft office

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Data   Firma

Research and publications
- S. M. B. P. B. Samarathunga*, Marcello Valori, Rodolfo Faglia, Irene Fassi, Giovanni Legnani, (2023), "Considerations on the Dynamics of Biofideloc Sensors in the Assessment of Human-Robot Impacts".
  DOI: https://doi.org/10.3390/machines12010026

- S. M. B. P. B. Samarathunga*, W. K. I. L. Wanniarachchi, (2016), "Two-wheeled Self Balancing Robot"; Proceedings of the 6th Research Symposium, Uva Wellassa University, Sri Lanka, (RSUWU-2016).

- S. M. B. P. B. Samarathunga*, W. K. I. L. Wanniarachchi, (2015), "Wireless Gesture Control Robot"; Proceedings of the 5th Research Symposium, Uva Wellassa University, Sri Lanka, (RSUWU-2015).

Honours and awards
- Research grant finalist of the "Safe human-robot interaction", which was awarded by the prestigious University of Brescia in 2023.

- Best Poster Presenter of Digital Electronics and Embedded Systems Technical Session at the 6th Research Symposium of Uva Wellassa University, Sri Lanka, (RSUWU-2016).

Annexes
A. Italian identity document
B. Master's degree certificate
C. Bachelor's degree certificate

........23/01/2024.....Milano............
Luogo e data

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Firma

(*) ai sensi dell'art. 15, comma 1 della Legge 12/11/2011, n. 183 le certificazioni rilasciate dalla P.A. in ordine a stati, qualità personali e fatti sono valide e utilizzabili solo nei rapporti tra privati; nei rapporti con gli Organi della Pubblica Amministrazione e i gestori di pubblici servizi, i certificati sono sempre sostituiti dalle dichiarazioni sostitutive di certificazione o dall'atto di notorietà di cui agli artt. 46 e 47 del DPR 445/2000