

# Alessandro Marin, PhD

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[Online resume](#)  
[LinkedIn page](#)  
[GitHub page](#)

## STATEMENT OF QUALIFICATIONS

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Qualified by 4+ years as Support Specialist and 7 years of doctoral and post-doctoral academic experience in biophysics and solar energy research. Expertise in programming, data acquisition and data analysis, including machine learning and modeling. I am interested in leveraging my skills for a role in development, data science, and data analysis.

## PROFESSIONAL EXPERIENCE

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JOB	<b>Software Developer (contract position)</b>	December 2018 – Present
EMPLOYER	<b>University of Oslo</b>	Oslo, Norway
	Develop an extension for UiO's educational platforms	
TASKS	<ul style="list-style-type: none"><li>• Full stack development of a plugin for Canvas LMS using the LTI standard</li></ul>	
JOB	<b>Support Specialist</b>	May 2014 – August 2018
EMPLOYER	<b>InterSystems Corporation</b>	Cambridge, MA
	Provided technical support for InterSystems' Analytics platform	
TASKS	<ul style="list-style-type: none"><li>• Solved customer issues and requests (about 450), coordinate with clients and developers on any proposed changes</li><li>• Development of applications using HTML, Javascript, ObjectScript, SQL, MDX</li><li>• Developed and improved analytical models, architecture, dashboards, and software performance for Business Intelligence</li><li>• Joined client meetings to troubleshoot issues and coordinate project development</li></ul>	
JOB	<b>Postdoctoral Scientist</b>	September 2011 – June 2013
EMPLOYER	<b>Delft University of Technology</b>	Delft, the Netherlands
	Investigated molecular electronic processes in organic semiconductors	
OUTCOMES	<ul style="list-style-type: none"><li>• Developed a nonlinear superposition model in MATLAB to extract charge yields from spectroscopic data</li><li>• Implemented LabVIEW software for laser systems using event-driven programming</li></ul>	
JOB	<b>Ph.D. in Biophysics of Photosynthesis</b>	April 2006 – June 2011
EMPLOYER	<b>Vrije Universiteit</b>	Amsterdam, the Netherlands
	Researched the transport of light energy in plant and algal photosynthesis	
OUTCOMES	<ul style="list-style-type: none"><li>• Developed MATLAB software for data processing. Performed model-based analysis of spectroscopic data on high performance servers</li><li>• Co-developer of the C (LabWindows) software for a laser detector. Set up real-time instrument control and digital data processing at high-repetition rates</li><li>• Published 6 peer-reviewed publications (4 first author) in academic journals</li></ul>	
PROJECT	<b>Master Thesis in Hearing Research</b>	August 2004 – June 2005
UNIVERSITY	<b>Karolinska Institute</b>	Stockholm, Sweden
	Researched cochlear mechanics	
OUTCOMES	<ul style="list-style-type: none"><li>• Preprocessed movies of the cochlea with wavelet denoising and deconvolution</li><li>• Invented and developed a MATLAB algorithm that uses optical flow to couple a simulation of cochlear movement to microscopic movies</li><li>• Published a peer reviewed publication in an academic journal</li></ul>	

## EDUCATION

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STUDY	<b>PhD in Biophysics of Photosynthesis</b>	April 2006 – April 2012
UNIVERSITY	<b>Vrije Universiteit</b>	Amsterdam, the Netherlands
	Full time research in biophysics of photosynthesis on the EU funded project Harvest	
STUDY	<b>BSc in Physics, MSc in Applied Physics</b>	September 1999 – November 2005
UNIVERSITY	<b>University of Padova</b>	Padova, Italy
	<b>Karolinska Institute</b>	Stockholm, Sweden
	Bachelor and Master in Physics at University of Padova.	
	Master thesis in Biophysics of the cochlea at Karolinska Institutet	
STUDY	<b>Bachelor of Music, Piano</b>	September 2001 – June 2004
INSTITUTION	<b>Conservatory of Music Benedetto Marcello</b>	Venice, Italy
	3 years piano, 1 year composition	

## CERTIFICATES

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- [Oracle Certified Associate](#): Java SE 8 Programmer
- [MIT Professional Education Program](#): Certificate for the “Data Science: Data to Insights” online course on Data Science and Machine Learning
- [Online courses](#): Certificates (Coursera, Lynda) on programming, machine learning, and network science

## PROGRAMMING LANGUAGES

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- Software development: Python, ObjectScript, Java, ShellScript (Bash), LabVIEW, C (LabWindows/CVI)
- Website development: HTML/CSS/Javascript (jQuery, D3, amCharts, Bootstrap), Django, Angular, TypeScript, NodeJS, REST
- Data analysis using MATLAB, Python, R
- Machine learning in Python (pandas, numpy, matplotlib, scikit-learn, gensim, nltk, etc)
- Databases: relational (Caché SQL, PostgreSQL, MySQL and SQLite) and NoSQL (MongoDB)
- Version control software: Git, Perforce

## PROGRAMMING PROJECTS

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- [Machine Learning Notebooks](#): Jupyter notebooks about Machine Learning projects
- [PyPanda](#): Optimized a method for modeling transcriptional networks in Python
- [PyPuma](#): Wrote a Python application of a computational biology method for miRNA network inference
- [Zero Waste Locator](#): MEAN (MongoDB, Express, Angular CLI, Node.js) app
- [Djangoresume](#): My Django-based online resume
- [Mezzanine-website](#): My Django/Mezzanine-based site
- [DeepSeeButtons](#): Gather and analyze system information from stems platforms
- [Install-Samples-BI](#): Automatically install sample Business Intelligence implementations on InterSystems platforms
- [InterSystems](#): Miscellaneous projects involving InterSystems' technology
- [Tantrix](#): Implementation in Python of a puzzle game
- [iGrow](#): Webapp plotting a child's measurements over reference data from WHO

## SKILLS

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- Machine Learning: regression, classification/clustering, ensemble methods, dimensionality reduction, time series analysis, web scraping, natural language processing (topic analysis), anomaly detection, familiarity with recommendation systems, neural networks
- Professional experience with large-scale code bases (InterSystems Caché)
- Troubleshooting technical issues using the scientific method and problem solving theory
- Teamwork: launched and supported research projects resulting in 7 academic publications
- Business Intelligence Analytics: diagnosing issues on data, BI models, architecture. Recommending optimizations for performance problems, efficient parallel processing of data
- Management responsibilities and teaching: mentored a new hire and BSc and MSc students, who completed their projects on time and to a high standard. Two years teaching assistant in the MATLAB/LabVIEW course Applied Informatics for Medical Students given in Dutch
- Scientific/Technical writing: published 4 first-authored academic publications, as well as 12 technical articles for the Developer Community of InterSystems
- Communication: presented 16 oral talks at international conferences

## LANGUAGES

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<b>Italian</b>	Native proficiency	<b>Spanish</b>	Limited working proficiency
<b>English</b>	Full professional proficiency	<b>French</b>	Limited working proficiency
<b>Dutch</b>	Full professional proficiency	<b>Norwegian</b>	Limited working proficiency (Mellomnivå)

## PUBLICATIONS

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- **Marin A**, van Stokkum IH, Novoderezhkin VI, van Grondelle R. Excitation-induced polarization decay in the plant light-harvesting complex LHCII. *Journal of Photochemistry and Photobiology, A: Chemistry*, 2012, 234:91-99. [Link](#)
- **Marin A**, Doust AB, Scholes GD, Wilk KE, Curmi PMG, van Stokkum IHM, van Grondelle R. Flow of excitation energy in the cryptophyte light-harvesting antenna phycocyanin 645. *Biophysical Journal*, 2011, 101:1004-1013. [Link](#)
- Novoderezhkin VI, **Marin A**, van Grondelle R. Intra- and inter-monomeric transfers in the light harvesting LHCII complex: the Redfield-Frster picture. *Physical Chemistry Chemical Physics*, 2011, 13(38):17093-103. [Link](#)
- **Marin A**, Passarini F, van Stokkum IH, Croce R, van Grondelle R. Minor complexes at work: light-harvesting by Carotenoids in the Photosystem II antenna complexes CP24 and CP26. *Biophysical Journal*, 2011, 100(11):2829-2838. [Link](#)
- Gall A, Berera R, Alexandre MTA, Pascal AA, Bordes L, Mendes-Pinto MM, Andrianambinintso S, Stoitchkova KV, **Marin A**, Valkunas L, Horton P, Kennis JTM, van Grondelle R, Ruban A, Robert B. Molecular adaptation of photoprotection: Triplet states in light-harvesting proteins. *Biophysical Journal*, 2011, 101(4):934-942. [Link](#)
- **Marin A**, Passarini F, Croce R, van Grondelle R. The energy transfer pathways in the CP24 and CP26 antenna complexes of higher plant Photosystem II. A comparative study. *Biophysical Journal*, 2010, 99:4056-4065. [Link](#)
- Boutet de Monvel J, **Marin A**, Jacob S, Tomo I, von Tiedemann M, Fridberger A, Ulfendahl M, Steele CR. From cochlear kinematics to cochlear mechanics: matching model to experiments. *Otol Jpn*, 2007, 16(2):76-84. [Link](#)