Antoine Lambert

born on 27/02/1985

Software and research engineer

✉: antoine.lambert33@gmail.com

📱: +33 ? ?? ?? ?? ??

https://github.com/anlambert

https://scholar.google.fr/citations?user=wRrEbaAAAAAJ&hl

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75002 Paris

France

Education

- **University of Sciences and Technologies Bordeaux 1** — Talence, France
  PhD in Computer Science, in the field of Information Visualization — *2009 - 2012*
  - Title of the thesis : *Interactive graph visualization : elaboration and optimization of algorithms with high computational cost.*
  - Host Laboratory : LaBRI (*Laboratoire Bordelais de Recherche en Informatique*)
  - Very honorable mention
  - Online manuscript (in french) : http://www.theses.fr/2012BOR14664
- **University of Sciences and Technologies Bordeaux 1** — Talence, France
  Professional Master of Computer Science, Software Engineering specialty — *2006 - 2008*
  - With honors
- **University of Sciences and Technologies Bordeaux 1** — Talence, France
  Bachelor in Computer Science — *2003 - 2006*
  - With honors

Professional experience

- **Thales Services SAS** — Vélizy Villacoublay, France
  Software engineer — *Since September 2013*

  Currently working in a research and development laboratory of *Thales Communications & Security* called CENTAI (*Centre de Traitement et d'Analyse de l'Information*), located in Gennevilliers and specialized in Big Data, Big Analytics and Visual Analytics.

  - Responsible of visualization works in the Big Data projects of the laboratory.
  - Developer and maintainer of a large graphs visualization system for a project named *OSIntLab*, a social networks survey framework developed by Thales.
  - Development of a large graph visualization solution for the Web by porting the *Tulip* framework to JavaScript.
  - Development of numerous visualizations and map components (using *D3* and *Leaflet*) for the analytics Web portal used internally in the laboratory (powered by *Angular* and based on *Elasticsearch* for the data source).
  - Technological survey on contemporary Web development to ease the building and improve the performance of complex client side applications

- **University of Sciences and Technologies Bordeaux 1, LaBRI** Talence, France
  Research Engineer *March 2013 - August 2013*
  - Technical assistance in software development for research projects
  - Maintenance and evolution of the *Tulip* visualization framework

- **University of Sciences and Technologies Bordeaux 1, LaBRI** Talence, France
  Temporary Lecturer and Research Assistant *September 2012 - February 2013*
  - Teaching activities at the University Institute of Technology Bordeaux 1
  - Subjects taught :
    * Introduction to Unix-like Operating Systems
    * Introduction to Algorithmic and Programming

- **LaBRI** Talence, France
  Software engineer *October 2008 - October 2009*
  - Integrated in a development team to work on an open source graph visualization framework named *Tulip*
  - Development of new visualization components for the framework using *Qt* and *OpenGL*

- **Atos Origin Integration** Pessac, France
  Intern *April 2008 - September 2008*
  Internship in an application management team for the ERP project, on behalf of France Telecom, named *New Convergence* and based on *Oracle Applications*.

- **I2S** Pessac, France
  Intern *July 2007 - August 2007*
  Elaboration and implementation of computer vision algorithms for the detection and tracking of a soccer cage in a game video stream.

Technical skills and qualification summary

- Great experience in software development : from native applications to Web ones
  - *Operating Systems:* GNU/Linux, Windows, MacOS, FreeBSD
  - *Linux distributions:* Debian, Ubuntu, CentOS, ArchLinux, OpenSUSE, Gentoo
  - *Programming languages:* C/C++, Java, Python, JavaScript (*full-stack*), Typescript, HTML, CSS, Bat and Bash scripting
  - *Version control system tools:* Git, Subversion
  - *C/C++ development tools:* CMake, Valgrind, GDB
  - *JavaScript development tools:* Node.js, Npm, Yarn, Webpack, Babel, Emscripten, Gulp
  - *C/C++ libraries and API:* Qt, OpenGL, Tulip, Python
  - *Web frameworks and libraries:* Angular, Lodash, Bootstrap, D3, WebGL, Leaflet, Asm.js, WebAssembly
  - *Virtualization tools:* VirtualBox, docker
  - *Big Data technologies:* Hadoop, HDFS, Spark, Elasticsearch, Kafka
  - *Documentation tools:* Sphinx, Markdown, doxygen, LaTeX
  - *IDE:* Qt Creator, Eclipse, Visual Studio, Atom, Visual Studio Code
- Expert in cross-platform C++ development (Linux, MacOS, Windows, Web)

- Great knowledge in data visualization techniques : from theory to implementation
  - PhD thesis carried out on Information Visualization field
  - Numerous research contributions: more than ten international publications and a paper cited 87 times
  - Maintenance and development of many visualization systems, in particular the open source framework *Tulip* mainly dedicated to the analysis and visualization of large graphs
- Great interest regarding Computer Graphics and Graphics Processing Unit exploitation (OpenGL/WebGL expert)
- Great knowledge of the open source world
  - Daily use of a GNU/Linux distribution, at work and at home
  - Great experience in the building of open source software (getting sources and dependencies, compiling, installing)
  - Contributor in many open source projects
- Growing interest in contemporary web development and the associated Javascript ecosystem

Scientific publications (h-index: 8)

Articles in international peer-reviewed journal with conference proceedings

- David AUBER, Charles HUET, Antoine LAMBERT, Benjamin RENOUST, Arnaud SALLABERY and Agnes SAULNIER. "Gospermap : Using a gosper curve for laying out hierarchical data". In IEEE Transactions on Visualization and Computer Graphics 19.11 (2013), p. 1820-1832
- Antoine LAMBERT, Jonathan DUBOIS and Romain BOURQUI. "Pathway Preserving Representation of Metabolic Networks". In Computer Graphics Forum 30.3 (2011), p. 1021-1030
- Antoine LAMBERT, Romain BOURQUI and David AUBER. "Winding Roads : Routing edges into bundles". In Computer Graphics Forum 29.3 (2010), p. 853-862

International peer-reviewed conference proceedings

- Antoine LAMBERT and David AUBER. "Graphs analysis and visualization with Tulip-Python". Poster at the 5th European Conference for Scientists using Python (EuroSciPy 2012). 2012
- Antoine LAMBERT, François QUEYROI and Romain BOURQUI. "Visualizing patterns in Node-link Diagrams". In Proceedings of the 16th International Conference on Information Visualization. IV'12. IEEE Computer Society, 2012, p. 48-53
- Antoine LAMBERT, Romain BOURQUI and David AUBER. "3D Edge Bundling for Geographical Data Visualization". In Information Visualization (IV), 2010 14th International Conference. IEEE Computer Society, 2010, p 329-335
- Antoine LAMBERT, David AUBER and Guy MELANÇON. "Living Flows : Enhanced Exploration of Edge-Bundled Graphs Based on GPU-Intensive Edge Rendering". In Information Visualization (IV), 2010 14th International Conference. IEEE Computer Society, 2010, p 523-530

Book chapter

- Antoine LAMBERT, Romain BOURQUI and David AUBER. "Graph visualization for geography". In Methods for Multilevel Analysis and Visualization of Geographical Networks, p. 81-102. Springer Netherlands

Technical report

- David AUBER, Daniel ARCHAMBAULT, Romain BOURQUI, Antoine LAMBERT, Morgan MATHIAUT, Patrick MARY, Maylis DELEST, Jonathan DUBOIS, Guy MELANÇON. "The Tulip 3 Framework : A Scalable Software Library for Information Visualization Applications". Rap. tech. RR-7860. INRIA, 2012, p. 31

Contributions to *open source* projects

- **Tulip** `http://www.tulip-software.org` C++, Python, JavaScript
  Large graphs analysis, drawing and visualization framework *Since 2008*
  - Software developed at LaBRI in Bordeaux, well-known inside the graph visualization community, available on Windows, MacOS, Linux (binary packages available in the Debian repositories), FreeBSD and soon on the Web
  - Stable and efficient framework : more that 15 years of development so far
  - Personal contributions:
    * Integration of graph drawing algorithms from OGDF (Open Graph Drawing Framework) `http://www.ogdf.net`
    * Development of Python bindings for Tulip and integration of a lightweight Python IDE and a script execution engine inside the software `https://pypi.python.org/pypi/tulip-python`
    * Development of numerous algorithm, visualization and interaction plugins for the framework: Delaunay triangulation, Voronoï diagram, Edge bundling, Polyomino Packing, Google Maps view, Histogram view, Parallel Coordinates view, Pixel oriented view, Scatter Plot view, Fisheye interactor, Graph Splatting interactor, Lasso Selection interactor, Magnifying Glass interactor, Neighborhood Highlighter interactor, ...
    * Porting the framework to JavaScript trough the use of the *Emscripten* compiler for the analysis and visualization of large graphs on the Web `https://github.com/tulip5/tulip/tree/master/library/tulip-javascript` `https://anlambert.github.io/tulipjs/tulip_web.html`
- **Emscripten** `https://github.com/kripken/emscripten` JavaScript, Python, C/C++
  A C/C++ to JavaScript compiler *Since 2013*
- **Auditwheel** `https://github.com/pypa/auditwheel` Python
  Tool for the distribution of Python binary modules on Linux platform *Since 2016*