

Marwan Abdellah

Résumé

EXPERIENCE & EMPLOYMENT HISTORY

07.2011 – Present	Scientific Visualization Engineer · <i>Blue Brain Project</i> · EPFL · Lausanne · Switzerland
01.2013 – 10.2013	Software Engineer · <i>Coursera EPFL</i> · Lausanne · Switzerland
07.2010 – 04.2011	Research Assistant · <i>SCI-STI-MM Multimedia Group</i> · EPFL · Lausanne · Switzerland
03.2010 – 07.2010	Biomedical Software Engineer · Biomedical Group · <i>Symbyo Technologies (360imaging)</i> · Cairo · Egypt
07.2009 – 07.2010	Instructor · <i>National Institute of Laser Advanced Sciences (NILES)</i> · <i>Cairo University</i> · Cairo · Egypt
09.2009 – 02.2010	Biomedical Software Engineer · <i>International Biomedical Engineering (IBE) Technologies</i> · Cairo · Egypt

EDUCATION

09.2012 – 09.2017	Ph.D. In Silico Neuroscience · <i>Blue Brain Project</i> · EPFL · Lausanne · Switzerland
09.2009 – 05.2012	M.Sc. Biomedical Engineering · <i>Biomedical Engineering Department</i> · <i>Cairo University</i> · Cairo · Egypt
09.2004 – 05.2009	B.Sc. Biomedical Engineering · <i>Biomedical Engineering Department</i> · <i>Cairo University</i> · Cairo · Egypt

RESEARCH & DEVELOPMENT INTERESTS

Visualization	Scientific visualization · High performance, distributed, and scalable volume rendering · Transfer function design
Medical Imaging	High quality and high performance 3D/4D real-time volume reconstruction for medical data (CT, MRI and Ultrasound) · Digitally reconstructed radiograph generation with k-space volume rendering
Rendering	Physically-based Monte Carlo rendering · Rendering fluorescence materials with low- and highly-scattering heterogeneous media
HPC	GPU computing (GPGPU) with CUDA · Heterogeneous computing with OpenCL · Parallel and distributed computing with OpenMP and sockets
Computational Geometry	Reconstruction of high fidelity polygonal meshes that can accurately represent the surface of neuronal morphologies extracted from optical microscopy stacks
In Silico Neuroscience	Physically-plausible simulation of different microscopic imaging techniques of the cortical brain tissue using digital reconstructions of 3D neuronal models including brightfield, fluorescence and light sheet microscopes

TECHNICAL

Programming	C/C++ · Python · JAVA · Unix Shell · OOP · Design Patterns · TDD
Libraries	STL · Boost · Qt
Visualization & CG	OpenGL · Open Inventor · OpenSceneGraph · VTK · XIP · NVIDIA Cg · GLSL
Rendering	PBRT · LuxRender · Mitsuba
HPC	CUDA · OpenCL · OpenMP · SLURM
Web Development	HTML · CSS · JavaScript
Software Process	Agile · Scrum · Bamboo · Jira · Jenkins
Scientific Packages	MATLAB · Octave · Vensim
3D Graphics	Blender (scripting with Python) · Maya (including MEL scripting) · 3DSMax
Design & Web	Gimp · Adobe Photoshop · Adobe Illustrator · Adobe After Effects · Adobe Muse
Typography	L ^A T _E X · Lyx · Microsoft Office
Others	Git · SVN · Doxygen

SELECTED PROJECTS

2016 – Present	<i>Large scale physically-plausible reconstruction of volumetric models of neuronal morphologies</i>
2015 – 2016	<i>Parallel rendering of large scale volumes on distributed heterogeneous computing platforms</i>
2015 – 2016	<i>Physically-based rendering of highly scattering fluorescent brain models</i>
2013 – Present	<i>Simulation of optical microscopy with Monte Carlo rendering</i>

OPEN SOURCE CONTRIBUTIONS

2016 – Present	<i>NeuroMorphoVis</i>
2015 – 2016	<i>Livre</i>
2011 – 2015	<i>The Neocortical Microcircuit Collaboration Portal</i>
2011 – 2012	<i>Equalizer</i>
2012	<i>The Portable Hardware Locality (HWLOC)</i>

HONORS & AWARDS

October 2017	<i>EPFL Prime Speciale · 1000.0 CHF</i>
January 2010	<i>ITIDA Graduation Project Award</i>
June 2010	<i>NVIDIA Award · ICTP</i>
July 2009	<i>Distinction with Honor · B.Sc. Biomedical Engineering</i>

GRANTS & FELLOWSHIPS

June 2018	<i>ISMB Fellowship · USD 1000</i>
September 2012	<i>EPFL Ph.D. Fellowship</i>
January 2011	<i>ICTP Grant</i>
August 2009	<i>ICTP Grant</i>
January 2009	<i>ITIDA/ITAC Grant · USD 2000</i>

PROFESSIONAL MEMBERSHIPS

01.2010 – Present	<i>Institute of Electrical and Electronic Engineers (IEEE)</i>
01.2010 – Present	<i>IEEE Engineering in Medicine and Biology Society (EMBS)</i>
02.2015 – Present	<i>IEEE Engineering Computer Society</i>
04.2015 – Present	<i>The European Association of Computer Graphics (Eurographics)</i>
05.2015 – Present	<i>International Society for Computational Biology (ISCB)</i>

PERSONAL

Residence	<i>PERMIT B · Lausanne · Switzerland (since 2010)</i>
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Languages	<i>ENGLISH — Fluent · FRENCH — Good · ARABIC — Mother tongue</i>
Publications	<i>All the publications are listed in the attached curriculum vitae.</i>
Recommendations	<i>References are available upon request.</i>