Curriculum Vitae et Studiorum

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Personal information

Name and surname	**Michele Scipioni**
Date and place of birth	September 12, 1989, Macerata (MC), Italy
Nationality	Italian
Gender	M
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Cover section

For the last 2 years, I have done extensive research in the field emission tomography kinetic modeling, with a particular focus on direct estimation of parametric maps from raw PET data. During my master thesis, and my current Ph.D. research, I dealt with non-linear optimization problems, development of mathematical models, and blind source separation. I have also gained some experience in quality management in nuclear medicine, use of workstations (GE Discovery PET/CT and Siemens mMR PET/MR) for acquisition, reconstruction and processing of NM data, and management protocols for storage and retrieval of patient data.

After earning my Ph.D., I am interested in continuing my experience in the academic world, looking for a position (postdoc, research assistant) focused on analysis and modeling of biomedical or biological system. I would love to go on working in the field of image reconstruction and metabolic characterization of medical images, particularly exploring the mutual advantages of combining different imaging modalities, like PET and MRI. I would also welcome, anyway, the possibility to change the current focus of my research, with the aim to find a stimulating working environment, where I could have chance to go on learning both from colleagues, and daily challenges.

Current position(s)

Dates	January 2017 - present
Name of the employer	**The MGH/HST Martinos Center for Biomedical Imaging, Charlestown, MA**
Position	**Graduate Research Assistant**
Principal subjects (keywords)	Positron emission tomography; kinetic modeling of radio tracers; aiding tomographic reconstruction with kinetic modeling ind dPET and DCE-MRI; GPU-CUDA parallel programming; Gaussian-Mixture models for PET image segmentation; machine learning.

Dates	November 2015 - present
Name of the employer	**University of Pisa - Department of Information Engineering**
Position	**Ph.D. student**
Principal subjects (keywords)	Positron emission tomography; kinetic modeling of radio tracers; direct methods for the creation of parametric maps; direct segmentation of dPET images in sinogram domain; Bayesian blind source separation of PET dataset.

Work experience

Dates	October 2016 – December 2016
Name of the employer	**Department of Information Engineering** (DII) at University of Pisa
Type of business or sector	University department
Position held	Graduate Teaching Assistant
Main activities or responsibilities	Teaching assistant for a Biomedical Imaging class for graduate biomedical engineering students. Topics: iterative reconstruction algorithms for emission tomography (ML-EM and OS-EM); PET kinetic modeling; solution of ODE systems and non linear curve fitting in Matlab
Address	Largo Lazzarino 1 - Pisa (PI), Italy

Dates	May 2015 - December 2015
Name of the employer	**Fondazione CNR/Regione Toscana "Gabriele Monasterio"** (FTGM), Pisa
Type of business or sector	Biomedical research institute
Position held	Intern
Main activities or responsibilities	Quality management in nuclear medicine; use of workstations for acquisition, reconstruction and processing of NM data; management of the methods of storage and retrieval of data in NM; acquisition of basic knowledge of the techniques for kinetic analysis of dynamic PET sequences.
Address	via G. Moruzzi, 1 - Pisa (PI), Italy
Dates	October 2014 - April 2015
Name of the employer	**Department of Information Engineering** (DII) at University of Pisa
Type of business or sector	University department
Position held	Master thesis student
Main activities or responsibilities	I have done an extensive research in the field of direct estimation of kinetic parameters from dynamic PET acquisitions, researching, implementing, and testing an algorithm of this class, and thus coming to the writing of the thesis for my master degree.
Address	Via G. Caruso 16 - Pisa (PI), Italy
Dates	July 2011 - December 2011
Name of the employer	**Department of Information Engineering** (DII) at Università Politecnica delle Marche
Type of business or sector	University department
Position held	Bachelor thesis student
Main activities or responsibilities	Definition of a protocol for measuring sEMG signal on a sample of volunteers; acquisition of laboratory measurements; processing and analysis of results; writing of the bachelor thesis.
Address	Università Politecnica delle Marche, Via Brecce Bianche - Ancona (AN) Italy
- Other working experiences -	
Position held	(03/11-09/12) Cashier @ **SNAI S.p.A** - Civitanova Marche (MC) Italy
Position held	(06/06-09/12) Sea Lifeguards @ **Cluana Nantes - Beach Rescue**
Position held	(09/08-07/10) Swimming instructor @ **Soc. Coop. Sportiva Dilettantistica *'Il Grillo'***

Education and training

Dates	October 2012 - April 2015
Name and type of education institute	**University of Pisa - School of Engineering**
Principal subjects/occupational skills covered	**Master's degree in Biomedical Engineering**: Biomedical Signal and Image Analysis, Analogic and Digital Electronics, Minimally invasive devices, Bioinformatics (Python), Databases (SQL, HTML, BMF), Android, Diagnostic instrumentation (RX, CT, PET, SPECT, MRI)
Title of qualification awarded	**Master's graduate in Biomedical Engineering** - Final mark: **110/110 *cum laude***
Thesis title	*New methods for direct estimation of kinetic parameters from dynamic PET images.*
Dates	October 2008 - December 2011
Name and type of education institute	**Università Politecnica delle Marche - Faculty of Engineering**
Principal subjects/occupational skills covered	**Bachelor's degree in Biomedical Engineering**: Mathematics, Physics, Informatics (C++, SQL), Chemistry, Bioengineering, Electronics, Mechanics, Automation, Physiology, Biomechanics, Electromagnetism, Biomaterials and Bioinstrumentation.
Title of qualification awarded	Bachelor's graduate in Biomedical Engineering - Final mark: 109/110.
Thesis title	*Analysis of the changes of locomotion patterns due to treadmill walking.*
- Other training experiences -	
Title of qualification awarded	June 2008 - **Swimming instructor license**
Title of qualification awarded	June 2006 - **MIF - Surf Lifeguard** - FIN-067582
Title of qualification awarded	May 2006 - **European Computer Driving Licence (ECDL)**

Period abroad

Dates	August - September 2007 : 3 weeks period
Place	Regency College, 61 Western Road, Brighton and Hove, E. Sussex, UK
Purpose	*"**Progetto Ulisse 2007**"*: language training funded by the province of Macerata through public announcement of selection

Dates	March 2007: 1 week period
Place	United Nations International Headquarters and the Hilton New York, New York City, USA
Purpose	***National High School Model United Nations (NHSMUN)***: simulation project where students work as accredited delegates in committees of the Organization: they are called upon to analyze the main themes on the agenda of the UN, identifying themselves with the country represented and negotiating proposals and solutions with delegates from other countries.

Publications

[1] Santarelli MF, Vanello N, **Scipioni M**, Valvano G, and Landini L. "*New Imaging Frontiers in Cardiology: Fast and Quantitative Maps from Raw Data.*" Current Pharmaceutical Design, March 28, 2017. doi:10.2174/1381612823666170328143348

[2] Santarelli MF, Della Latta D, **Scipioni M**, Positano V, and Landini L. "*A Conway-Maxwell-Poisson (CMP) Model to Address Data Dispersion on Positron Emission Tomography.*" Comput. Biol. Med. 77, no. C (October 2016): 90–101. https://doi.org/10.1016/j.compbiomed.2016.08.006

[3] **Scipioni, M.**, Santarelli, M. F., Positano, V. and Landini, L. (2016). "*The Influence of Noise in Dynamic PET Direct Reconstruction*", in E. Kyriacou, S. Christofides and C. S. Pattichis (Eds.), XIV Mediterranean Conference on Medical and Biological Engineering and Computing 2016 (pp. 308–313). Cham: Springer International Publishing. http://doi.org/10.1007/978-3-319-32703-7_61

[4] **Scipioni, M.**, Santarelli, M. F., Giorgetti, A., Positano, V., Fucci, S. and Landini, L. (2016). "*Pharmacokinetic analysis of dynamic PET data: comparison between direct parametric reconstruction and conventional indirect voxel-based estimation*", Poster presentation at European Molecular Imaging Meeting (EMIM 2016). http://doi.org/10.13140/RG.2.1.2194.2162

Meetings and conferences

Proceeding's title	Kinetic compressive sensing: improving image reconstruction and parametric map estimation
Authors	**M. Scipioni**, M.F. Santarelli, L. Landini, C. Catana, D.N. Greve, J.C. Price, and S. Pedemonte
Conference name and location	Athinoula A. Martinos Center's Scientific Open House, Boston, USA, May 25, 2017

Proceeding's title	Pharmacokinetic analysis of dynamic PET data: comparison between direct parametric reconstruction and conventional indirect voxel-based estimation
Authors	**M. Scipioni**, M.F. Santarelli, A. Giorgetti, V. Positano, S. Fucci, and L. Landini
Conference name and location	European molecular Imaging Meeting (EMIM 2016), Utrecht, The Netherlands, March 7 - 11, 2016

Proceeding's title	The Influence of Noise in Dynamic PET Direct Reconstruction
Authors	**M. Scipioni**, M. F. Santarelli, V. Positano, and L. Landini
Conference name and location	XIV Mediterranean conference on Medical and Biological Engineering and Computing (MEDICON 16), Paphos, Cyprus, March 31 - April 2, 2016

Research projects

Dates	October 2014 - April 2015
Type	Master's thesis
Project title	**New methods for direct estimation of kinetic parameters from dynamic PET images**
Topic	The algorithm subject of this work aims to combine into a single formula the operations of reconstruction and kinetic analysis of dynamic PET data: working directly on the projection data can improve both the quality and the speed of the resulting estimate. We presented a software implementation by which we could evaluate, via Monte Carlo simulations on an homogeneous test phantom, its performance in different SNR conditions. Subsequently, simulations of realistic phantoms were carried out to reproduce the behavior of anatomical sections of interest (thoracic and cerebral). This led, ultimately, to a first exploratory test on real experimental data.

Dates	October 2014 - April 2015
Type	Individual university project
Project title	**Android App Development**
Topic	Design and realization of an android interface that allows users to (1) access a remote database of songs, (2) listen a preview of a few seconds and (3) confirm the purchase. After the transaction, the 'app' will create a text file (recipe) with the total cost, saving it in a dedicate folder of the SD card. Furthermore, the 'app' implements an its own music player.

Dates	October 2014 - April 2015
Type	Group university project
Project title	**ICT & Life Science DataBase project and realization using Bio Medical Framework (BMF)**
Topic	The project consists of the design and implementation of an application for the management of databases in the clinical setting. The final goal has been the design and implementation of a database application based on relational DBMS and related user interface, addressing issues of conceptual and logical design and documenting the architecture of the software developed. The web application has been developed through the use of the BMF.

Dates	July 2011 - December 2011
Type	Bachelor's thesis
Project title	**Analysis of the changes of locomotion patterns due to treadmill walking**
Topic	**AIM:** To test the effectiveness of treadmill as a tool to help people injured to recover and regain ability to walk freely and, at the same time, as a gait analysis system. **METHODS:** The comparison covers spatio-temporal (speed, cadence, strade length), kinetic (angular movement of the knee joint) and electromyographic (contraction intensity, number and duration of muscle activations) characteristics. **CONCLUSIONS:** From a kinetic point of view we can assert the absence of statistically significant changes. By using sEMG to register muscular activity data, we advice some changes in temporal distribution of contractions and activations but, thanks to our statistical approach, we can again classify them as not so significant.

Dates	March 2011 - June 2011
Type	Individual university project
Project title	**Ultrasound eco-tomography**
Topic	The purpose of the essay is to make direct contact with the laboratory instruments and not only see it during exercises. Research topic is the ultrasound tomography that is studied starting from the physical principles of image formation, through the hardware used and the way those tomographic images are generated. The work end with an identification of the main criteria used for diagnostic interpretation of the produced images and main artifacts that one can encounter and which degrade the quality of the image.

Personal skills and competences

Mother tongue(s) **Italian**

Other languages **English and Spanish**

Self-assessment *European level*(*)	Understanding		Speaking		Writing
	Listening	Reading	Spoken interaction	Spoken production	
English	C2 Proficient user	C2 Proficient user	B2 Independent user	C1 Proficient user	C1 Proficient user
Spanish	A2 Basic user	A2 Basic user	A1 Basic user	A2 Basic user	A2 Basic user

(*) *Common European Framework of Reference (CEF) level*

English

Test Of English as a Foreign Language (TOEFL) - STN11416A - American Language Center, Florence - April 2016 - Grade:105 / 120 - European lvl: C2

Academic English and Presentation Skills - Interdepartmental Language Center (CLI) of the University of Pisa, June 2016 - European level: C2

First Certificate in English (FCE) - Cambridge English Language Assessment, June 2007 - European level: B2

Certificate level of English as a foreign language (Level B2) - Interdepartmental Language Center (CLI) of the University of Pisa, July 2014 - European level: B2

Spanish

Certificate level of spanish as a foreign language (Livello A1) - Interdepartmental Language Centre (CLI) of the University of Pisa, February 2015 - European level: A1

Social skills and competences

- I have developed and refined social, communication, group work and public relationship skills both in my sport and working activity in the field of competitive swimming, having to interact with people of very different ages, and in the organization and management of summer camps for children.
- The experience working as a lifeguard has sharpened my ability to handle situations where you need to interact with a large number of people in contexts, sometimes, of emergency, while being able to mantain control of the situation.
- Active listener and open, ready to learn from all those with whom I come in contact.
- Clear and concise (oral communication), precise and attentive to detail (in writing).

Organizational skills and competences

- Leadership (I had the opportunity to lead different groups of students during academic projects).
- Attention to detail.
- Ability to work both independently and in team.
- Logistics and events organization capability, developed during my activity within the Cultural Artistic Association *"Vox Dei Art"*, based in Morrovalle (MC), Italy.
- Self Motivation.

Technical skills and competences

- Ability to analyze the results of tests conducted.
- Ability to conduct researches aimed at solving clinical problems.
- School knowledge of human anatomy and physiology
- Able to analyze medical documents and complex technical and scientific publications in the biomedical sector

Computer skills and competences

Operative systems: Windows (very good); Linux (good)
Programming: good
Word processing: excellent
Spreadsheets: good
Database: very good
Web sites design: good
Programming language(s):MATLAB(very good), Python(good), PL/SQL(very good), HTML(good), CSS(good), C++ (basic), LaTeX (excellent), Android(good)
Known softwares: MATLAB, Office, BioMedicalFramework, MathCAD, Eclipse
ECDL (European Computer Driving License) : Yes

Artistic / sports skills and competences

Due to my artistic training (I studied piano for eight years with private weekly lessons), I was able to refine and improve my musical, technical and expressive skills, which until 2012 I exercised within the Cultural Artistic Association *"Vox Dei Art"*, based in Morrovalle (MC), Italy.

I have practiced swimming at a competitive level for nearly 15 year, until 2010, receiving awards at regional and national level and receiving the "Athlete of the year" award from the mayor of Civitanova Marche (MC), Italy, in 2008.

Other skills and competences

I like to dedicate myself to amateur editing of images and / or video, and to the creation of websites, putting into practice a bit of self-taught knowledge.

DECLARATIONS:

I declare that the information in this Curriculum Vitae is correct and true.

Date June 26, 2017 Signature 

I authorize the use of these personal data for the purposes of review of my qualifications for any post or position for which I have applied, according to Italian Law 196/2003, and for no other purpose.

Date June 26, 2017 Signature