

# Alexandre Lopes

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🌐 <https://aalopes.com>



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## Personal

Birthyear 1987  
Citizenship Portuguese (EU)

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## Experience

- 01 Apr '18 – present **Key Functional Systems Engineer**, *Carl Zeiss SMT GmbH*, Oberkochen, Germany.
- Optical metrology systems engineering for High-NA EUV free-form mirror metrology (3FM)
  - Creation and maintenance of performance (measurement accuracy/precision) and cycle time roadmaps in strong cooperation with the project technical teams
  - Focus team leader for interferometer software in project task-force
  - Driving software projects, re-scoping and re-structuring in close cooperation with line and project management [matrix]
  - Together with the SE team, technical responsibility for performance, availability and move rate, weighting cost, performance and timing
  - Lateral leadership in very complex and large project, containing a large number of interfaces
  - Bridging system integration to system commissioning
- Jun '17 – Mar '18 **Team Leader and Systems Architect**, *Carl Zeiss SMT GmbH*, Oberkochen, Germany.
- Team leader (MV, > 5 FTEs) and architect for high-NA EUV control systems
  - Team leader (lateral leadership, team of 11 people) and architect for in-house real-time control platform (used in product and for internal qualification processes)
- Nov '16 – May '17 **Systems and Software Architect**, *Carl Zeiss SMT GmbH*, Oberkochen, Germany.
- Work package leader and architect for high-NA EUV control system
  - Architect for new control system for high-NA EUV mechatronical qualification
  - Setting up the necessary toolchains, hardware, documentation and development environment for ARM Cortex-A and ARM Cortex-M based-development
  - ARM Cortex-A and M based software development
  - Parallel computing image processing for multiSEM
- Sep '16 – Nov '16 **Embedded Software Architect**, *Robert Bosch Automotive Steering GmbH*, Schwäbisch Gmünd, Germany.
- Embedded software architecture and development for the new ServoTwin steering system platform (commercial vehicles)
  - Helped two task forces achieve their goal
- Jan '15 – Aug '16 **Embedded Systems Developer, System Administrator, R&D Engineer**, *Carl Zeiss SMT GmbH (outsourced by Personality IT Stuttgart)*, Oberkochen, Germany.
- Software development for the ARM Cortex A9 / Altera Cyclone V (GNU/Linux and baremetal)

- Implementation of real-time frameworks (Xenomai, Preempt-RT, RTAI for ARM and x86)
  - Mechatronic systems R&D (incl. test and project planning and analysis of opto-electrical measurements)
  - GNU/Linux user and kernel space software development
  - GNU/Linux (Debian based) and Solaris sysadmin.
- 2012 – 2014 **System Administrator**, *University of Freiburg*, Freiburg, Germany.  
Implementation and management of, among other, the following server side solutions:
- Linux, Apache, MySQL, PHP (LAMPS)
  - Wiki (using MediaWiki)
- 2012 – 2014 **Teaching Assistant**, *University of Freiburg*, Freiburg, Germany.
- 2010 – 2011 **Researcher**, *Theory of Condensed Matter - IMM*, *Radboud University Nijmegen*, The Netherlands.

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## Academic Background

- 2012 – 2015 **PhD in Theoretical Physics**, *University of Freiburg*, Germany.
- Thesis' title: *Pure univariate quantum marginals and electronic transport properties of geometrically frustrated systems*
- 2005 – 2010 **Bachelor and Master in Physics**, *University of Aveiro*, Portugal, *Grade: 18/20 (First Class Honours)*.
- Top ranked student and awarded "Best student '08" prize

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## Education and Training

- 2010 **Trainee**, *Hewlett-Packard (HP) University*, Paço de Arcos, Portugal.  
Training in:
- HP technology
  - Markets
  - Presentation techniques
  - Sales and Negotiation
- 2005 – 2010 **Music Student**, *Conservatory of Music of Aveiro - Calouste Gulbenkian*, Portugal.
- 2006 **Participant**, *1st International Science Summer Camp '06*, Uppsala, Sweden.
- Energy and the Environment
- 2005 **Intern**, *Rutherford's Experiment*, Portuguese Nuclear and Technological Institute (ITN), Sacavém, Portugal.
- Analysis of zinc implanted sapphire using *Rutherford Backscattering Spectroscopy*
- 2003/2004/2005 **Intern**, *Experimental Holography*, Department of Physics, University of Aveiro, Portugal.
- Reflexion and transmission holography, interferometry, multi-exposure holography, single and double beam set-ups and other

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## Awards and Scholarships

- 2010 – Present **Doctoral scholarship (BD)**, *Fundação para a Ciência e a Tecnologia*, Portugal.
- 2013 **Funding for conference participation**, *Wilhelm und Else Heraeus-Stiftung*, Germany.

- 2010 **Scientific initiation scholarship (BIC)**, *Department of Physics, University of Aveiro, Portugal.*
  - Numerical and analytical study of magnetic and transport phenomena in low dimensional electronic systems with strong correlations
- 2008 – 2009 **Scientific initiation scholarship (BIC)**, *Department of Physics, University of Aveiro, Portugal.*
  - Initiation to the characterization and manipulation of nanostructures using AFM and NSOM
- 2008 **Best Student '08**, *Department of Physics, University of Aveiro, Portugal.*
- 2005 **Award**, *17<sup>th</sup> European Union Contest for Young Scientists, Bauman University, Moscow, Russia.*

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## Languages

Levels based on the *Common European Framework of Reference for Languages*

Portuguese	Mother Tongue
English	C2 (near-native)
German	C1
Spanish	B2

- 2010 **Academic IELTS exam**, Overall grade: 8.0.

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## Computer skills

Programming Languages	Assembly (ARM), Bash shell scripting, Fortran, C/C++, JavaScript, Matlab, PHP, Python
Parallel Programming	Apache Storm, CUDA, OpenCL, OpenMP, OpenMPI
Programming Tools	Doxygen, Eclipse, GNU Toolchain, UML, Visual Studio
Markup Languages	CSS, HTML, L <sup>A</sup> T <sub>E</sub> X, XHTML
CAD and FEA	Abaqus, Catia v5
Operating systems	GNU/Linux, Microsoft Windows, Solaris
Requirements management	Rational DOORS, Polarion
Other	CORBA IDL, Inkscape, Git, Mathematica, OpenCV, Subversion, Vim, VHDL, Yocto Project

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## Other

- 2011–18 Author of 6 scientific articles
- 2014 Creator and developer of CometZ, an open source video game
- May 2006 European driver's license, category B

Full CV available at <https://aalopes.com/alexCV-full.pdf>.