

Marwan Abdellah

Curriculum Vitae

EDUCATION

- 09.2012 – Present PH.D. CANDIDATE · IN SILICO NEUROSCIENCE
Blue Brain Project · Neuroscience Doctoral School · École Polytechnique Fédéral de Lausanne (EPFL)
Lausanne · Switzerland
THESIS TITLE — *In Silico Brain Imaging*
RESEARCH SCOPE — *Bio-physically-based rendering and visualization of complex brain tissue models using computational modeling and simulation of optical microscopes.*
ADVISORS — *Henry Markram · Felix Schürmann*
MENTORS — *Ahmet Bilgili · Stefan Eilemann · Jean-Philippe Thiran*
- 09.2009 – 05.2012 M.Sc. · BIOMEDICAL ENGINEERING
Systems & Biomedical Engineering Department · School of Engineering · Cairo University
Cairo · Egypt
THESIS TITLE — *High Performance Fourier Volume Rendering on Graphics Processing Units (GPUs)*
RESEARCH SCOPE — *Accelerating the generation of digitally-reconstructed radiographs (DRRs) on GPUs using Fourier slice theorem and frequency domain volume rendering.*
ADVISORS — *Ayman Eldeib · Amr Sharawi*
- 09.2004 – 05.2009 B.Sc. · BIOMEDICAL ENGINEERING
Systems & Biomedical Engineering Department · School of Engineering · Cairo University
Cairo · Egypt
THESIS TITLE — *Software Development for Low Cost, High quality, Real-time, 4D Ultrasound on Personal Computers*
PROJECT SCOPE — *Investigating various rendering algorithms for accelerating 4D Ultrasound volume reconstruction on GPUs.*
ADVISOR — *Yasser Kadah*

RESEARCH INTERESTS

- | | |
|----------------------------|--|
| Visualization | Scientific visualization · High performance, distributed, and scalable volume rendering · Transfer function design |
| Rendering | Physically-based Monte Carlo rendering · Rendering fluorescence materials with highly scattering heterogeneous media |
| 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 |
| High Performance Computing | GPU computing (GPGPU) with CUDA · Heterogeneous computing with OpenCL · Distributed computing with MPI and OpenMP |
| 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 |

EXPERIENCE & EMPLOYMENT HISTORY

- 07.2011 – Present SCIENTIFIC VISUALIZATION ENGINEER & DOCTORAL ASSISTANT IN NEUROSCIENCE
Blue Brain Project · Human Brain Project · École Polytechnique Fédéral de Lausanne (EPFL)
Lausanne · Switzerland
ROLE — *High performance and distributed visualization, automated visualization workflows, and multimedia generation for neuroscientific data.*
DIRECTOR — *Henry Markram*

PROJECT MANAGER — *Felix Schürmann*

LEAD — *Stefan Eilemann*

- 01.2013 – 10.2013 SOFTWARE ENGINEER
Coursera EPFL
Lausanne · Switzerland
ROLE — *Building automated grading and systematic evaluation workflows for C++ and JAVA courses offered by EPFL on Coursera.*
INSTRUCTORS — *Jean-Cédric Chappelier · Vincent Lepetit · Jamila Sam*
- 07.2010 – 04.2011 RESEARCH ASSISTANT
SCI-STI-MM Multimedia Group · École Polytechnique Fédéral de Lausanne (EPFL)
Lausanne · Switzerland
ROLE — *Pursuing a research on H.264 and re-configurable video coding.*
LAB DIRECTOR — *Marco Mattavilli*
- 03.2010 – 07.2010 ASSOCIATE BIOMEDICAL SOFTWARE ENGINEER
Biomedical Group · Symbyo Technologies (360imaging)
Cairo · Egypt
ROLE — *Development of dental implant software.*
- 07.2009 – 07.2010 INSTRUCTOR
National Institute of Laser Advanced Sciences (NILES) · Cairo University
Cairo · Egypt
ROLE — *Instructing different topics of visualization and high performance computing.*
- 09.2009 – 02.2010 BIOMEDICAL SOFTWARE ENGINEER
Research and Development Team · International Biomedical Engineering (IBE) Technologies
Cairo · Egypt
ROLE — *Development of 4D ultrasound reconstruction software.*
- 01.2005 – 09.2010 FREELANCER
Web design

CLASSES & TEACHING

- Spring 2014
Spring 2013 NUMERICAL ANALYSIS · MATH-251
Life Sciences School · 4th Bachelor semester
École Polytechnique Fédéral de Lausanne (EPFL)
TOPICS — *Stability, condition number and convergence of numerical methods · Polynomial interpolation and least squares approximation · Numerical integration · Direct methods for the solution of linear systems · Iterative methods for the solution of linear and nonlinear systems · Numerical approximation of ordinary differential equations · Introduction to MATLAB and Octave*
LECTURER — *Simone Deparis*
- July 2010 HIGH PERFORMANCE COMPUTING
National Institute of Laser Advanced Sciences (NILES)
TOPICS — *Basic theory of HPC topics like Amdahl's law, speed up, UMA and NUMA architectures · GPU architecture · CUDA · Parallel algorithms*
- October 2009 COMPUTER GRAPHICS & VISUALIZATION
National Institute of Laser Advanced Sciences (NILES)
TOPICS — *OpenGL Pipeline · Surface rendering · Graphics Modeling using 3D Studio Max*

SELECTED PROJECTS

- 2016 – Present PHYSICALLY-PLAUSIBLE RECONSTRUCTION OF VOLUMETRIC MODELS OF NEURONAL MORPHOLOGIES

Automated reconstruction of accurate volumetric models of neocortical neuronal morphologies obtained from optical microscopes. The workflow creates watertight mesh models directly from the morphologies and then converts them to volumetric ones based on parallel solid voxelizer.

- 2015 – 2016 **PARALLEL RENDERING OF LARGE SCALE VOLUMES ON DISTRIBUTED HETEROGENEOUS COMPUTING PLATFORMS**
OpenCL-based, distributed rendering engine for visualizing large scale volumes on parallel multi-GPU remote machines.
- 2015 – 2016 **PHYSICALLY-BASED RENDERING OF HIGHLY SCATTERING FLUORESCENT BRAIN MODELS**
A novel rendering model for simulating light interaction with highly scattering fluorescent models based on a physically-plausible basis.
- 2013 – Present **SIMULATION OF OPTICAL MICROSCOPY WITH MONTE CARLO RENDERING**
Simulation of the imaging pipelines in multiple optical microscopy techniques including brightfield and light sheet fluorescence microscopy.

OPEN SOURCE CONTRIBUTIONS

- 2015 – 2016 **LIVRE**
Large scale interactive parallel volume rendering engine.
- 2011 – 2015 **THE NEOCORTICAL MICROCIRCUIT COLLABORATION PORTAL**
This portal provides an online public resource of the Blue Brain Project's first release of a digital reconstruction of the microcircuitry of juvenile Rat somatosensory cortex, access to experimental data sets used in the reconstruction, and the resulting models.
- 2011 – 2012 **EQUALIZER**
Equalizer is the standard middleware to create and deploy parallel OpenGL-based applications.
- 2012 **THE PORTABLE HARDWARE LOCALITY (HWLOC)**
This software package provides a portable abstraction of the hierarchical topology of modern architectures, including NUMA memory nodes, sockets, shared caches, cores and simultaneous multithreading.

HONORS & AWARDS

- January 2010 **ITIDA GRADUATION PROJECT AWARD**
My graduation project was awarded the first place in 2009 from the Minsters of Higher Education and Tele-Communication in Egypt during a celebration that was organized by ITIDA.
- June 2010 **NVIDIA AWARD**
*NVIDIA GeForce GTX 9800 GPU Awarded as a prize for accelerating ultrasound volume rendering application in **ICTP**.*
- July 2009 **DISTINCTION WITH HONOR · B.SC. BIOMEDICAL ENGINEERING**
Systems & Biomedical Engineering Department · Faculty of Engineering · Cairo University

GRANTS & FELLOWSHIPS

- September 2012 **PH.D. FELLOWSHIP**
*Fully funded Ph.D. fellowship from the **Blue Brain Project** · **École Polytechnique Fédéral de Lausanne (EPFL)***
- January 2011 **ICTP GRANT**

Travel award to attend the Advanced Workshop in High Performance Computing & Grid Computing in the *International Center for Theoretical Physics (ICTP)* in Trieste, Italy.

August 2009 **ICTP GRANT**
Travel award to attend the Advanced Workshop in High Performance Computing in the *International Center for Theoretical Physics (ICTP)* in Trieste, Italy.

January 2009 **ITIDA/ITAC GRANT**
Grant of EGP 10000 from ITAC to support my graduation project.

TECHNICAL

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

PROFESSIONAL ACTIVITIES

PROFESSIONAL MEMBERSHIPS

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

REVIEWER

February 2017	JOURNAL OF MEDICAL IMAGING (SPIE)
May 2016	JOURNAL OF ELECTRONIC IMAGING (SPIE)
March 2016	EUROGRAPHICS SYMPOSIUM ON PARALLEL GRAPHICS & VISUALIZATION (EGPGV) 2016
January 2016	SOFTWAREX (ELSEVIER)
August 2015	DESIGN AUTOMATION FOR EMBEDDED SYSTEMS
July 2015	COMPUTER GRAPHICS FORUM
March 2015	EUROGRAPHICS SYMPOSIUM ON PARALLEL GRAPHICS & VISUALIZATION (EGPGV) 2015

January 2014 JOURNAL OF MEDICAL IMAGING & HEALTH INFORMATICS
August 2012 IEEE, CAIRO INTERNATIONAL BIOMEDICAL ENGINEERING CONFERENCE (CIBEC) 2012

ATTENDED EVENTS, CONFERENCES & WORKSHOPS

October 2016 6th WORKSHOP ON BIOLOGICAL DATA VISUALIZATION (BioVis 2016) AT IEEE VIS 2016
Baltimore · MD · USA

May 2016 THE BRAIN FORUM
Lausanne · Switzerland

May 2016 EUROGRAPHICS 2016
Lisbon · Portugal

April 2016 37th INTERNATIONAL SYMPOSIUM ON BIOMEDICAL IMAGING: FROM NANO TO MACRO (ISBI 2016)
Prague · Czech Republic

October 2015 THE SECOND BIOMEDICAL ENGINEERING WORKSHOP (ORGANIZER)
Systems & Biomedical Engineering Department · School of Engineering · Cairo University · Cairo · Egypt

October 2015 THE 2nd IEEE EMBS INTERNATIONAL STUDENTS CONFERENCE (KEYNOTE)
Cairo · Egypt

September 2015 THE HUMAN BRAIN PROJECT SUMMIT
Madrid · Spain

August 2015 37th INTERNATIONAL CONFERENCE OF THE IEEE EMB SOCIETY (EMBC 2015)
Milan · Italy

July 2015 5th SYMPOSIUM ON BIOLOGICAL DATA VISUALIZATION (BioVis 2015) AT ISMB/ECCB 2015
Dublin · Ireland

May 2015 EUROGRAPHICS 2015
Zürich · Switzerland

March 2015 THE BRAIN FORUM
Lausanne · Switzerland

December 2014 IEEE, 7th CAIRO INTERNATIONAL BIOMEDICAL ENGINEERING CONFERENCE (CIBEC 2014)
Cairo · Egypt

December 2013 THE BRAIN FORUM
Jeddah · The Kingdom of Saudi Arabia

October 2013 THE HUMAN BRAIN PROJECT SUMMIT
École Polytechnique Fédéral de Lausanne (EPFL) · Lausanne · Switzerland

December 2012 THE FIRST BIOMEDICAL ENGINEERING WORKSHOP (ORGANIZER)
Biomedical Engineering Department · School of Engineering · Cairo University · Cairo · Egypt

December 2012 IEEE, 6th CAIRO INTERNATIONAL BIOMEDICAL ENGINEERING CONFERENCE (CIBEC 2012)
Cairo · Egypt

November 2012 BRAIN MIND INSTITUTE (BMI) RETREAT MEETING
Bex · VD · Switzerland

April 2011 ADVANCED SCHOOL IN HIGH PERFORMANCE COMPUTING & GRID COMPUTING
International Center for Theoretical Physics (ICTP) · Trieste · Italy

November 2009 ADVANCED SCHOOL IN HIGH PERFORMANCE COMPUTING
International Center for Theoretical Physics (ICTP) · Trieste · Italy

November 2009 IEEE, INTERNATIONAL CONFERENCE OF IMAGE PROCESSING (ICIP 2009)
Cairo · Egypt

March 2009 URSI, 26th NATIONAL RADIO SCIENCE CONFERENCE (NRSC)
Cairo · Egypt

December 2008 IEEE, 4th CAIRO INTERNATIONAL BIOMEDICAL ENGINEERING CONFERENCE (CIBEC 2008)
Cairo · Egypt

OTHER INFORMATION

PERSONAL

Residence PERMIT B · Lausanne · Switzerland (since 2010)
Address Campus Biotech · Chemin des Mines, 9 · Geneva · CH-1202 · Switzerland
Mobile Phone +41 (0) 79 470 12 20
HomePage www.marwan-abdellah.com
Emails marwan.abdellah@epfl.ch · abdellah.marwan@gmail.com · marwan.m.abdellah@ieee.org
Languages ENGLISH — *Fluent*
FRENCH — *Good*
ARABIC — *Mothertongue*

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

- February 2017 **1. BIO-PHYSICALLY PLAUSIBLE VISUALIZATION OF HIGHLY SCATTERING FLUORESCENT NEOCORTICAL MODELS FOR IN SILICO EXPERIMENTATION**
BMC Bioinformatics 2017 · Volume 18 · Supplement 2:62
AUTHORS — **Marwan Abdellah**, Ahmet Bilgili, Stefan Eilemann, Julian Shillcock, Henry Markram, and Felix Schürmann
- October 2015 **2. RECONSTRUCTION AND SIMULATION OF NEOCORTICAL MICROCIRCUITRY**
Cell
AUTHORS — Henry Markram, Eilif Muller, Srikanth Ramaswamy, Michael W. Reimann, **Marwan Abdellah**, Carlos Aguado Sanchez, Anastasia Ailamaki, Lidia Alonso Nanclares, Nicolas Antille, Selim Arsever, Guy Antoine Atnekeng Kahou, Thomas K. Berger, Ahmet Bilgili, Nenad Buncic, Athanassia Chalimourda, Giuseppe Chindemi, Jean-Denis Courcol, Fabien Delalandre, Vincent Delattre, Shaul Druckmann, Raphael Dumusc, James Dynes, Stefan Eilemann, Eyal Gal, Michael Emiel Gevaert, Jean-Pierre Ghobril, Albert Gidon, Joe W. Graham, Valentin Haenel, Etay Hay, Thomas Heinis, Juan B. Hernando, Michael Hines, Lida Kanari, Daniel Keller, John Kenyon, Georges Khazen, Yihwa Kim, James G. King, Zoltan Kisvarday, Pramod Kumbhar, Sebastien Lasserre, Bruno R.C. Magalhaes, Angel Merchán-Pérez, Julie Meystre, Benjamin Roy Morrice, Jeffrey Muller, Alberto Munoz-Céspedes, Shruti Muralidhar, Keerthan Muthurasa, Daniel Nachbaur, Taylor H. Newton, Max Nolte, Aleksandr Ocharenkov, Juan Palacios, Luis Pastor, Rodrigo Perin, Rajnish Ranjan, Imad Riachi, José-Rodrigo Rodríguez, Roman Juan Luis Riquelme, Christian Andreas Rössert, Ying Shi, Julian C. Shillcock, Ricardo Silva, Farhan Tauheed, Martin Telefont, Maria Toledo-Rodriguez, Thomas Tränkler, Werner Van Geit, Jafet Villafranca Diaz, Richard Walker, Yun Wang, Stefano M. Zaninetta, Javier DeFelipe, Sean L. Hill, Idan Segev and Felix Schürmann
- August 2015 **3. THE NEOCORTICAL MICROCIRCUIT COLLABORATION PORTAL: A RESOURCE FOR RAT SOMATOSENSORY CORTEX**
Frontiers in Neural Circuits
AUTHORS — Srikanth Ramaswamy, Jean-Denis Courcol, **Marwan Abdellah**, Stanislaw Adaszewski, Nicolas Antille, Selim Arsever, Atnekeng Kahou Guy Antoine, Ahmet Bilgili, Yury Brukau, Giuseppe Chindemi, Raphael Dumusc, Stefan Eilemann, Lida Kanari, Daniel Keller, James G. King, Rajnish Ranjan, Michael Wolfgang Reimann, Christian Roessert, Martin Telefont, Werner Van Geit, Jafet Villafranca Diaz, Richard Walker, Yun Wang, Stefano Zaninetta, Javier DeFelipe, Sean L Hill, Jeffrey Muller, Idan Segev, Felix Schürmann, Eilif Benjamin Muller and Henry Markram
- August 2015 **4. PHYSICALLY-BASED IN SILICO LIGHT SHEET MICROSCOPY FOR VISUALIZING FLUORESCENT BRAIN MODELS**
BMC Bioinformatics 2015 · Volume 16 · Supplement 11:S8
AUTHORS — **Marwan Abdellah**, Ahmet Bilgili, Stefan Eilemann, Henry Markram, and Felix Schürmann
- January 2015 **5. HIGH PERFORMANCE GPU-BASED FOURIER VOLUME RENDERING**
International Journal of Biomedical Imaging · Article ID 590727
AUTHORS — **Marwan Abdellah**, Ayman Eldeib and Amr Sharawi

CONFERENCE PROCEEDINGS

- October 2016 **6. BIO-PHYSICALLY PLAUSIBLE VISUALIZATION OF HIGHLY SCATTERING FLUORESCENT NEOCORTICAL MODELS FOR IN SILICO EXPERIMENTATION**
6th Workshop on Biological Data Visualization (BioVis 2016), IEEE VIS 2016 · Baltimore, MD, USA
AUTHORS — **Marwan Abdellah**, Ahmet Bilgili, Stefan Eilemann, Julian Shillcock, Henry Markram, and Felix Schürmann
- August 2016 **7. EFFICIENT RENDERING OF DIGITALLY RECONSTRUCTED RADIOGRAPHS ON HETEROGENEOUS COMPUTING ARCHITECTURES USING CENTRAL SLICE THEOREM**
38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS) (EMBC 2016) · Orlando, FL, USA
AUTHORS — **Marwan Abdellah**, Mohamed Abdallah, Mohamed Alzanati, and Ayman M. Eldeib
- August 2016 **8. PARALLEL GENERATION OF DIGITALLY RECONSTRUCTED RADIOGRAPHS ON HETEROGENEOUS MULTI-GPU WORKSTATIONS**
38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS) (EMBC

2016) · Orlando, FL, USA

AUTHORS — **Marwan Abdellah**, Asem Abdelaziz, Eslam Ali, Sherief Abdelaziz, Abdelrahman Sayed, Mohamed I. Owis, and Ayman M. Eldeib

May 2016

9. PHYSICALLY-BASED RENDERING OF HIGHLY SCATTERING FLUORESCENT SOLUTIONS USING PATH TRACING
Eurographics 2016 · Lisbon, Portugal

AUTHORS — **Marwan Abdellah**, Ahmet Bilgili, Stefan Eilemann, Henry Markram, and Felix Schürmann

April 2016

10. INTERACTIVE HIGH RESOLUTION RECONSTRUCTION OF 3D ULTRASOUND VOLUMES ON THE GPU
2016 IEEE International Symposium on Biomedical Imaging: From Nano to Macro · Prague, Czech Republic

AUTHORS — **Marwan Abdellah**, Asem Abdelaziz, and Ayman M. Eldeib

April 2016

11. OPTIMIZED GPU-ACCELERATED FRAMEWORK FOR X-RAY RENDERING USING k -SPACE VOLUME RECONSTRUCTION

XIV Mediterranean Conference on Medical & Biological Engineering & Computing (MEDICON 2016) · Paphos, Cyprus

AUTHORS — **Marwan Abdellah**, Yassin Amer, and Ayman Eldeib

August 2015

12. ACCELERATING DRR GENERATION USING FOURIER SLICE THEOREM ON THE GPU

37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS) (EMBC 2015) · Milan, Italy

AUTHORS — **Marwan Abdellah**, Ayman M. Eldeib, and Mohamed Owis

August 2015

13. GPU ACCELERATION FOR DIGITALLY RECONSTRUCTED RADIOGRAPHS USING BINDLESS TEXTURE OBJECTS AND CUDA/OPENGL INTEROPERABILITY

37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS) (EMBC 2015) · Milan, Italy

AUTHORS — **Marwan Abdellah**, Ayman M. Eldeib, and Mohamed Owis

July 2015

14. PHYSICALLY-BASED IN SILICO LIGHT SHEET MICROSCOPY FOR VISUALIZING FLUORESCENT BRAIN MODELS
5th Symposium on Biological Data Visualization (BioVis 2015) · Dublin, Ireland

AUTHORS — **Marwan Abdellah**, Ahmet Bilgili, Stefan Eilemann, Henry Markram, and Felix Schürmann

May 2015

15. A COMPUTATIONAL MODEL OF LIGHT-SHEET FLUORESCENCE MICROSCOPY USING PHYSICALLY-BASED RENDERING

Eurographics 2015 · Zürich, Switzerland

AUTHORS — **Marwan Abdellah**, Ahmet Bilgili, Stefan Eilemann, Henry Markram, and Felix Schürmann

December 2014

16. MATLAB-BASED FOURIER VOLUME RENDERING FRAMEWORK

IEEE, Proceedings of the 7th Cairo International Biomedical Engineering Conference (CIBEC 2014) · Cairo, Egypt

AUTHORS — **Marwan Abdellah**, Ayman Eldeib and Amr Sharawi

December 2014

17. OFFLINE LARGE SCALE FOURIER VOLUME RENDERING ON LOW-END HARDWARE

IEEE, Proceedings of the 7th Cairo International Biomedical Engineering Conference (CIBEC 2014) · Cairo, Egypt

AUTHORS — **Marwan Abdellah**, Ayman Eldeib and Amr Sharawi

April 2014

18. CUFFTSHIFT: HIGH PERFORMANCE CUDA-ACCELERATED FFT-SHIFT LIBRARY

Proceedings of the High Performance Computing Symposium (HPC '14), Article No. 5 · Tampa, FL, USA

AUTHORS — **Marwan Abdellah**

December 2012

19. CONSTRUCTING A FUNCTIONAL FOURIER VOLUME RENDERING PIPELINE ON HETEROGENEOUS PLATFORMS

IEEE, Proceedings of the 6th Cairo International Biomedical Engineering Conference (CIBEC 2012) · Cairo, Egypt

AUTHORS — **Marwan Abdellah**, Ayman Eldeib and Amr Shaarawi

December 2012

20. HIGH PERFORMANCE MULTI-DIMENSIONAL (2D/3D) FFT-SHIFT IMPLEMENTATION ON GRAPHICS PROCESSING UNITS (GPUs)

IEEE, Proceedings of the 6th Cairo International Biomedical Engineering Conference (CIBEC 2012) · Cairo, Egypt
AUTHORS — **Marwan Abdellah**, Ayman Eldeib and Amr Shaarawi

December 2012 **21. HIGH PERFORMANCE CUDA-BASED IMPLEMENTATION FOR THE 2D VERSION OF THE MAXIMUM SUBARRAY PROBLEM (MSP)**
IEEE, Proceedings of the 6th Cairo International Biomedical Engineering Conference (CIBEC 2012) · Cairo, Egypt
AUTHORS — Salah Saleh, **Marwan Abdellah**, Ahmed A. Abdel Raouf and Yasser M. Kadah

May 2012 **22. PARALLEL RENDERING ON HYBRID MULTI-GPU CLUSTERS**
Eurographics Symposium on Parallel Graphics and Visualization (EGPGV'12) · Cagliari, Italy
AUTHORS — Stefan Eilemann, Ahmet Bilgili, **Marwan Abdellah**, Juan Hernando, Maxim Makhinya, Renato Pajarola, and Felix Schürmann

September 2009 **23. GPU-BASED RECONSTRUCTION AND DISPLAY FOR 4D ULTRASOUND DATA**
2009 IEEE International Ultrasonics Symposium · Rome, Italy
AUTHORS — Ahmed Elnokrashy, Ahmed Elmalky, Tamer Hosny, **Marwan Abdellah**, Alaa Megawer, Abubakr Alsebai, Abou-Bakr Youssef and Yasser Kadah

March 2009 **24. SOFTWARE DEVELOPMENT FOR LOW COST, HIGH QUALITY, REAL-TIME, 4D ULTRASOUND ON PERSONAL COMPUTERS**
IEEE, 26th National Radio Science Conference (NRSC), Union Radio Scientifique Internationale (URSI) · Cairo, Egypt
AUTHORS — **Abdellah M.**, Megawer A. and Kadah Y. Mh

POSTER ABSTRACTS

October 2012 **25. A UNIFYING MODEL OF THE NEOCORTICAL COLUMN 15: HIGH PERFORMANCE COMPUTING AND SOFTWARE DEVELOPMENT CHALLENGES**
2012 Society for Neuroscience (SFN) Meeting, 268.A Unifying Model of the Neocortical Column · New Orleans, USA
AUTHORS — F. Delalondre, **M. Abdellah**, C. Aguado Sanchez, A. Bilgili, N. Buncic, J.-D. Courcol, S. Eilemann, V. Haenel, S. L. Hill, T. Heunus, J. B. Hernando, M. Hines, J. G. King, E. Muller, B. R. C. Magalhaes, G. Mateescu, J. Muller, K. Murthurasa, D. Nachbaur, L. Pastor, J. M. Pena, R. Ranjan, M. W. Reimann, F. Tauheed, W. Van Geit, A. Ailamaki, H. Markram, F. Schürmann

November 2016 **26. IN SILICO VOLTAGE SENSITIVE DYE IMAGING IN A DIGITAL RECONSTRUCTION OF SOMATOSENSORY CORTEX**
2016 Society for Neuroscience (SFN) Meeting, San Diego, USA
AUTHORS — T. H. Newton, M. Abdellah, E. Muller, F. Schürmann, H. Markram

TECHNICAL REPORTS

February 2015 **27. COMPUTATIONAL MODELS AND SIMULATORS OF FUNCTIONAL MRI**
A literature review report submitted to Prof. Rolf Gruetter · Neuroscience Doctoral School · École Polytechnique Fédérale de Lausanne (EPFL) · Lausanne · Switzerland
AUTHORS — **Marwan Abdellah**

THESES

February 2012 **28. HIGH PERFORMANCE FOURIER VOLUME RENDERING ON GRAPHICS PROCESSING UNITS (GPUs)**
M.Sc. Thesis · Systems & Biomedical Engineering Department, School of Engineering, Cairo University · Cairo, Egypt
AUTHORS — **Marwan Abdellah**

July 2009 **29. HIGH QUALITY, HIGH PERFORMANCE, 3D REAL-TIME ULTRASOUND VOLUME RECONSTRUCTION ON GRAPHICS PROCESSING UNITS (GPUs)**
B.Sc. Thesis · Systems & Biomedical Engineering Department, School of Engineering, Cairo University · Cairo,

Egypt

AUTHORS — *Marwan Abdellah, Alaa Megawer, and Yasser Kaddah*

March 2, 2017