Europass Curriculum Vitae

Personal information

Surname(s) / First name(s)	**Polo Alessandro**
Address	omitted
Mobile	omitted
E-mail(s)	contact@alessandropolo.name
Nationality	Italian
Date of birth	04/08/1981
Gender	Male

Desired employment / Occupational field

Software architect, Research Area Manager

Work experience

Dates	01/2010 - 11/2011
Occupation or position held	Software Developer
Main activities and responsibilities	Freelance developer (mainly C++, C#, Java, Web sites and applications). Design and management (B2B, B2C) of Second Life products (virtual products based on advanced scripting and animation engine).
Dates	03/2009 - 08/2009
Occupation or position held	Senior Software Developer (geo-routing, VANET)
Main activities and responsibilities	This activity covers the conclusion (release) of SINTECH Router (part of SAFESPOT/SP3, see http://www.safespot-eu.org), in particular I added some new requested features and I implemented the Stored Geocast routing module (making it the first ever VANET router with geo-routing support). I also designed an experimental geo-routing module based on an unconventional paradigm: move almost whole decision process about delivery (as forward, store, ignore) to the receiver side (neighbour) instead of the sender. The underlying idea is that the potential forwarder has better knowledge of parameters involved in decision (such as direction, ability to deliver/forward) and that the network cost of this approach is little or at most equal to standard forwarding methods. This algorithm was tested only in laboratory, but the official module was used on road in many SAFESPOT presentations around Europe.
Name and address of employer	Department of Information Engineering and Computer Science (DISI) - University of Trento; FIAT Research Center (CRF) Via Sommarive, 5, I-38123 Povo (TN) (Italy)
Type of business or sector	University - Research Laboratory
Dates	02/2008 - 06/2008
Occupation or position held	Senior Software Developer (networking, routing, VANET)
Main activities and responsibilities	This activity is part of SAFESPOT - SP3 - SINTECH sub-project (http://www.safespot-eu.org) and was hosted by FIAT Research Center, it regards the design of ad hoc dynamic vehicle-to-vehicle infrastructure network. My contributions are the implementation of the router software, the cooperation with architecture design and partners technical assistance. The router is at the 3-7 levels in the ISO-OSI model, but it also interacts with third-party components such as data-fusion server (by Bosch), LDM server (by NAVTEQ), Congestion Control module (by CNRS), vehicle user interface (by CRF). Our team also coordinates the hardware and on-vehicle setup. Router software runs on an (Linux) ATX with an 802.11p WiFi-module (prototype from NEC).

	Most relevant (implemented) features of Sintech Router are: - Gateway services (such as vehicle information cache) - Remote control and local vehicle network protocols - Advanced beaconing (dynamic rate, payload) and neighbours management - Multiple message formats (emergency, periodic messages) - Single and multi-hop routing, dynamic fields with optimized encoding in payloads - Multiple channel and congestion control support
Name and address of employer	Department of Information Engineering and Computer Science (DISI) - University of Trento; FIAT Research Center (CRF) Via Sommarive, 5, I-38123 Povo (TN) (Italy)
Type of business or sector	University - Research Laboratory
Dates	02/2007 - 07/2007
Occupation or position held	Senior Software Developer (logistic, remoting, mobile)
Main activities and responsibilities	The project, hosted by FIAT Research Center (Trento branch), aims to automate the activities of Trento's freight yard, in particular management and tracking of incoming/outgoing goods. The paradigm is based on single-server/multi-client based on Web Services communication. My activity consists in the development of two clients with respect to consumer's requirements, the most complex client application is an interactive desktop application (for offices), coded in C# .NET 2.0, designed to manage (CRUD) and monitor orders and goods, it also provides an interactive 2D (realistic) view of the goods station (with user friendly drag-and-drop). The other (mobile) client runs on a PDA Windows CE 4.1 and is coded in C# .NET CF 1.0, it is designed for station and crane operators. I also contributed to the architecture and network protocol design, although the ASP.NET server has been developed at IT department of CRF base (Turin).
Name and address of employer	Department of Information Engineering and Computer Science (DISI) - University of Trento; FIAT Research Center (CRF) Via Sommarive, 5, I-38123 Povo (TN) (Italy)
Type of business or sector	University - Research Laboratory
Dates	11/2006 - 01/2007
Occupation or position held	Software Architect (Web2.0)
Main activities and responsibilities	Design and development of a custom Content Management System (CMS) for students and internal research projects of ELEDIA Research Center (and its teaching courses). Main features of the implemented web application follows: - Web 2.0 (PHP, AJAX, DOM) - Multi-role, multi-user access - XML based (XSD schema validation, XSLT rendering to HTML,TXT,XML,DOC,PDF) - Project's diary and attachments support, deadline monitoring - Backup/restore
Name and address of employer	Department of Information Engineering and Computer Science (DISI) - University of Trento Via Sommarive, 5, I-38123 Povo (TN) (Italy)
Type of business or sector	University - Research Laboratory
Dates	04/2006 - 08/2006
Occupation or position held	Server Administration and Software Developer
Main activities and responsibilities	The activity consists in setting up a server for mmLab group (teachers, researchers, students). Following services have been configured (on a Linux Debian): - Web, FTP Server (setup, layout, security) - PAM, SSH (SFTP) (setup, security, accounting) - Subversion (layout, server, web interface, news publication, accounting) - mmLab Website (PHP5, multi-user and multi-role, server, teaching, research-projects administration areas, public access) Moreover I provided support for the VIPLib project, which has been used by students and researchers. VIPLib, previously named VETLib, is an imaging and video processing framework (see 'Additional Information' section).
Name and address of employer	Department of Information Engineering and Computer Science (DISI) - University of Trento Via Sommarive, 5, I-38123 Povo (TN) (Italy)

Type of business or sector	University - Research Laboratory

Education and training

Dates	04/2006 - 10/2012
Title of qualification awarded	Master of Science in Telecommunications Engineering [106/110]
Principal subjects / occupational skills covered	The Master of Science (M.S.) in Telecommunications Engineering (Laurea Magistrale in Ingegneria delle Telecomunicazioni) includes all the essential subjects that are usually required by ICT companies. While the three-year Bachelor in Electronics and Telecommunications is mostly focused on basic engineering topics, the purpose of the M.S. program is to create professionals able to use state-of-the-art technologies in both industrial and research environments. The M.S. in Telecommunications Engineering offers specializations in Multimedia Communication, Networking, Electromagnetic Technologies, Electronics and Pattern Recognition/Remote Sensing. Most classes include laboratory sessions in order to give students not only a sound theoretical background, but also practical skills.
Name and type of organisation providing education and training	University of Trento - Italy, Faculty of Engineering (University) Via Mesiano, 77, 38100 Povo (Trento) (Italy)
Level in national or international classification	ISCED 5

Dates	09/1999 - 2005
Title of qualification awarded	Bachelor's degree in Electronics and Telecommunications Engineering [93/110]
Principal subjects / occupational skills covered	The Bachelor Degree program (laurea di primo livello) in Electronics and Telecommunications Engineering covers essential disciplines in electronics, telecommunications and computer science. The courses usually include laboratory sessions in order to give students not only a sound theoretical background but also some practical skills.
Name and type of organisation providing education and training	University of Trento - Italy, Faculty of Engineering (University) Via Mesiano, 77, 38123 Povo (Trento) (Italy)
Level in national or international classification	ISCED 5A

Dates	09/1994 - 07/1999
Title of qualification awarded	High School Diploma [82/100] (Liceo Scientifico)
Principal subjects / occupational skills covered	Italian and English Literature, Philosophy, Math, Physics, Science
Name and type of organisation providing education and training	Liceo Ginnasio 'Antonio Rosmini' (College) Corso Bettini 86, 38068 Rovereto (TN) (Italy)
Level in national or international classification	ISCED 3A

Dates	01/11/2012 →
Title of qualification awarded	Doctorate, Ph.D.
Principal subjects / occupational skills covered	The PhD programme in electronics and telecommunications is academically linked to many areas, in particular I will focus on the following fields: - Wireless technologies, Design, Security - (Geo) Localization - Signal Processing - Data Mining, Pattern Recognition, Anomaly Detection - Project Management
Name and type of organisation providing education and training	Doctoral School in Information and Communication Technology (Doctoral School) Via Sommarive, 5, I-38123 Povo, Trento (Italy)
Level in national or international classification	ISCED 6

Personal skills and competences

Mother tongue(s) **Italian**

Other language(s)

Self-assessment	Understanding				Speaking				Writing	
European level (*)	Listening		Reading		Spoken interaction		Spoken production			
English	B1	Independent user	C1	Proficient user	B1	Independent user	B1	Independent user	B1	Independent user

(*) Common European Framework of Reference (CEF) level

Social skills and competences

Team spirit and teamwork ability, acquired during university studies and projects as SAFESPOT to my present. Actually, I'm member of ELEDIA Research Center which counts more than 20 researchers. Although, I have been also used to resolve problems and work on a whole project by myself.

Organisational skills and competences

Analytical, problem finding and problem solving skills, many experiences within software-based solutions from the abstract concept to the release.

Technical skills and competences

Basic hardware and electronic knowledge acquired during Engineering courses.

Advanced software development background and 20 years of experience.

Network Protocols and Standards:

- TCP/IP v4,v6
- 802.11a,b,g
- VANET: Car2Car, SAFESPOT
- Wireless Sensor Network
- RFID Networks

Design, installation and configuration of networks (wired and wireless), servers/gateway, router, access point, security/firewall, cables.

Computer skills and competences

Expert user and administrator of following platform and services:

- Microsoft Windows 9x, NT4, 2000, Server, XP, 2003 Server, Windows 7
- Microsoft Windows CE4.1, CE5.x, CE6.x, Mobile 6.x
- *NIX (especially Linux Debian, Ubuntu, Slackware, Red Hat), Anddroid
- Web Server (Apache / Apache2 / IIS / Tomcat)
- MySQL, Microsoft SQL Server
- (S)FTP, SSH, SAMBA, NTP, SVN/CVS/GIT, PAM

Experience with frameworks (SDK)

- STL, MFC, ATL, Win32-API, TAPI, MAPI
- .NET 1.0-4.x, ASP.NET, Compact Framework (CF) 1.0-3.x (WinCE/PocketPC), Silverlight 4
- WFC, WPF, Silverlight
- QT Library (nokia) 3.3-4.x
- OsGi, Java SE/EE, Java Mobile, MIDP
- TinyOS 1,2

Experience about development and design:

- Networking Protocols (client/server and distributed applications)
- Network design (routing and firewall)
- Framework development (static and dynamic components)
- Server application design

- Distributed Computing, SOA oriented
- Evolutionary programming and optimization techniques
- Image and Video processing (Linux and Windows both)
- Database Access and Management
- Web Services (RPC, CORBA, WCF)
- User interface (GUI, Web, OpenGL)
- Web Sites and Applications
- Smart Home (Automation), Home Multimedia
- X10 devices and network

Programming languages

- C/C++, C# [high frequency, senior level]
- Java [high frequency, senior level]
- .NET, LINQ, ASP.NET, ADO, PHP, JS, AJAX, SQL, XML, XSL(T), XSD, SOAP [high frequency, senior level]
- FORTRAN, PERL, Python [low frequency, low level]
- Delphi, VB, VBA, BASIC, ASM, VHDL [low frequency]
- BASH scripting [high level]

IDE and developer's platforms:

- Microsoft Visual Studio (any version from 6.0)
- Eclipse, Netbeans, Borland Builder, DevCpp, Code::Block, KDevelop
- Make and common GNU tools of NIX systems
- GNU policies, linux packages creation
- QT build system

Software suites:

- Microsoft Office, OpenOffice, Photoshop, Flash, Freehand, DreamWeaver, FrontPage, Visio, Adobe Professional
- Mathlab, Labview, WebPack, Xilinx

Authoring of dynamic and static web sites, long experience with (D)(X)HTML, CSS1-3.

Artistic skills and competences

Graphic art: creation, editing of images and logos, multimedia presentation, web and desktop user interface design.

Musical: composing, recording, editing, mastering of electronic music (lounge, experimental, progressive).

Other skills and competences

technologies news, multimedia, cooking, enology, modern art

Driving licence(s)

B

Additional information

MC Thesis: EVoKE (Eledia VOdafone Kpi Evaluator)

EVoKE is a full scale anomaly detection system for 2G, 3G, 4G cellular networks. It includes many statistical detectors (Multipass Modified three-sigma, MAD, Median Rule, BoxPlot) and a WAVELET based pattern matching detector for complex anomalies. Many filters have been included in order to improve detected alarms performance (e.g. false-positive rate) and in order to enable advanced data-mining and inference based methodologies. Moreover some filters have been specifically designed for Vodafone needs. Thanks to design and optimized algorithms, EVoKE is able to evaluate more than 30.000 cells (daily analysis) in 16 seconds. It has been tested during 2012 by Vodafone Omnitel N.V.

BC Thesis: VETLib (renamed VIPLib)

Video and Image Processing ANSI C++ Library, designed for testing and developing filters, (de)coders and final applications. Features: multi-platform; supports v4l, qt, gtk, DirectX; source documentation and manuals; tools for students.

Open projects and references are available on my website (www.alessandropolo.name/projects).

Some relevant projects:

- AFW (Antenna FrameWorld Library) - graphical access point planning tool (in-door, genetic algorithm, ray tracing)

- WSNWARE (WSN Java Middleware) - Java/OSGi middleware (with built-in TinyOS module), designed for monitoring, controlling and standardizing Wireless Sensor Network.

- VELA (Vodafone Eledia pLAnning tool) - VELA is a UMTS cellular network optimization tool (to be used with FORSK ATOLL), my contribution was the full redesign of the business model: toolchain, IPC, Reporting, ATOLL interface, new Java based interface with live fitness monitoring. Moreover I added an innovative genetic algorithm with optimized dynamic chromosome length.

- WOSH (Wide Open Smart Home) - open multi-platform ANSI C++ framework (distributed message oriented middleware) for controlling and automating a building (multimedia, appliances, communication, remote control)

Music: my songs are freely available on my website as well.

My Websites:

- www.alessandropolo.name

- www.opensmarthome.com

- www.ewgate.net