

## Personal information



## Nicola Bernini

📍 Via Pellico 11, Parma 43125 Italy  
📞 +39 3357621825 📠 +39 3357621825  
✉ nicola.bernini@gmail.com  
🌐 <http://nicolabernini.github.io/>  
🌐 <http://it.linkedin.com/in/nicolabernini>

Gender Male | Date of birth 03 August 1980

## ABOUT ME

## Brief Overview

I am a Computer Engineer (MSc, PhD) and Physicist (BSc) presently working in a high-tech company, world leader in the development of computer vision based hardware and software solutions mainly for the Automotive, Mining and Constructions and Defense Industries. My roles are Senior Software Engineer and Team Leader/Project Manager, depending on the specific project. I am a former Software Engineer and Project Manager for a multinational company, part of the TETRA LAVAL group, building filling machines for the beverage industry.

Because of my background I am used to engage problems with a multidisciplinary approach. During this first decade of working experience I have chosen an atypical career path due to my desire for challenges and to enrich my background with different experiences.

**Only the most recent working experiences are presented, for the sake of brevity**

## WORK EXPERIENCE

January 2012 – Present

## Senior Software Engineer for Computer Vision Applications

VISLAB S.R.L.  
Parma 43125, (Italy)

Self Localization, Autonomous Driving, Object Recognition and Tracking.

## Brief Overview

Presently I am working mainly on self localization and autonomous driving problems in the industrial and automotive environments.

My role changes according to the contextual needs, acting as a Algorithm Developer / Software Engineer and as a Project Manager for different projects.

In a typical project I am usually put in charge of the following tasks: related scientific literature review, of the problem, datasets construction, algorithm design, software development (prototype in Python / Matlab, final solution in C/C++), documentation (Doxygen) and testing (PyTest, CppUnit).

I am also in charge of the development of web tools for internal usage. Typical technologies involved in the backend development are PHP or Node.js with a MySQL or NoSQL (MongoDB or Neo4J) DB. Used frontend technologies are HTML5, CSS and JS (jQuery, Angular.js).

## Technologies

Dev: C/C++, Python, Matlab.

Statistical Analysis: R.

GUI/Web/DB/Doc: QT, Wordpress/PHP, Javascript (Node.js, jQuery, Angular.js), Java, MySQL, NoSQL, Doxygen.

Versioning: SVN, Git

2011 - 2012 **Experienced Software Engineer**  
Freelance  
**Projects**  
Collaboration with Startup mainly focused on HTML5/JS Apps for different purposes, from gaming to data visualization.  
**Technologies**  
Dev: C/C++, Python.  
GUI/Web: Wordpress/PHP, Javascript, SQL. Node.js. Angular JS, JQuery, D3.js.  
PaaS: Heroku, Openshift.  
DB: MongoDB, Neo4J.

2008 - 2010 **Software Engineer / R&D Project Manager**  
SIDEL S.P.A. (TETRAPAK GROUP)  
Parma 43125 (Italy)  
Filling Machines Strategic Development Projects definition. Problem analysis, solution proposal, quality assurance, reporting and team coordination.  
**Projects**  
MACHINE-RELATED DATA ACQUISITION FOR BIG DATA  
Involve both as a developer and as a team leader for this enterprise project focused on recording working filling machines data and to send them to central DB for statistical analysis, in a Big Data manner.  
Worked also on other projects.  
**Technologies**  
C/C++, Java, PHP, MySQL, SAP communication.

## SCIENTIFIC EXPERIENCE

---

January 2012 – Present

### PhD

VISLAB  
University of Parma, Parma 43125 (Italy)

#### Projects

Working on self localization and autonomous driving problems in industrial and automotive environment.

#### Publications

Update publication list is available on my [Scholar Profile](#).

January 2011 – November 2011

### Biophysics Thesis

Department of Physics and Chemistry  
University of Parma, Parma 43125 (Italy)

Thesis goal concerned analyzing the protein structure, with particular regard to cavities and structure flexibility, for human cytoglobin performing supercomputer simulations and big data analysis.

Worked on IBM MARENOSTRUM Supercomputer, once the most powerful supercomputer in Europe and one of the most powerful in the world according to LINPACK Tests carried out in 2005, to run mixed Standard / Quantum Mechanical Simulations and developed Python scripts to analyze and visualize the big amount of data produced.

This work provided valuable data used to write different peer review articles in the Biophysical environment.

## EDUCATION AND TRAINING

---

2012 – 2015

### PhD

University of Parma, Italy

Thesis Title: 'Analysis and development of self localization and autonomous driving systems for the industrial and automotive environment.'

- Computer Vision, Bayesian Filters, Machine Learning, Statistical Analysis, Deep Learning

- 1999 – 2005 **MSc, Computer Engineering**  
University of Parma, Italy  
- Artificial Intelligence / Machine Learning
- 2008 – 2011 **BSc, Physics**  
University of Parma, Italy  
- Biophysics, Statistical Physics / Complex System Physics, Spin Glasses and Ising Models, Graph Theory
- 2011 – 2011 **Computer Forensics Master**  
University of Parma, Italy  
- Computer Forensics procedures, Introduction to International Laws regarding computer related crimes

## TECHNICAL SKILLS AND BACKGROUND

**Computer skills** Programming Languages: C/C++, PYTHON, JAVA  
Web/GUI: PHP, HTML5, JAVASCRIPT (Node.JS, JQuery, Angular.js), CSS, QT  
DB: MYSQL, NOSQL (MONGODB, NEO4J)  
Scientific Tools: MATLAB, R (Statistics), iPython Notebook, Wolfram Mathematica  
PaaS: Heroku, OpenShift  
Versioning: SVN, Git Algorithmic skills: Problem analysis, abstraction problem definition, algorithm design, implementation

**Scientific related background** Machine learning an deep learning  
Statistics, Bayesian Framework  
Computer Vision, Data Fusion  
Physics (Statistical Physics, Complex System Physics, Particle Physics, Foundations of Quantum Mechanics)

## PERSONAL SKILLS

**Mother tongue(s)** Italian

Other language(s)	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	C1	C1	C2
French	A2	A1	A1	A1	A1
German	A2	B1	A2	A2	B1
Chinese - Mandarin (HSK 1 achieved HSK 2 in preparation)	A1	A1	A1	A1	A1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user  
Common European Framework of Reference (CEF) level

Communication skills	<p>- <b>team working:</b> I have worked in various types of teams, from research teams in an academic environment to enterprise (mostly software development related) teams in a multinational company.</p> <p>Especially during my Biophysics Thesis and my PhD I had the opportunity to work on very interesting problems (Protein Folding Simulation and Computer Vision related Self Localization, respectively) with other smart people in a collaborative environment.</p> <p>- <b>mediating skills:</b> I have often work on the borders among different kind of persons: young students, project managers, clients. In SIDEL I has the opportunity to deal directly with customers like COCA COLA and HEINEKEN.</p> <p>- <b>intercultural skills:</b> I am experienced in working in an intercultural environment considering this is the kind of context I have been operating in for the last 7 years.</p>
Organisational / managerial skills	<p>During my experience in SIDEL I have been appointed</p> <ul style="list-style-type: none"> <li>- <i>team leader</i> of an enterprise software development project.</li> <li>- <i>project coordinator</i> of a business unit-wide software development project. My responsibilities concerned reporting to higher managers, planning and coordination.</li> </ul>
Working Culture	<p><b>Team working, Multidisciplinary, Goals, Multitasking, Lively-Paced</b></p> <p>I consider multidisciplinary a very effective strategy to approach challenging problems and even if a certain personal aptitude is certainly needed, team working is the best paradigm to achieve it. Moreover I consider being multitasking in a proactive, lively-paced and goal oriented environment a necessary condition to succeed.</p>
Passions	<p>In addition to the passion for computer science, I have a strong passion for both physics too. This passion made me study that subject while I was working full time (and despite I have already got a MSc in computer science) and finally get a BSc. A great experience. I am also passionate of the Chinese and Japanese culture. This is one reason while I am studying these languages too.</p>
Driving licence	B