

ALDO MARCHI

GENDER: M | DATE OF BIRTH: 05/04/1994

LANGUAGES

Native Language: Italian.

Other Languages: English (C1),
French (A1) and Latin.

Certifications:

(English) TOEFL iBT
Test Score: 91 [Date 15
June 2019]

DIGITAL COMPETENCE

Programming Languages known:
C, C++, Java, Structured Text (ST),
Ladder Diagram, MATLAB,
Simulink, Pascal, Assembly (MIPS,
STEP 7).

Other IT competence:
ECDL Certificate (full standard),
programming in IDE, use of
GitHub, ROS programming.

EDUCATION

2016-2019 – MASTER'S DEGREE

Università degli Studi di PADOVA

Dipartimento di Tecnica e Gestione dei Sistemi Industriali

Mechatronics Engineering

LM-25 - 2nd level degree in Automation Engineering

- Dissertation/thesis title: Wide Range Control and Performance Evaluation of a Single-Axis Compliant Nano-Positioning System
- Dissertation/thesis subject: Control of Mechanical Systems
- Thesis supervisor: Dr. Paolo Magnone
- Official duration: 2 years
- Final degree mark: 101/110
- Graduation date: 15/04/2019



2013-2016 – BACHELOR'S DEGREE

Università degli Studi di PADOVA

Dipartimento di Tecnica e Gestione dei Sistemi Industriali

Mechanical & Mechatronics Engineering

Specific Field of the Degree Course: Mechatronics

L-8 - 1st level degree in Information Technology

- Dissertation/thesis title: cROS Implementation for the B&R PLC Environment for Industrial Applications
- Dissertation/thesis subject: Programming Languages for Industrial Systems
- Thesis supervisor: Dr. Stefano Ghidoni
- Official duration: 3 years
- Final degree mark: 102/110
- Graduation date: 23/11/2016



2008-2013

School-Leaving Certificate

Liceo Scientifico statale G.B. Quadri, Vicenza, Italy.

- Course of Study: PNI

DRIVING LICENCE

A, B

STUDIES AND EXPERIENCES ABROAD

European Union program (ERASMUS)

- Location: University College Cork
- Place: Cork, Ireland
- Language: English
- Duration: 9 (months) – January/September 2018
- Description: Research project on a compliant nano-positioning system

ADDITIONAL INFORMATION

BACHELOR'S THESIS

cROS Implementation for the B&R PLC Environment for Industrial Applications

- Period: from September 2015 to August 2016
- Supervisor: Dr. Stefano Ghidoni
- Co-Supervisor: Dr. Nicolò Boscolo

The experimental thesis was developed at IT+ROBOTICS, spin-off of the University of Padua. The purpose of the project was the porting of cROS on B&R PLC systems in order to make PLCs compatible with the ROS (Robot Operating System) ecosystem. cROS is a library written by IT+ROBOTICS in standard C-language that provides a single thread implementation of the basic features required to implement a ROS node. The library has been released with open-source licence and it is available at the following address:

<https://github.com/ros-industrial/cros>

MASTER'S THESIS

Wide Range Control and Performance Evaluation of a Single-Axis Compliant Nano-Positioning System

- Location: University College Cork, Cork, Ireland
- Period: from January 2018 to September 2018
- Supervisor: Dr. Paolo Magnone
- Co-Supervisors: Dr. Richard Kavanagh, Dr. Guangbo Hao

The thesis is focused on the development of compliant nano-positioning system. In the first place, the mechanical design is presented, and each component is thoroughly described. The system layout consists of the nano-positioner itself, a controller board, a voice coil actuator, a servo amplifier, an optical linear encoder and a DC power supply. The system can be modelled as a harmonic oscillator in a small range up to 0.2 mm and as a duffing oscillator beyond that range. Both models are analyzed and applied to the system. The control algorithm developed is based on a PID feedback position control and a force feedforward control. In particular, this thesis focuses on the presentation of three achievements. The first goal has been to improve the closed-loop control with force feedforward in order to reach the desired range of 1 mm while taking into account the nonlinearities of the system. Secondly, the dynamic behaviour of the manipulator, up to 300 Hz, has been analyzed and enhanced by an improved model and setup. Finally, the effect of cross-axis coupling in the actuation force has been examined through a significant number of tests.

HOBBIES AND SPORTS

Sports

Competitive Power Walking, Cross-Country and Downhill Skiing, Alpine Hiking.

Hobbies

Playing the piano, Sommelier FISAR 1° level.