Alessandro Marin, PhD

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Online resume
LinkedIn page
GitHub page

Statement of qualifications

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 and data analysis.

Technical Skills

- Software development: Python, MATLAB, ObjectScript, Java, Javascript, LabVIEW, UNIX shell
- UI and website development: HTML/CSS/Javascript (jQuery, D3, amCharts), Django, Python (Tkinter), LabView, LabWindows
- Data analysis using MATLAB, Python (pandas, numpy, etc), R
- Machine learning in Python (scikit-learn, gensim, nltk, etc): 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
- Business Intelligence Analytics: diagnosing issues on data, BI models, architecture. Recommending optimizations for performance problems, efficient parallel processing of data
- Databases: relational (SQL) and NoSQL databases
- Version control software: Git, Perforce

Programming Languages

- Python, MATLAB, ObjectScript, Java, ShellScript (Bash), LabVIEW, R, C (LabWindows/CVI)
- Django, NodeJS (Express), SQL (Cach SQL, PostgreSQL, MySQL and SQLite), InterSystems Cach, MongoDB, Git
- HTML, CSS, Javascript, Bootstrap, jQuery, D3, amCharts, Angular
- Python libraries for Machine Learning (scikit learn, pandas, numpy, scipy, matplotlib, nltk, etc), MDX, LaTeX

Transferable Skills

- 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
- 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

Professional Experience

Job	**Support Specialist**	May 2014 – August 2018
Employer	**InterSystems Corporation**	Cambridge, MA
	Provided technical support for InterSystems' Analytics platform	
Tasks	• Solved customer issues and requests (about 450), coordinate with clients and developers on any proposed changes	
	• Development of applications using HTML, Javascript, ObjectScript, SQL, MDX	
	• Developed and improved analytical models, architecture, dashboards, and software performance for Business Intelligence	
	• Joined client meetings to troubleshoot issues and coordinate project development	
	• Consistently received 10/10's in customer experience scores	
Job	**Postdoctoral Scientist**	September 2011 – June 2013
Employer	**Delft University of Technology**	Delft, the Netherlands
	Investigated the molecular electronic processes in organic semiconductors by modeling spectroscopic data	
Outcomes	• Developed a nonlinear superposition model in MATLAB to extract charge yields from spectroscopic data	
	• Implemented software using queues and event-driven programming in LabVIEW for laser systems	
Job	**Ph.D. in Biophysics of Photosynthesis**	April 2006 – June 2011
Employer	**Vrije Universiteit**	Amsterdam, the Netherlands
	Researched the transport of light energy in plant and algal photosynthesis	
Outcomes	• Developed MATLAB software for data processing. Performed model-based analysis of spectroscopic data on high performance servers	
	• 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	
	• Published 6 peer-reviewed publications (4 first author) in academic journals	
Project	**Master Thesis in Hearing Research**	August 2004 – June 2005
University	**Karolinska Institute**	Stockholm, Sweden
	Researched cochlear mechanics	
Outcomes	• Preprocessed movies of the cochlea with wavelet denoising and deconvolution	
	• Invented and developed a MATLAB algorithm that uses optical flow to couple a simulation of cochlear movement to microscopic movies	
	• Published a peer reviewed publication in an academic journal	

Qualifications

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

Certificates

- 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 Projects

- Machine Learning Notebooks: Jupyter notebooks with 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
- 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

Languages

Italian	Native proficiency	**Spanish**	Limited working proficiency
English	Full professional proficiency	**French**	Limited working proficiency
Dutch	Full professional proficiency		

Publications

- **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