EMANUELE OPNA DE BERNARDI

ICT Professional Engineer and High School Professor

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EXPERIENCE

High School Computer Science Professor

Quintino Sella

May 2021 – Ongoing Novara, Italy

- Professor of the 3rd, 4th, and 5th year at the Giacomo Leopardi high school and at the Quintino Sella Economic Technical Institute, specializing in Corporate Information Systems.

RELAB member

REsilienceLAB

Sept 2020 – Ongoing Pavia, Italy

- Association that supports actions to promote and support resilience initiatives in the territories.

Computer Science laboratory Professor

Politecnico di Milano - Electronics, Information and Bioengineering department

Oct 2019 – Ongoing Milan, Italy

- Conducting exercises and programming with development environments in C language remotely with the Cisco Webex platform.
- Face-to-face lessons with exercises in preparation for the exam. Course delivered to the Bachelor's Degree in Management Engineering.

IT Trainer

First Consulting SRL

June 2019 – Ongoing Milan, Italy

- Programming languages training.

Research Assistant

Politecnico di Milano - Electronics, Information and Bioengineering department

Oct 2019 – Ongoing Milan, Italy

- Optimization of data processing and machine learning algorithms, which use data provided by wearable sensors and smartphones, with the design and development of front-end and back-end applications in the field of assistive technologies.
- Identification, analysis, experimentation, testing and verification of the current Concept Drift Data Driven techniques in the context of the IRel4.0 (IA ECSEL) project referred to the reference industrial and case study. Support in coordinating activities and interfacing with project partners, development of suitable interfaces for viewing and collecting data.

MY LIFE PHILOSOPHY

"Focus on the goal and give it your all."

MOST PROUD OF

Degree and Research Award
Degree and Research Award on ALS in memory of Dr. Giovanni Longoni

Marriage
marriage with my beautiful wife

SOFTWARE SKILLS

C C++ Java Python MySQL PostgreSQL PostGIS Android (Kotlin) iOS (Swift) JAX-RS Flask Javascript NodeJS Spring PHP

Mobile development	●●●●◐
Web designer	●●●◐○
Graphic designer	●●●●○
Database designer	●●●●○
Full stack development	●●●◐○
Firmware development	●●●○○
Networks and Software Security	●●●●○
Machine Learning and Data Analysis	●●●◐○
Unix Shell Scripting	●●●●◐

LANGUAGES

Italian	●●●●●
English	●●●●○

- Thesis co-supervisor for students for the Master's Degree in Computer Engineering.

Software Engineer

Politecnico di Milano - Electronics, Information and Bioengineering department

Oct 2020 – Nov 2020 Milan, Italy

- Development of an outdoor monitoring APP for frail people with mild cognitive impairment in order to enrich the current indoor monitoring tools, as part of the WPS-based outdoor monitoring project of the behavioral model of the frail person.

Mobile Application Professor

Politecnico di Milano - Electronics, Information and Bioengineering department

Oct 2017 – Sept 2019 Milan, Italy

- Professor of development of Android applications with Java and Kotlin language. Verification of the development of an application as a course project, preparation and evaluation of final exams. Course delivered in English in the fourth and fifth year of the Master's Degree in Computer Engineering

University Tutor

Politecnico di Milano - Electronics, Information and Bioengineering department

Oct 2016 – Sept 2019 Milan, Italy

- Support to students in solving laboratory and programming exercises with development environments in C language. Course delivered to the Bachelor's Degree in Management Engineering

PROJECTS

BRIDGe

Lyotech S.R.L. (Politecnico di Milano Spin-off)

Oct. 2020 - Ongoing Milan, Italy

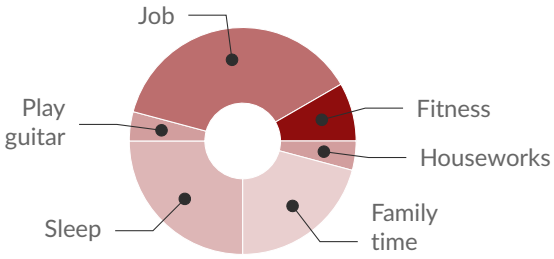
BRIDGe (Behaviour dRift detection and compensation for autonomous and InDependent livinG) is a solution that supports the autonomy and independence of the person by monitoring the person's daily activities in a non-intrusive way without interfering with the person's lifestyle, while fully respecting the privacy and well-being of the monitored person. BRIDGe allows to detect and estimate the location of the person in the various rooms, his presence in the house or in specific parts of the house (e.g. in bed), daily activities and any abnormal behavior. The caregiver can view the status of the home (open / closed doors, household appliances consumption) and of the person on a Web application, with customized statistics and reports and receive notification of anomalies through a mobile application. My contribution lies in the design and development of the mobile application and everything concerning the interaction with the remote system for the analysis of user data.

WHAy

Lyotech S.R.L. (Politecnico di Milano Spin-off)

Oct. 2019 - Ongoing Milan, Italy

A DAY OF MY LIFE



EDUCATION

Statal Exam for Regulation and Licensure in Information Technology Engineering

Bicocca University

Nov 2018 Milan, Italy

M.Sc. in Computer Science and Engineering

Politecnico di Milano

Mar 2012 – July 2015 Milan, Italy

Thesis: Development of a portable Auditory P300-based Brain-Computer Interface for yes-no communication to Amyotrophic Lateral Sclerosis

B.Sc. in Telecommunication Engineering

Politecnico di Milano

Sept 2008 – Feb 2012 Milan, Italy

ACHIEVEMENTS

PriSLA - Degree and Research Award on ALS

Bocconi University

2016 Milan, Italy

PriSLA - Degree and Research Award on ALS in memory of Dr.Giovanni Longoni. Issued by Bocconi University Milan

WHAY (WHere Are You) allows you to locate residents and operators in real time, send alarms in case of removal or border violations, provide information and reports on the state of well-being of patients. Operators and doctors can view personalized statistics and reports on the progress of personal parameters – both on real-time data and on historical data. Operators can receive notifications and alarms through a mobile application and can fill in diaries and questionnaires to provide useful information for assessing the well-being of the person. My contribution lies in the design and development of the mobile application and everything concerning the interaction with the remote system.

MEP (Maps for Easy Paths)

Politecnico di Milano

Oct. 2015 - Sept. 2020 Milan, Italy

- MEP is a Polisocial project (a program of commitment and social responsibility) of the Politecnico di Milano, which aims to develop a set of innovative tools and solutions for the enrichment of geographical maps with information relating to urban pedestrian accessibility for people with mobility problems. My contribution to the project was to design and develop the entire IT infrastructure and to collaborate with the other departments of the Politecnico di Milano, associations, municipalities and schools for the mapping campaign in order to unify the know-how for the realization of the system, following the students of the fifth year of the Master's Degree in Computer Engineering who have contributed to some study pieces of the project with their degree theses. The operational phase was the creation of the remote Unix server with the design of the PostgreSQL database with PostGIS extension, the implementation of the frameworks necessary for the implementation of the APIs that interface with the remote devices, the implementation of the computing and machine learning algorithms and their execution in real-time, and finally the design and development of mobile apps used by users.

ALMA

SUPSI (Switzerland), Politecnico di Milano (Italy), Infosolution SpA (Italy), VCA Technology Ltd. (United Kingdom), Social Institutes of Chiasso (Switzerland), Clinica Hildebrand (Switzerland), University of Wuerzburg (Germany), Degonda SA (Switzerland)

Oct. 2015 - Sept. 2017

ALMA (Ageing without Losing Mobility and Autonomy) is an international project. Among the difficulties that old age and disability impose on people, those related to mobility have a particularly high impact on the quality of life and psychological well-being. The ALMA project addresses the problem of not being able to move independently or effectively by combining a set of advanced hardware and software technologies in an integrated and modular system consisting of:

- an indoor location system based on a low-cost / low-power RF emitter network, to provide room-level location of people and objects;
- an ad hoc autonomous hw / sw system based on networked smart cameras that provides accurate internal and external location and monitoring of the environment;
- an intelligent system for online planning of users' journeys according to their specific needs, matching them to the real state of the environment and available resources;

PROFESSIONAL CERTIFICATIONS

Enrollment in the Italian Professional Order of Engineers

Order of Engineers of the Provinc eof Novara

Jan. 2019 Novara, Italy

License n.: 2415/A
Certification: `https://areariservata.tuttoingegnere.it/PortaleCNI/it/albounico.wp?internalServletFrameDest=0&internalServletActionPath=/ExtStr2/do/ricercaRegistro/dettaglio.action&idDettaglio=EMANUELEOPNA.DEBERNARDI.NO2415`

REFEREES

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Via Francesco Anzani, 42, Como, Italy

- a personal mobility kit for electric wheelchairs that allows them to perform automatic or assisted navigation and, in addition, to interact with their surroundings;
- a personal navigation assistant with an intuitive interface for all system functionality, tailored to specific user requirements and physical limitations (e.g. voice and tactile interfaces, ad hoc devices).

My contribution in the project was to implement the personal navigation assistant on mobile devices with ad hoc voice and tactile interaction.

STELE: P300 wave based Brain Computer Interface (BCI)

Politecnico di Milano and InfoSolutions SPA

Oct. 2015 - Sept. 2018 Milan, Italy

Project based on BCI (Brain Computer Interface) of the Politecnico di Milano in collaboration with the University of Padua (Italy) and Infosolution Spa (Italy). My contribution to the project starts from my M.Sc. thesis with the design of a mobile acoustic BCI interface able to allow communication through a binary neural stimulation with acoustic signals sent via headphones to a patient suffering from amyotrophic lateral sclerosis (ALS) using the EBNeuro sensor technology. The next phase of research was to replace the EBNeuro architecture with the EMOTIV EPOC+ helmet to make the system smarter.

PUBLICATIONS

Books

- Comai, S.; De Bernardi, E.; Salice, F.; Vali, A, *Maps for Easy Paths (MEP): a Mobile Application for City Accessibility*. EAI/Springer Innovations in Communication and Computing, p.105-125.
- Comai, S.; De Bernardi, E.; Masciadri, A.; Matteucci, M.; Salice, F.; Veronese, F., *ALMA: An Indoor Localization and Navigation System for the Elderly*. 3rd EAI International Conference on Smart Objects and Technologies for Social Good, 2017, Pisa.

Journal Articles

- Comai, S.; De Bernardi, E.; Masciadri, A.; Salice, F., *MEP CROWD: Improving Mobility of Users with Data and Images of High Quality*. pp.78-79. In TECHNOLOGY AND DISABILITY - ISSN:1055-4181 vol. 31.
- Comai, S.; De Bernardi, E.; Matteucci, M.; Salice, F., 2017 *Maps for Easy Paths (MEP): Accessible Paths Tracking and Reconstruction*. EAI Endorsered Transactions On Internet Of Things, p. 1-10.

Conference Proceedings

- Comai, S.; De Bernardi, E.; Matteucci, M., Salice, F., *Maps for easy paths (MEP): Enriching maps with accessible paths using MEP traces*. 2nd EAI International Conference on Smart Objects and Technologies for Social Good, 2016, Venezia.

De Bernardi Emanuele Opna
Ordine degli Ingegneri della Provincia di Novara
Ingegnere