Curriculum vitae

Personal Information

Name	**Gioel Asuni**
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Nationality	Italian
Date of Birth	15.02.1971
Gender	Male

About

I'm graduated in **Computer Science** from the *University of Pisa* with specialisation in Computational Intelligence and Knowledge-based Systems and
I've got a **Ph.D. in Robotics** at the *Sant'Anna School of Advanced Studies* with a thesis on **Machine Learning**.

I dealt with various fields of application and from time to time I had to learn new technologies, new frameworks, new programming languages that helped me to solve various problems and achieve the goals in the best possible way.

I have a strong knowledge of mathematics and statistics theory and of course on the different machine learning models.
Moreover I have the ability to learn new technologies quickly and, above all, I enjoy to work on complex problems that require the use of machine learning models.

During my PhD I designed and developed a model to achieve efficient visuo-motor coordination in real-world environment by applying the Expected Perception (EP) based strategy.
The anthropomorphic robotic system used was very complex to not allow a classical solution. The goal was achieved by using a set of neural networks that, through a training phase, learned vary complex functions (such as *kinematic inversion*, *trajectory generation* and *sensory prediction*) needed to solve the various tasks.
This model was then *patented by Toyota Motor*.

Professional experiences

Last two of my works related to machine learning are not present because they are still under the NDA, but I will be able to mention them during the possible interview.

PROJECT	iOS app for AED localization
Period	02/2019 - 07/2019
For	RCP PLANET
Practices & Tools	Xcode, SQLite, Gimp, Inkscape (Software design and development)
Description of the activity carried out	Building of an iOS app for the localization of AED (Automated External Defibrillator) distributed over the territory, with update functions, phone calls, etc.

PROJECT	Building of a web app to coordinate some car rental activities
Period	05/2018 - 07/2018
For	Hertz
Practices & Tools	MySQL, Bootstrap 3, Javascript, JQuery (Software design and development)
Description of the activity carried out	Development of a web app to coordinate the cars available, delivered, returned and washed (link to the demo: http://igioel.com/db/Autonoleggio).

PROJECT	Server configuration and iOS app development for home automation
Period	07/2017 - 02/2018
For	Manfreditalia
Practices & Tools	Linux, Apache, Python, Raspberry (Installation, configuration and software development)
Description of the activity carried out	Server configuration to receive commands from the iPhone and send them to the Raspberry pi. Implementation iOS app for communication with the server (sending commands for control and receive home informations like switching lights, temperature control etc).

PROJECT	IOS App Development for the sale of robotic systems (axis, motor and gearbox)
Period	03/2016 - 04/2017
For	Schneider Electric
Practices & Tools	Xcode, SQLite, Gimp, Inkscape (Software design, development and testing)
Description of the activity carried out	Design of a database (SQLite) for the storage of components, implementation of complex formulas for the calculation of the robotic system sizing, for the generation of the type-code and for the calculation of the price. Implementation of the application for iPhone and iPad with multilingual support. (project slides: http://igioel.com/app/SE).

PROJECT	EC2 Server Configuration
Period	02/2016 - 03/2016
For	Curtis Hagen
Practices & Tools	Linux, Apache, EC2 Amazon (Software installation, configuration and testing)
Description of the activity carried out	Configuration of Http server (Apache) and mail server and migration of php code from Slicehost server.

PROJECT	Creation of php/javascript script for advertising notices and a spelling checker
Period	09/2015 - 11/2015
For	Curtis Hagen
Practices & Tools	Linux, Apache, Php, Javascript (Software design and development)
Description of the activity carried out	Creation of a script written in javascript for automatic correction of comments entered by users on the Ning platform. Creation of a script written in javascript for the automatic injection of Ads within the site generated by the Ning platform.

PROJECT	Building of php tools for the automatic management of job applications/ offers
Period	02/2015 - 05/2015

For	Curtis Hagen
Practices & Tools	Linux, Apache, Mail Server, Php, MySql, Javascript (Software design and development).
Description of the activity carried out	Building of a php tool with a MySql database for managing job offers. The tool allows you to generate javascript forms and then insert them on the site. The requests of the users are then stored on the server that sends some email to some companies with the possibility of accepting or not the applications, anti-spam verification and email notifications.
PROJECT	Building of a calendar for the calculation of work shifts
Period	10/2014 - 12/2014
For	Curtis Hagen
Practices & Tools	Linux, Apache, Javascript, JQuery (Software design and development)
Description of the activity carried out	Development of a calendar (Hitch Calendar) for the calculation of work shifts with the addition of holidays. Once you have created your own calendar you can print directly from the browser (link to the website: https://www.roughneckcity.com/oilfield-hitch-calendar).

PROJECT	IT Consultant Jobs
Period	05/2007 - 12/2014
For	Patrick Parks
Practices & Tools	C, C++, PHP, Apache, MySQL, Javascript, XML, JQuery.
Description of the activity carried out	• APL 2000: added new feature to allocate memory blocks more efficiently, added other minor features and fix some bugs on APLGRID reported by customers. • Coaching Site: Design and implementation of a site for coaches using a big MySQL database. • Implementation on dynamic XML menu/buttons with animations using Javascript. • Javascript pdf creator: script for creating PDF files containing images of the active page in the browser window. • Scheduling algorithm: implementation an algorithm that shares the CPU fairly without starving any priority but making high priority jobs run substantially faster than low priority jobs. • Algorithm for estimating the remaining time to finish the PDF file creation using a Neural Network.

PROJECT	ExPer (Expected Perception)

Period	01/2003 - 03/2006
For	TOYOTA MOTOR ENGINEERING & MANUFACTURING EUROPE
Practices & Tools	C, C++, C#, Visual Studio. Anthropomorphic robotic platform consisting of Robotic Head, Arm and Hand. Software design and development and testing.
Description of the activity carried out	The objective of ExPer project was to achieve efficient visuo-motor coordination in real-world environment by applying the Expected Perception (EP) based strategy. The anthropomorphic robotic system used was very complex to not allow a classical solution. A sensory-motor coordination scheme for a robotic hand-arm-head system that provides the robot with the capability to reach for and to grasp an object has been implemented. The model was implemented by: • self-organising neural maps which are able to grow preserving topological relations according to the kinematics properties of the robot structure. • neuro-fuzzy networks allows to build the internal model required for the robot, which calculates the position and orientation of the hand for grasping, selects the best-suited hand configuration, and predicts the tactile feedback after grasping, starting from visual data. The goal was achieved by using a set of neural networks that, through a training phase, learned the complex functions needed to solve the various tasks.

Thesis	A neuro-controller for robotic manipulators based on biologically-inspired visuomotor coordination neural models
Period	01/2002 - 06/2002
Practices & Tools	C, C++, C#, Visual Studio. DEXTER anthropomorphic robotic arm and PUMA560 manipulator. Software design, development and testing

Description of the activity carried out	The aim of my thesis work is to design, implementation and realisation of a neural controller for generation and control of the movements of the joints of a manipulator. The generation of the trajectories of the single joints does not make use of classical techniques borrowed from the control theory (inverse kinematics). The only information available to the system was in the number of the joints of the reference manipulator, together with their range of variability, and in a proprioceptive feedback deriving from the knowledge of the value of the joint angles. The model of visual-motor coordination proposed has been implemented with a combination of supervised and unsupervised neural networks. The experimental setup consisted of chain simulators 2D and 3D kinematics, by two robots: the PUMA560 and the DEXTER and by an artificial vision system. The neural model has been shown to control real different complex robotic systems with a comparable performance producing no modifications neither in the model nor in the learning equations. This model was published in the Book: *Handbook of neural engineering.*
PROJECT	Building various iOS apps
Period	03/2013 - Present
Practices & Tools	Xcode, SQLite, Gimp, Inkscape, Android Studio (Software design and development)
Description of the activity carried out	Building iOS apps: http://igioel.com/app/ Building Android app: http://igioel.com/app/android/HitchCalendar/

Organisational skills

- Consulting staff from different parts of a client's organisation
- Analysing an organisation’s data
- Determining information system requirements and defining project objectives
- Making recommendations, such as suggesting appropriate software and systems
- Designing, installing and trialling new systems and software, and fixing any issues that arise

Job-related skills

- Analytical and technical skills
- Meticulous approach to work
- Attention to detail
- Capable of meeting high standards
- Good problem-solving skills
- Effective time management skills to meet deadlines

Education

Degree of study

MSc, Computer Science
Degree address: Double Major: Computational Intelligence and Knowledge-based Systems
Year**:** 2002
Graduation grade**:** 108/110
University of Pisa, Pisa (Italy)
Thesis Title**:** "*A neuro-controller for robotic manipulators based on biologically-inspired visuomotor coordination neural models* "

PhD, Bioengineering, Materials Engineering and Robotics
Year**:** 2006
University of Genova, Genova (Italy)
Thesis Title**:** "*Bio-Inspired Neural Sensory-Motor Coordination Schemes For Robot Reaching, Preshaping and Grasping*"

Publications

Patent

Gioel Asuni - Inventor: **Japan Patent 2007-245326**
Konosu Hitoshi, Ota Yasuhiro, Paolo Dario, Cecilia Laschi, Eugenio Guglielmelli, Zbigniew Wasik, Edoardo Datteri, Gioel Asuni, Maria Chiara Carrozza, Giancarlo Teti:*Robot, and robot control method*. Toyota Motor September 2007

Book

Chapter 26. *Neurocontroller for Robot Arms Based on Biologically Inspired Visuomotor Coordination Neural Models*
Book: Handbook of neural engineering edited by Metin Akay. Wiley.

Seminar

A Bio-Inspired Sensory-Motor Neural Model for a Neuro-Robotic Manipulation Platform

Journal

Cecilia Laschi, Gioel Asuni, Eugenio Guglielmelli, Giancarlo Teti, Roland S. Johansson, Hitoshi Konosu, Zbigniew Wasik, Maria Chiara Carrozza,Paolo Dario:
A bio-inspired predictive sensory-motor coordination scheme for robot reaching and preshaping. **Auton. Robots 25**(1-2): 85-101 (2008)

Conferences

Gioel Asuni, Giancarlo Teti, Cecilia Laschi, Eugenio Guglielmelli, Paolo Dario:
Extension to End-effector Position and Orientation Control of a Learning-based Neurocontroller for a Humanoid Arm. IROS 2006: 4151-4156

Conferences

Gioel Asuni, Giancarlo Teti, Cecilia Laschi, Eugenio Guglielmelli, Paolo Dario: A Robotic Head Neuro-controller Based on Biologically-Inspired Neural Models. ICRA 2005: 2362-2367

Conferences

Edoardo Datteri, Gioel Asuni, Giancarlo Teti, Cecilia Laschi, Paolo Dario, Eugenio Guglielmelli: Experimental analysis of the conditions of applicability of a robot sensorimotor coordination scheme based on expected perception. IROS 2004: 1311-1316