Lorenzo Bolla - Curriculum Vitæ

EMail | GitHub | StackOverflow | LinkedIn | Website
Less detailed CV available here.

Profile

I am an experienced Software Engineer with a background in research Physics.

I graduated as Telecommunication Engineer in the field of classical optics and telecommunications algorithms. I achieved a Doctorate Degree on Numerical Methods applied to Physical problems.

I have 15+ years of experience in software engineering. I worked on projects spanning highly scalable web applications, numerical intensive simulations and massively parallel data analysis. I have 3+ years of experience in DevOps, especially with GitLab CI/CD, Docker and Kubernetes.

Fluent in Python, Rust, Javascript, HTML, CSS. Familiar with C/C++ (using both STL and Boost libraries), Go, Java, Fortran and Matlab. Interested in other programming languages, like Erlang, Haskell, Lisp.

Experienced with many different libraries and frameworks: Tornado, FastAPI, CherryPy, Numpy, Pandas, JQuery, git, MySQL, sqlite, MongoDB, nginx, and many more. Experience in database design, especially using Postgresql.

Lifelong Linux user and open-source contributor.

Logical thinker, able to provide effective solutions to solve difficult problems.

Great team-player & fun attitude, competent time manager, very dependable under pressure and passionately dedicated to the task. Experienced remote worker.

Experience

Google, SRE, Zurich CH, Mar 2022 – now

Automating myself out of a job.

Roche, Linux Software and Hardware Expert, Zurich CH, Dec 2020 – Feb 2022

Design, implement and maintain Debian-based operating system and infrastructure for diagnostic medical instruments. Involved in all stages of software development, from feasibility through design, development, testing, to maintenance. Deep experience with Debian-based operating system, packaging and software practices. Broad experience with DevOps practices, writing CI pipelines, testing across various hardware. Maintainer of Aptly.

YouGov, Senior Software Developer, London UK, Aug 2013 – Dec 2020

Design and implement scalable analysis software for market research analysis using Python, Rust, Cython, MongoDB, PostgreSQL. Development of an in-memory column-oriented distributed DB to efficiently store and query tabular data. Lead junior developers, ensure best practices and code quality, automate deployments and continuous delivery.

YouGov, Director of DevOps, London UK, Aug 2015 – Jun 2020

Lead the DevOps team, to improve automation of development processes. Manage the migration from legacy to state-of-the-art infrastructure, based on GitLabCI, Docker and Kubernetes. Responsibilities include soliciting project ideas, setting priorities and scheduling projects. 25% time position dedicated to this role; remaining 75% Lead Python Developer.

RAID Research Services LLP, Senior Software Architect, London UK, May 2012 – Aug 2013

Design and implement scalable analysis software for finance using mainly Python, Pandas, MySQL and ExtJS. Implementation of an in-memory DB to efficiently query tabular data. Parsing of unstructured data sources and categorization using simple machine learning techniques.

Artirix Ltd, Senior Software Engineer, London UK, Apr 2012 – May 2012

Design and implementation of highly scalable web search crawlers using Python and Twisted.

Zugo Ltd, Senior Python Developer, London UK, Apr 2011 – Apr 2012

Develop massively scalable web applications (using Python, Tornado, MySQL, MongoDB, nginx on the back-end and HTML, Javascript, CSS on the front-end). Experience in distributed data analysis using MapReduce frameworks (mainly Disco), NoSQL data stores (mainly MongoDB) and AWS solutions. Some experience in browser extension implementation (Firefox and Chrome).

Geneity Ltd, Software Engineer, London UK, Aug 2008 – Apr 2011

Software engineer of high-performance E-gaming web applications (mainly working with Betfair, Coral, Ladbrokes and others betting companies). Focus on high performance fund transfers (maximizing the transaction per seconds supported by the systems), application reliability (maximizing up-time), third-party usability (implementing REST and SOAP access to web applications). Programming languages used: Python (2.5, 2.6), C, PL/SQL (Oracle 10g-11) for the back-end; HTML_/Javascript for the front-end. OS used: Linux (Debian, Suse and ArchLinux distributions).

Pirelli & C SpA, Optical Designer, Milano IT, Jun 2005 – Aug 2008

R&D in Photonic Integrated Circuits mainly based on Silicon-on-Insulator technology (SOI-PICs). Responsible for the design of optical components for metro and access networks, with a focus on innovative solutions. Excellent problem solving capabilities, lateral thinking and self management. Deep experience on efficient numerical and parallel programming (SGI Altix hardware), using C/C++, Fortran, Matlab, Python languages and OpenMP, MPI, STL and Boost libraries. Experience in patenting.

TELE System Electronic Srl, Software Engineer, Vicenza IT, Mar 2005 – Jun 2005

Consultant on hardware and software design for digital television broadcasting, including theory on transmission algorithms and computer simulations of the complete system. Experience in programming applications for set-top-boxes, in Java.

Photon Design Ltd, Software Engineer, Oxford UK, Apr 2003 – Apr 2004

R&D on numerical algorithms applied to the solution of electromagnetic problems. Very deep focus on algorithms' efficiency for computationally intensive simulations. Theoretical studies on linear algebra problems, finite difference and finite elements algorithms, modal expansion techniques. Deep experience in C/C++ programming, both with VC++ and Borland suites (along with STL and Boost libraries) and Python as scripting language. Basics of GUI programming.

Progetto Mantegna, Technical Support, Padova IT, May 2001 – Apr 2003

Technical assistance in the virtual reconstruction of Mantegna's paintings in the Ovetari's Chapel, Padua Italy. Basics of image analysis and manipulation.

Education

University of Udine - Italy, PhD, Nov 2002 – Nov 2005

Thesis on the numerical solution Maxwell equations in periodic dielectric devices.

European Project, FUNFOX (Project No. 004582), Sep 2004 - Jun 2005

Research on semiconductor optoelectronic devices for metro core and access segments in optical networks.

European Project, PICCO (IST-1999-10361), Nov 2002 - Apr 2003

Research in Optical integrated circuits, photonic crystal planar waveguides and wavelength dependent devices.

University of Padova - Italy, Telecommunication Engineering, Sep 1996 - Mar 2002

Publications

Books

- "Numerical Methods for Integrated Optics", Lorenzo Bolla, Scholar's Press, 2013, ISBN 978-3-639-51669-2
- Technical reviewer for "Numpy 1.5 Beginners Guide", PacktPub, ISBN 1849515301
- Technical reviewer for "Learning Scipy for Numerical and Scientific Computing", PacktPub, ISBN 1782161627
- Technical reviewer for "Haskell Data Analysis Cookbook", PacktPub, ISBN 1783286334

Articles

- V. Sorianello, M. Balbi, L. Colace, G. Assanto, L. Socci, **L. Bolla**, G. Mutinati, M. Romagnoli, "Guided-wave photodetectors in Germanium on SOI optical chips", Physica E: Low-dimensional Systems and Nanostructures, abstract
- M. Romagnoli, L. Socci, **L. Bolla**, et al., "Silicon Photonics in Pirelli" (invited), Proc. SPIE 2008, website
- T. P. Felici, D. F. G. Gallagher, **L. Bolla**, "Automatic design and optimisation of Si nanophotonics devices using finite element frequency domain solvers", Proc. SPIE Vol. 6475, 64750L, Integrated Optics: Devices, Materials, and Technologies XI, 2007, abstract
- M. Kotlyar, **L. Bolla**, M. Midrio, L. O'Faolain, and T. Krauss, "Ultrashort InP-based polarisation rotator", PECS-VI International Symposium on Photonics and Electromagnetic Crystal Structures, 2005, website

- M. Kotlyar, **L. Bolla**, M. Midrio, L. O'Faolain, and T. Krauss, "Photonic Crystals for Polarisation Diversity Circuits", Frontier in Optics (the 89th OSA Annual Meeting), Tucson (Arizona), 2005, website
- M. Kotlyar, **L. Bolla**, M. Midrio, L. O'Faolain, and T. Krauss, "Compact polarization converter in InP-based material", Opt. Express 13, 5040-5045, 2005, abstract
- **L. Bolla**, "Polarization Rotators", Technical Report, FUNFOX Project, Lausanne, Switzerland, 2005, website
- **L. Bolla**, M. Midrio, and C. G. Someda, "Energy flow in negative index materials", Chin. Opt. Lett. 2, 428-430, 2004, abstract
- **L. Bolla**, and T. Felici, "New discretisation scheme for frequency domain electromagnetics", PIERS 2004 Proceedings, Pisa, Italy, 2004, website
- **L. Bolla**, "Planar Generalized Yee Algorithm", Technical Report, PICCO Project, Padua, Italy, 2002, website

Patents

Author or Co-author of 10 international patents in the field of integrated optics.

Citations

List of citations from Google Scholar