

Curriculum Vitae

Konstantinos A. Margaritis

Personal blog	http://freevec.org
Emails	konstantinos@margaritis.eu , markos@debian.org , markos@freevec.org
LinkedIn	http://gr.linkedin.com/in/konstantinosmargaritis/
Github	https://github.com/markos
Bitbucket	https://bitbucket.org/kmargar
Skype	konstantinos_margaritis
Telephone	+30 2410 233 568, +30 698 5576 058

Objectives My objective is to join a team that develops cool, interesting and challenging projects. Favourite topics are software optimization, vectorization and high performing programming languages.

Skills **Linux, Unix, Debian, Ubuntu**, Gentoo, OpenSuse, CentOS, RedHat
ARM, PowerPC, Intel
Embedded Linux, u-boot, OpenEmbedded, Yocto, **Bootstrapping**
C, C++, STL, Java SE/EE, D, Go
System Administration, Networking, Bash, Perl, **Git, Mercurial**, Subversion
SQL, PostgreSQL, MySQL
Eclipse, IntelliJ IDEA, JSF2, Maven, SWT, Jboss/Wildfly, Android App
Development, Camel, Javascript, AngularJS
Packaging (Debian/Ubuntu)
Algorithm Optimization, Vectorization, NEON, Altivec/VSX, SSE/AVX, MSA,
OpenCL, CUDA, Cell SPU, Cryptography
Mathematical Programming, Linear Algebra, Monte Carlo Simulation, Physics
Simulation
(**bold** = extensive experience, >5years, currently used)

Languages **Greek**(native), **English**(fluent), German(beginner)

Open Source

Mar 1999–Now

Debian Developer

Maintained a number of large packages in the past (incl. **Dx, ACE+TAO**, and now **LLVM D** compiler). Started and completed integration of the **ARM hardfloat** port '**armhf**' into Debian. Currently one of the **armhf** port maintainers. Originally did some **PowerPC** porting, wrote a Debian book in Greek and implemented **localization-config** for **sarge**, a **debian-installer** package to fully localize a Debian installation.

2008-Now

Eigen C++ Linear Algebra contributions

Initially done the **AltiVec** port in 2008, then the **ARM NEON** port in 2010. In October 2014 I did the **VSX** port (IBM Power7/8 64-bit extension to AltiVec) and immediately after I added the **ARMv8 Advanced SIMD (NEON)** support (again 64-bit double support amongst others). For the **VSX** port I won two bounties from IBM on bountysource.com. At the moment, I am in the process of adding **MIPS SIMD Architecture (MSA)** support as a new port.

Jan 2015-In progress

FFMPEG AltiVec optimizations

Was contracted by a crowdfunded process to provide more **AltiVec** optimizations for open source project **ffmpeg**. Involves extensive code profiling and timing and low level **C** coding. The result will be contributed back to **ffmpeg**.

Work Experience

Dec 2014-Present

AltSol – Consultant Software Engineer

Primary technologies used: Java 7, Maven, Javascript, AngularJS, Grunt.

July 2014-Dec 2014

EBS – Consultant Software Engineer

Primary technologies used: Java 7, Wildfly (JBoss 8), JSF 2.2, Maven, IntelliJ IDEA.

Nov 2013–April 2014

INPS – Consultant Software Engineer

Worked on the **MessageBus** project, using **Apache Camel** technology on **Chef**, **CloudStack** and **OSGi** containers, to unify NHS systems for England and Scotland.

Jul 2012-Oct 2013

Collabora Ltd – Consultant Software Engineer

Worked 6 months on an internal integration project, fine tuning of a custom Ubuntu-based distribution tailored for **Freescale I.MX6 Sabrelite**. Developed the **Android SmartTV** reference DIAL application and the Validation plugin for the Eclipse **SmartTV SDK 2.5**. SDK is available here:

<https://github.com/piecioshka/tv-alliance-samples/tree/master/Multiscreen/Android/Source/STADialClient>

Jun 2011-Jun 2012

Linaro, Office of the CTO – Technical Architect

For my work in **Debian 'armhf'** and **ARM hardfloat**, Genesi was invited by Linaro to join under the **Linaro Partner Program**. I joined **Linaro** under the **Office of the CTO**, in order to work full-time and lead the **ARM hardfloat** project within **Linaro**. For this task, I have been collaborating with many **Linaro/Canonical** and **Debian** engineers.

Feb 2004-May 2012

Genesi USA– Senior Software Engineer

Hired (originally part time and full-time in 2010) as a senior engineer to work on **Genesi USA's Open Desktop Workstation (PowerPC)** to do **SIMD NEON** optimizations and driver work. Subsequently, provided various driver development and distribution support for the **EFIKA 5200B (PowerPC based)**. Lastly worked on the **Efika MX** product line, which is **ARM** based. I took the initiative and started the new Debian armhf port, of which I still maintain the automated package building infrastructure. I represented **Genesi** at the **UDS/Linaro** conferences.

Mar 2007-Mar 2010

Codex – Founder, Director

Designed and implemented the Public Project Management Framework for the Central Administration of Municipalities (OTApM) in Greece. The whole platform was developed in **Java EE (Jboss, PostgreSQL, JSF, EJB3/JPA)**, consists of 80,000 lines of Java/JSF code, 250 EJB3 entities with 10000 fields and complex

interrelations between the entities. The project is about managing public sector projects top-to-bottom (pre-design, approval, financial data, subprojects, reports, etc). The project took approximately 12 months to develop, and was released under the GPL v3.

Worked on algorithm optimizations on the **PowerPC**, **Intel**, and **ARM** platforms, using the **SSE**, **Altivec**, and **NEON** vector units. Initially, as a proof of concept, worked on internal project for optimizing Ogre3D and Mesa **OpenGL** for the **PowerPC** and ARM platforms. Moreover, the company was in the process of developing its own ultra-fast glibc-replacement library with **SSE/Altivec/NEON** optimizations. **Genesi USA** funded part of this research.

Sep 2004-Jul 2005

Omiros Group – Lecturer

Taught a variety of courses ranging from **C**, **Linux**, **Networks**, **PHP**, to **Java** and **Algorithms**.

Mar 2003-Mar 2005

ATC/Intarget Group – Consultant Software Engineer

Designed and implemented a backend IPC system for e-banking software based on **J2EE**, **SOAP**, **IBM Websphere**, and **DB2**. Project carried out on behalf of ATC/InTarget and was used by the Commercial Bank of Greece and the National Bank of Greece.

Jun 2000-May 2003

Bullet S.A. - Senior Software Engineer/IT Manager

From scratch design and implementation of an intra-company network consisting of multiple LMDS, HDSL leased lines and hundreds of computer terminals and servers.

Custom application development mostly for major telephony companies, e.g. real time probabilistic analysis based on average hits per day for SMS competitions on behalf of Vodafone, Greece. Primary technologies used **C++/ACE/SQLite**, development in **Linux**, deployment in HP/UX.

Developed nearly 20 websites of variable complexity. Technologies used: Servlets, Perl, Python, PHP.

Helped in the design and implementation of Linux Clusters based on **Debian/RedHat Linux**.

Jan 2000-May 2000

Signal Hellas S.A. - Software Engineer

Simulated the SCORAD Radar communication protocol in software, implemented in **C++** on **Linux**.

Jan 1996-Jan 1997

Acropolis.Net – System Administrator

Development of the back-end of one of the first ISP platforms in Greece, based on Slackware/RedHat Linux.

Education

1992-2000

National and Kapodistrian University of Athens

Studies in Physics

Certifications

Jan 2013

Coursera.org – Cryptography I (Stanford University)

Online Course Statement of Accomplishment (100%)

Feb 2013

Coursera.org – Heterogeneous Parallel Programming (Urbana Champaign University)

Online Course Statement of Accomplishment

Books/Papers

- 2015 **Advanced Java EE Development with Wildfly (Reviewer)**
am one of the reviewers of the imminent book by Packt Publishing.
- 2014-In progress **SIMD Comparative Engines Guide**
in English, in progress currently, book on comparing currently popular SIMD engines, like SSE/AVX, AltiVec/VMX/VSX, NEON, MSA.
- 2008 **Linear Algebra math algorithms optimization using AltiVec.**
Linear Algebra math algorithms optimization using **AltiVec**, typical in 3D and scientific applications, most routines became up to 400% faster.
- 2005 **AltiVec Vectorization of hashing algorithm Adler32**
Performance of Adler32 hashing function improved by 250%
- 2005 **Vectorization of Insertion Sort using AltiVec, and an Extended Merge Sort algorithm**
Sorting of large number of elements improved by 400% (minimum case) and up to 5000% in specific cases.
- 2005 **Vectorization of a family of hashing algorithms**
Vectorization in **AltiVec** of a family hashing algorithm (used in Berkeley DB, originally part of MySQL backend), most hashing functions showed a performance gain of 250% relative to the original scalar form.
- 2003 **Debian GNU/Linux user's guide**
in Greek, available freely on freevec.org, user's guide on using the Debian GNU/Linux OS.

Conferences

- Feb 2014 **FOSDEM'14**, Brussels
- Feb 2013 **FOSDEM'13**, Brussels
- Nov 2011 **Linaro Connect/UDS**, Orlando, USA
- Jun 2011 **Genesi Sprint -FTF 2011**, San Antonio, USA
- May 2011 **ARM on Linux, ELLAK 2011**, Larissa, Greece
- May 2011 **Linaro@UDS**, Budapest, Hungary
- Feb 2011 **Emdebian Sprint**, Cambridge, UK
- Oct 2010 **Linaro@UDS**, Orlando, USA
- Sep 2008 **Software Optimizations+AltiVec+libfreevec**, University of Peiraeus, Greece
- Jul 2005 **Debconf 5**, Helsinki, Finland
- Mar 2005 **Information Systems Meeting**, Czestochowa, Poland
- Sep 2004 **SNDF**, Frankfurt, Germany
- Jul 2004 **1st Developer Workshop**, Athens, Greece
- Jun 2004 **Debconf 4**, Porto Alegre, Brazil

Apr 2004

• 2nd Conference in F/OSS, Patras, Greece

Feb 2004

Software Libre, Malaga, Spain

Feb 2002

• COMDEX, Athens, Greece

(talk/presentation given in conferences marked with •)