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 with 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

- Back end: Python, ObjectScript, MATLAB, Django, Java, ShellScript (Bash), SQL, LabVIEW, R, C, LabWindows/CVI
- Front end: HTML, CSS, Javascript, Bootstrap, jQuery, D3, amCharts
- Other: 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 – Present
Employer	**InterSystems Corporation**	Cambridge, MA

Provide technical support for InterSystems Business Intelligence platform DeepSee

Tasks
- Solve customer issues and requests (400+ till date), coordinate with clients and developers on any proposed changes
- Development of applications using HTML, Javascript, ObjectScript, SQL, MDX
- Develop and improve analytical models, architecture, dashboards, and software performance for Business Intelligence
- Join client meetings to troubleshoot issues and coordinate project development
- Consistently receive 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	**Free University**	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 with microscopic movies
- Published a peer reviewed publication in an academic journal

Qualifications

Study	**PhD in Biophysics of Photosynthesis**	April 2005 – June 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

- **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
- **Mezzanineresume**: My Django/Mezzanine-based site
- **DeepSeeButtons**: Gather and analyze system information from InterSystems 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 allowing users to plot a childs weight, length and BMI in comparison to reference data from the World Health Organization.

LANGUAGES

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

PUBLICATIONS

- **<u>Marin A</u>**, 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

- **<u>Marin A</u>**, 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, **<u>Marin A</u>**, 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

- **<u>Marin A</u>**, 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, **<u>Marin A</u>**, 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

- **<u>Marin A</u>**, 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, **<u>Marin A</u>**, 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