

Juri Lelli

SENIOR SOFTWARE ENGINEER · KERNEL HACKER

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Summary

Working on operating system support for next-generation ARM technology in the **OS power management** team at ARM: **Linux kernel** support for big.LITTLE, including **kernel scheduler** support and existing Linux power management frameworks. **Maintainer** of the **SCHED_DEADLINE Linux scheduling class**. Well known in the Linux kernel development community with 5+ years of experience.

Work Experience

ARM Ltd.

SENIOR SOFTWARE ENGINEER

Cambridge, UK

Jul. 2014 - PRESENT

- Operating system support for big.LITTLE and next-generation ARM technology.
- **Linux kernel** support and development for **scheduler and power management** frameworks.
- **Maintainer** of the **SCHED_DEADLINE Linux scheduling class**.
- Workload **power and performance analysis** (kernel level) on **Linux/Android**.
- Collaborated with the **Google Android kernel team** for the release of the **Pixel Android phone**.

Contributions within the EU Research Project “Java Platform for High-Performance and Real-Time Large Scale Data”

Pisa, IT

RESEARCHER

Jan. 2013 - Jul. 2014

- JUNIPER - FP7-ICT-2011.4.4 - Grant Agreement No. 318763 - <http://www.juniper-project.org/>
- Development and maintenance of the SCHED_DEADLINE scheduler for the Linux kernel.
- Implementation of the Multiprocessor Bandwidth Inheritance real-time synchronization protocol in Linux.

Contributions to the EU Research Project “Service Oriented Operating Systems”

Pisa, IT

RESEARCHER

Feb. 2011 - Jul. 2012

- SoOS - FP7-ICT-2009.8.1 - Grant Agreement No. 248465 - <http://www.soos-project.eu/>
- Contributions to deliverables: D3.4 “Protocols”, D4.4 “Execution Management”, D7.3.2 “Collaboration and Dissemination II”.
- Demo for 2nd year project review.

Retis Lab (Scuola Superiore Sant’Anna of Pisa)

Pisa, IT

RESEARCHER

Jan. 2011 - Apr. 2011

- **Linux kernel** developer.

Library of Veterinary Medicine (University of Pisa)

Pisa, IT

LIBRARIAN

Jun. 2009 - Nov. 2009

- Loan officer.

Faculty of Engineering (University of Pisa)

Pisa, IT

TUTOR

Feb. 2009 - May 2009

- Tutor of 1st year students.

Faculty of Engineering (University of Pisa)

Pisa, IT

LINUX/WINDOWS OPERATING SYSTEMS ANALYST/ADMINISTRATOR

Apr. 2007 - Jul. 2007

- Software/Hardware maintenance, systems configuration.

Admissions Office (University of Pisa)

Pisa, IT

ADMINISTRATIVE STAFF ASSISTANT

Nov. 2005 - Feb. 2006

- Filing clerk, students tutor.

Events & Talks (main)

Linux Plumbers Conference 2012

San Diego (CA), USA

PRESENTER

Sep. 2012

- Attended and presented at the scheduling micro-conf.

Linux Kernel Summit 2013

Edinburgh, UK

ATTENDED (INVITATION ONLY EVENT)

Oct. 2013

- Participated to the discussions.

15th Real Time Linux Workshop (RTLWS15)

PRESENTER

- Presented "Design and Implementation of the Multiprocessor Bandwidth Inheritance Protocol on Linux".

Lugano, Switzerland

Oct. 2013

Linux Plumbers Conference 2014

ATTENDED

- Attended and participated to RT, scheduling and power management micro-confs.

Düsseldorf, Germany

Oct. 2014

Linux Plumbers Conference 2015

PRESENTER

- Participated to scheduling and power management mirco-confs.
- Presented scheduler driven CPU frequency scaling solution.

Seattle, USA

Aug. 2015

Linaro Connect 2015 (SFO15)

ATTENDED

- Participated to scheduling and power management discussions and hacking sessions.
- Discussed the scheduler driven CPU frequency scaling solution and the Energy Aware Scheduling implementation.
- Participated to partners meetings.

San Francisco, USA

Sep. 2015

Embedded Linux Conference 2015

PRESENTER

- Presented "SCHED_DEADLINE: a status update": Slides (<https://goo.gl/OVspul>).

San Diego, USA

Apr. 2015

Linaro Connect 2016 (BKK16)

ATTENDED

- Participated to scheduling and power management discussions and hacking sessions.
- Discussed the Energy Aware Scheduling implementation.
- Participated to partners meetings.

Bangkok, Thailand

Mar. 2016

Linaro Connect 2016 (LAS16)

PRESENTER

- Participated to scheduling and power management discussions and hacking sessions.
- Presented "Walkthrough of the EAS kernel adaptation to the Android Common Kernel": Slides/Video (<https://goo.gl/FXCdAX>).
- Participated to partners meetings.

Las Vegas, USA

Sep. 2016

Linux Plumbers Conference 2016

PRESENTER

- Participated to scheduling, power management and Android mirco-confs.
- Joint presentation with Google Android kernel team about work done to land the Energy Aware Scheduling solution on the Android Common Kernel.

Santa Fe, USA

Nov. 2016

Education

Scuola Superiore Sant'Anna

PHD IN COMPUTER ENGINEERING (INNOVATIVE TECHNOLOGIES, EMBEDDED SYSTEMS)

- **Quality of Service** control for soft real-time systems.
- Analysis, design and development of **multiprocessor real-time scheduling and synchronization** solutions.
- Design and development of **embedded and real-time systems**.
- Linux kernel **SCHED_DEADLINE patchset maintainer** (real-time deadline scheduling) - merged in mainline since Linux 3.14.

Pisa, Italy

Nov. 2010 - Sep. 2014

University of California at Santa Cruz - Sytems Research Group

RESEARCH SCHOLAR

- Design and development of **real-time scheduling mechanisms** for the **Linux kernel**.

Santa Cruz (CA), USA

Sep. 2012 - Mar. 2013

University of Pisa - Faculty of Computer Engineering

MASTER'S DEGREE IN COMPUTER ENGINEERING

- Thesis: "Design and Development of Deadline Based Scheduling Mechanisms for Multiprocessor Systems".

Pisa, Italy

Mar. 2007 - Jun. 2010

University of Pisa - Faculty of Computer Engineering

BACHELOR'S DEGREE IN COMPUTER ENGINEERING

- Thesis: "Concurrent C++ code generation from UML statecharts".

Pisa, Italy

Sep. 2002 - Jun. 2006

"G. Marconi" High School

SCIENTIFIC HIGH SCHOOL DEGREE

- General scientific preparation.

Grosseto, Italy

Sep. 1997 - Jul. 2002

Publications

JOURNALS

An experimental comparison of different real-time schedulers on multicore systems

Juri Lelli, Dario Faggioli, Tommaso Cucinotta, Giuseppe Lipari

Journal of Systems and Software 85.10 (2012) pp. 2405–2416. 2012

Deadline scheduling in the Linux kernel

Juri Lelli, Claudio Scordino, Luca Abeni, Dario Faggioli

Software: Practice and Experience 46.6 (2016) pp. 821–839. 2016

PEER-REVIEWED CONFERENCES & WORKSHOPS

An efficient and scalable implementation of global EDF in Linux

Juri Lelli, Giuseppe Lipari, Dario Faggioli, Tommaso Cucinotta

Proceedings of the 7th International Workshop on Operating Systems Platforms for Embedded Real-Time Applications (OSPRT 2011), 2011, Porto, Portugal

PRACTISE: a framework for Performance Analysis and Testing of real-time multicore Schedulers for the Linux kernel

Fabio Falzoi, Juri Lelli, Giuseppe Lipari

Proceedings of the 8th International Workshop on Operating Systems Platforms for Embedded Real-Time Applications (OSPRT 2012), 2012, Pisa, Italy

Design and Implementation of the Multiprocessor Bandwidth Inheritance Protocol on Linux

Andrea Parri, Juri Lelli, Mauro Marinoni, Giuseppe Lipari

Proceedings of the 15th Real Time Linux Workshop (RTLWS15), 2013, Lugano, Switzerland

On the Energy-Aware Partitioning of Real-Time Tasks on Homogeneous Multi-Processor Systems

Mario Bambagini, Juri Lelli, Buttazzo Giorgio, Giuseppe Lipari

Proceedings of the 4th Annual International Conference on Energy Aware Computing Systems & Applications (ICEAC13), 2013, Istanbul, Turkey

Towards Energy-aware Multiprocessor Hierarchical Scheduling of Real-time Systems

K. N. Moghaddami, Juri Lelli, Giuseppe Lipari, Thomas Nolte

Proceedings of the 19th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA13 WiP), 2013, Taipei, Taiwan

A Linux-based Virtualized Solution Providing Quality of Service to SDN-NFV Telecommunication Applications

Carlo Vitucci, Juri Lelli, Mauro Marinoni, Andrea Parri

Proceedings of the 16th Real Time Linux Workshop (RTLWS16), 2014, Düsseldorf, Germany

A Tool for Measuring Supply Functions of Execution Platforms

Martina Maggio, Juri Lelli, Enrico Bini

Proceedings of the 22nd IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA16 Best Paper Award), 2016, Daegu, South Korea

Skills

LANGUAGES

Italian Understanding: Excellent, Speaking: Excellent, Writing: Excellent - **mother tongue**.

English Understanding: Very Good, Speaking: Very Good, Writing: Excellent

TECHNICAL AND PROFESSIONAL

Programming C/C++, Python, BASH, JAVA, LaTeX.

Communication Very good communication skills gained through presentation of work to international conferences.

Job-related

- Professional approach to work.
- Able to respect tight timing constraints.
- Able to work as part of a team with minimal direction.
- Able to cooperate in distributed development using different channels (mailing lists, irc, version control, etc.).
- Strong interest in problem solving.
- Ability to travel internationally.