RESEARCH ASSOCIATE IN COMPONENT ANALYSIS LABORATORY

Professional Summary

I am seeking to continue in the world of robotics, automation and computer science, developing innovative systems, where it is necessary to start from scratch. At the same time I want to increase my knowledge, and advance in my international career.

Core Qualifications

- Automation (PLC, SCADA, HMI, IEC 61131-3)
- Switch gears (servos, drivers...)
- Robotics (LIDAR, IR, CAMS)
- Computer programming (C++, .NET, Java)
- Networks (CCNA)
- Computer vision (OpenCV)

Experience

Research Associate in Component Analysis Laboratory
October 2011 to Current Carnegie Mellon University And General Motors ï¼ City , STATE

Funding: General Motors & CMU

- Head pose and Gaze estimation system for distraction classification (eyes off the road detection, drowsiness detection, looking at the dashboard or the lateral mirrors detection)

- General Motors: complete car vision system development

- Software and skills used: OKAO lib from Omron, Seeing Machines FaceAPI, Shore from Fraunhofer IIS, OpenCV, Matlab, AAM, SVM

- Supervisor : Dr.Fernando De la Torre

Robotics Laboratory Member
January 2011 to October 2011 UC3M Robotics ï¼ City , STATE

- ABB manipulator programming

- Worked on RH1 and RH2 humanoids robots

- CV, OpenCV

Project Manager and System designer
January 2008 to January 2011 Integracion Y Tecnologia ï¼ City , STATE

- Robotics, Networks, PLC, SCADA, C++

- Automation projects for diverse robotic and automation enterprises (software prog. and hardware design)

- Industrial automation for big process (WWTP, PVPPs, industrial plants)

Industrial Engineer and Project Manager
January 2004 to January 2008 O.Automatizacion Industrial ï¼ City , STATE

- PLC, SCADA, C++, VB, Switchgear

- Automation projects for numerous industrial companies

- PLC/SCADA system development

- Custom machines (software programming and hardware design)

- CCTV, security systems, fire protective systems.

- Home and Industrial automation developments (Konex, EIB)

- PLC and computer networks and wireless communications for industrial systems

Computer Programmer and Project Manager
January 2003 to January 2004 Montajes Ortiz S.L. ï¼ City , STATE

- EOD robots, VB, PLC, SCADA

- EOD robot development (Explosive Ordnance Disposal), Panasonic PLC, Visual Basic control program

- PLC and SCADA programming for automation projects

Software Analyst and Computer Programmer
January 2002 to January 2003 Infogroup / Sermalogic / Winterthur Ibrica AEIE ï¼ City , STATE

- C++, Cisco,HP

- Intranet and computer structures testing and implementation

- Computer and network migrations

Web Developer and Network Engineer
January 1999 to January 2002 CS Freelance ï¼ City , STATE

- JAVA, CSS, Dreamweaver, WiMax

- Maintained existing websites; Implemented new functionalities

- Conducted the migration of old Web Servers

- Wireless node installations, special antenna construction

Autocad Drawing Developer
January 1997 to January 1999 Alcatel ï¼ City , STATE

- Electric drawings for GSM/GPRS radio systems.

Education
M.S : Robotics , 2013 Carnegie Mellon University ï¼ City , State , USA

Current M.S. candidate, Master in Robotics, 2012-Present

Advisor: Dr. Fernando De La Torre Frade

Area of Study: Computer Vision

Master of Science : Master in Robotics and Automation , 2012 Universidad Carlos III ï¼ City , State , Spain

Thesis Topic: Gaze tracking for car drivers + DIY Robots

Advisor: Dr. Concepcin Alicia Monje Micharet and Dr. Carlos Balaguer

Area of Study: Robotics and automation

Master of Science : M.S., Computer Engineering , 2005 Universidad Europea de Madrid ï¼ City , State , Spain

Honors in final project. â€œWiFi access point automatic finderâ€ 10 (10.0 scale)

Artificial Intelligence specialization

Bachelor of Science : Computer Management , 2002 Universidad Europea de Madrid ï¼ City , State , Spain

I.T Informtica de Gestin, Database specialization

Ph.D. : Automation and Robotics Universidad Carlos III ï¼ City , State , Spain

Current Ph.D candidate in Electrical and Automation Engineering

Advisor: Dr. Concepcino Alicia Monje Micharet

Area of Study: Automation and Electronics

Bachelor of Science : Electrical Engineering UNED ï¼ City , State , Spain

Currently in fourth year. Industrial automation specialization

Automation and programming projects

- Solar panel cleaner (8 wheel truck). HMI in the truck's cockpit, Panasonic FPX controller to control the 2 arms, and the water guns (Voith Turbo)

- Automated warehouse, remote control PC, PLC and touch screen. Development of control programs in Visual Basic and C + + (Marialum ,2006-2009, OAI)

- Automated asphalt paver: Programation and design. PLC/HMI... (2009 Maquiasfalt)

- Plantaforest tractor: Automatic machine for planting trees (Matsushita)

- Water purification systems: EDAR, ETAP for Canal de Isabel II (Siemens S7-400, Allen Bradley Control Logix, Omron), SCADA programming, electric diagrams (FCC, Dragados, Befesa)

- Solar tracker development. Advanced PLC control, control of position with encoders or inclinometers, GPS UTC updates, CIEMAT equations for positioning, communications with the control center via GSM/GPRS, management and configuration with a PC or HMI

- Automated cremation system. PLC control, temperature controllers, network analyzer, GSM system, SCADA (Atroesa)

- Industrial automation for lighting: Panasonic PLC, Beijer screen 15â€, Carlo Gavazzi network analyzer, distributed I/O Dupline for signs of brightness and light output of lamps. The system reduces consumption by 60% since it detects the passage of trucks and people in the corridors and industrial building sectors. Control over the Internet, tracing Kw/h using graphs. (Lanzini-Prilux, 2007, OAI)

- Remote control system for internet, email and Touch of air conditioning systems (alarm warning, maintaining temperature ...) (2007, OAI)

- Automatic irrigation system using embedded electronics (2006, OAI)

- Automatic cutting system servomotors and drivers (2006, OAI)

- Lead molder (Engre S.A.): Control system of the whole process of a production of lead bullion (EXTER touch screens, Panasonic PLCs) (2005, OAI)

- Pneumatic-hydraulic manufacture machine for blades construction, screen and PLC (Chaysol)

- Automatic mobile cranes, for material transportation and loading (Bralo). Touch screen control with wireless controllers. Remote control from Intranet ... (2005- 2006, OAI)

- Laser cutting system. PLC programming, touch screen. (2005, OAI)

- Programming and development of hoists and lifts (IZA-1500, PAX): Complete system: drives, motors, gears, parachutes, Siemens, Panasonic PLC, touch screens, sound system, distributed bus Dupline, (Encomat, 2005-2007, OAI)

- Wireless data logging system in industrial environments: Air Liquide (Elpro, Modbus), Canal Isabel II (2004-2006, MO)

- PIC/ARM developments: MP3 embedded system, wireless, I/O programming in C, Pascal). (2004-2006, MO-OAI)

Robotics projects

- Explosive Ordnance Disposal robot. Remotely controlled robot (400Mhz Radio Modem and WiMAX). Operation modes: PC, PDA, Joystick, automatic surveillance mode. Hardware: ARM + PLC + PC, IR cameras, manipulator, disruptor

- ABB Manipulators programming. UC3M 2011

- Custom design CNC-robot, for cutting sawtooths in a metal piece (OAI 2010)

Educational projects

- 2012 Carnegie Mellon University Mobot Winner. Automatic line follower, Cortex M3 and Pololu sensors. Team: Pimientos Verdes

- Computer engineering final project: Wireless access point locator. 2,4Ghz. Antenna positioning, AP location, wireless field meter, SWR, VSWR, stepper motors. C++, C#

- Homemade remote manipulator, 4DOF, controlled by a haptic display and a C# program. Kinematic system shown in a Canvas graphic environment using Robotic toolbox. Wiimote and Kinect controlled

- Caterpillar DIY robot. SLAM and particle filter. Wiimote control. Ultrasound sensors for obstacle avoidance system Line follower, controlled by a 2,4Ghz RF remote, and a HMI Servo-controlled head/body tracker, programmed with CVBlob and OpenCV

- UAV Quadcopter/ Octocopter with automatic waypoint navigation, auto stabilization,collision avoidance, GPS positioning, remote ground control â€¦

- University ADA-95 practices controller (made in Java and C++, JCup JLex)

- Search Engine with Artificial Intelligence (ADA web browser, IA, stoplist, steaming,weight vectors ...)

- Sorter with IA (made with ILOG motor, 2 nd generation architecture)

- Shortest path searcher (programming language: Prolog, Lisp and Java)

- Mail client (Java, Using JavaMail, Managing appointments, Threads, customer management server)

- Application of a dental clinic (JDBC connection with Oracle database, creation, destruction and modification, SQL)

- HTML Browser (ADA-95, common tags display, HTML error handling ...)

Skills

Automation/Robotics system design:

- PLCs and SCADAs programming for several automation and robotics processes

- Brands and programs used (PLC, SCADA, Switchgear, inverters, motors):

* Panasonic Nais Matsushita: FP series, FPWINPRO, FPWINGR

* Allen Bradley: Control and Micro Logix

* Siemens S7 series, Step7, SCADA WinCC

* Telemecanique Quantum, Momentum

* Omron: CX One, CJ

* Crouzet: ClsM3, Millenium, Motomate

* Carlo Gavazzi: Inverters, encoders, Domotic systems: Dupline

* Other software: GOP, ADP3, ABB robotStudio, Hitech designer. Matrox inspector, Mach3, Kcam4

* Other brands: ABB, Pilz, Hager, Circutor, Fanox, Elion, Turk, Nais, Simon, Mean Well, Moeller, Fatek, Vacon, Phoenix contact, Lenze

- Computer-Aided Design Tools: OrCAD, Kicad, multisim

Embedded and Real-time Systems:

- Software and hardware development with several MCU and DSP platforms (e.g., ARM Cortex, Atmel,ATmega MCU's, Microchip PIC MCU's, Arduino, Basic Stampand others)

- 4D Workshop, Coocox, Keil, Arduino IDE, Eclipse

Instrumentation, Control, Data Acquisition, Test, and Measurement:

- FPWINPRO data acquisition software, generic PLC tailor-made adquisition systems, Simulink, LabVIEW

Computer Programming:

- IEC 61131-3, C, C++, .NET, Java, ADA, Pascal, Prolog, PHP, VHDL, JSP AJAX, RAPID, Lisp, SQL, MySQL, MATLAB.

- IDE: Eclipse, Visual Studio, QT, NetBeans, CodeBlocks, PCgrasp

Graphics and 3D design

- Catia, Autocad, 3DStudio, CorelDraw, Photoshop, Ilustrator

Software Design:

- Rational Rose, UML specific software, Ilog

Information/Internet Technology:

- Networking (UDP, TCP, ARP, DNS, Dynamic routing), Services (Apache, SQL, POP, IMAP, SMTP)

Productivity Applications:

- TEX (LATEX, BIBTEX), most common productivity packages (for Windows, and Linux platforms)

Operating Systems:

- Microsoft Windows family, Linux, and UNIX variants

Publications

[1] Ortiz-Villajos, Julio., Monje, Concepcin., Balaguer, Carlos., The International Journal of education [DIY Robots and Affordable Controllers], 2011.

[2] Ortiz-Villajos, Julio., De la Torre, Fernando., Huang, Dong., Xiong, Xuehan., Xie Pengtao., CMU Technical report for General Motors gaze project. GM research & development center 450-027 [Driver Gaze Tracking], May 2012.

Languages

- Spanish (native)

- English (advanced speaking and writing)

Courses

2000

One-year course in computer graphics (Autocad, 3DStudio, Corel, Photoshop UEM)

2003

Course in occupational risk management (20h).

Moeller switchgear course (20h)

2004

PLC Advanced Course in machine vision, Panasonic (20h)

Profibus and Siemens PLC course in explosive atmospheres (15h)

2005

AKO switchgear Course (converters, cable-heating ...) (10h)

Course in Vacon driver's setup and programming (50h)

Phoenix Contact PLC course (20h)

PLC Moeller courses (20h)

2006

Home automation course, Dupline, Simon (15h)

Artificial Vision course VIPA (15h)

BT, RF radio link course, Phoenix Contact. (20h)

2007

Safety barriers and laser (15h)

Radio links course (20h)

Dreamweaver course. CNC Institute (20h)

Graphic design with Freehand course. CNC Institute (20h)

CIEMAT solar tracking course (19h)

Allen Bradley PLC course (20h)

Course in SMEs. CNC Institute (20h)

Training course on ICT for SME managers. CNC Institute (20h)

2008

NET Visual Basic Course, ADO, SQL. Centro formacin (140h)

Adobe Indesign Course. Centro formacin (40h)

General Mechanics Course Emagister (60h)

Windows Server 2003 Administration Course Forgarben (20h)

2009

Residential electricity course. Emagister (60h)

Industrial processes course. Emagister (60h)

Industrial engines course. Emagister (20h)

XML web development course. Garben. (20h)

Flash MX course. Garben (20h)

2010

Visual Basic NET course. Gesfor. (22h)

WIMAX course. IBM (15h)

PHP and MYSQL course. CEIM (25h)

Networking and rules in the telecommunications market. CEIM (20h)

Security works with electricity.IFI (25h)

Autocad Course. ADAMS (65h)

Teamwork Training course. MSL(45h)

Security concepts for Industrial Machines. IFI (1 week)

AJAX: Asynchronous JavaScript + XML 129- Sunion Gesfor. (25h)

J2EE, Web Development JSF, Spring. CEIM (40h)

Catia V5R18 Course. Salesianos de Atocha. (60h)

Telematics Infrastructure Specialist Course. MSL (218h)

ASP Course. NET. Sunion Gesfor (22h)

J2EE 5 and EJB - Sunion Gesfor (20h)

Visual Basic. NET course. Sunion Gesfor (20h)

Management and telecommunications technologies course. CEIM (30h)

HTML course. ISEE (30h)

LOPD course ADAMS (30h)

Deputy direction course. Sunion Gesfor (120h)

2011

Cisco Security. MSL (220h)

Java programmer. Elogos (240h)

CCNA Implenting Cisco Quality of Service (CSCO11922393)

CCNA Cisco Voice over IP (CSCO11922393)

Safety in electricity works. Centroformacion (40h)

Total Quality. Centroformacion (110h)

WLAN Security. IBM (30h)

2012

Software Engineering for Software as a Service (coursera)

Building a search engine (Udacity)

Programming a robotic car (Udacity)

Machine learning (coursera)

Computer vision (coursera)

2013

Computer vision (2013 RI MD class, CMU)

Sensing and sensors(2013 RI MD class, CMU)

More information

More information and auxiliary documents (professional projects videos) can be found at

http://goo.gl/d7NaA

CMU Robotics Institute personal web page:

http://www.ri.cmu.edu/person.html?person id=2819

CMU School of computer science personal web page:

http://people.cs.cmu.edu/Person/3064

CMU Human Sensing / Component Analysis Lab:

http://ca.cs.cmu.edu/people.html