

CURRICULUM VITAE

Name and Surname: GIACOMO DI BENEDETTO
Birthplace: PALERMO (PA)
Birthday: 23 MAGGIO 1968
Address: Via VITTOR PISANI n. 14, 20052 MONZA (MI)
Phone: +39 349 31 80 383 +39 039 73 29 00
e-mail: giadib@gmail.com

Education

Degree ("Laurea") in EE (Major: Biomedical Engineering) 100/100 "Politecnico di Milano"
Thesis Title: "Source identification method for somatosensory evoked potentials and Electroencephalographic signals in epilepsy analysis"
Secondary School Graduation Certificate in the Humanities 60/60

Past Experiences:

- May 95 – April 96:** *Research affiliate at European Project "AHEAD" on Otoacoustic Emission (filtering techniques) National Research Council of Biomedical Engineering of "Politecnico di Milano"(Prof. Grandori) and Neurophysiology Dep. "Istituti Clinici di Perfezionamento di Milano"*
- Sept 97 – June 99:** *MURST Scholarship National Research Project II Technology in Cardiology, "Extracorporeal Circulation Physiological System". Biomedical devices design and validation using FEM codes for structural and fluid-dynamic analysis. Design and validation of a neural network controller for apheresis and autotransfusion, optimisation SW and HW haematocrito sensor, validation bubble-sensor.*
Biomedical Engineering Department (Prof. Fumero) "Politecnico di Milano"
Ce.B.I.Te.C Centre for Bioengineering and Technological Innovations in Cardiology "Ospedale San Raffaele Milano"
Dideco S.p.A Mirandola (MO)
- July 99 – April 00:** *MURST Scholarship Applied Research Project in Microsystems, Microfluidic section Mi-Tech Lab., Arts Lab. (Prof P. Dario) "Scuola Superiore di Studi Universitari e Perfezionamento Sant'Anna di Pisa" Java implementation of numerical Poisson's Problem Solver evaluating the Linear Force Coefficient for newtonian flow in slender microchannels with constant cross section*
Control software of a water micro-analyser
- May 00- April 01:** *Research contract at project "Functional substitution, Artificial Organs and Organs Transplantations" Bioengineering Lab. (Senior Researcher Mauro Grigioni) "Istituto Superiore di Sanità di Roma". Cannulation techniques studies by using FEM codes for fluid-dynamic analysis. Studies of a mathematical model of the foetal cardiovascular system based on genetic algorithms as identification technique.. Studies of contractile state of the heart based on genetic algorithms as identification technique. Morphological studies of vascular prostheses.*
- May-October 01:** *Sorin Biomedica Cardio: R&D Department design and process development of NiTiNol stents*
- Nov 01- Oct 02:** *National Research Council grant on Morphological studies of vascular prostheses.*
- Nov 01- April 04:** *Brainpower SA Lugano: research department to project and develop mathematical models for financial problems (Real Portfolio, Return and Risk Attribution, Portfolio optimisation, Asset Allocation, Real time funds forecasting ..)*
- May 04- April 06:** *Research assistant at Vestibulo-Oculomotor Lab, Neurophysiology Department Zurich University Hospital: Marie Curie ESR grant on SensoPrim EU project (www.sensoprime.de).*
Consultant Istituto Superiore di Sanita' Rome on project: "Medical implantable devices - magnetic fields risk evaluation for patients: termal and not termal effects."
- May 06- Dec 07:** *Consultant Solianis Monitoring AG, Zürich, data analysis on non-invasive glucose sensor.*

- May 05- Dec 08:** *Consultant Munus Art Investment, Milan, financial artistic indices, masterpiece price forecasting by using hedonic regression.*
- Jan 07 - Dec 08:** *Consultant biomedical projects at SUPSI Lugano, DTI Department, Prof Silvano Balemi.*
- Oct 07- Dec 08:** *Consultant Sineura, Milan, development of proposals and projects on FP7 program in Health and ICT for Health fields.*
- May 08 - Dec 09:** *Consultant Sydema: developing of financial quantitative analysis system.*
- Oct 08- Dec 08:** *-Research contract, Politecnico di Torino, Prof Montecvecchi, Biomedical Department on project: "BIADS – Novel biomaterials for intraoperative adjustable devices for fine tuning of prostheses' shape and performance in surgery"*

Current Activities:

PhD student in tissue engineering, Politecnico di Torino, Prof Montecvecchi, Biomedical engineering group. (January 2009 – probably March 2012)
Co-owner ScienceInvest, Zürich, multidata financial analysis company. (June 2008 -)
Consultant MBA group, Milan, to design optimization of outofhome advertising campaign. (January 2008 -)
Consultant Eoreded srl, Milan, to design optimization of dynamic advertising campaign. (August 2010 -)
Consultant CFO S.p.A., Milan, to design decision support system for market analysis and risk management. (January 2011 -)
Partner of Enginlife, professional Firm, consultancy on biomedical research (April 2011-)

LANGUAGE SKILLS

Italian: *Mother tongue*
English: *Good knowledge*

COMPUTER SKILLS

Languages: *Pascal, Fortran, Labview, Matlab(Simulink), Visual Basic, C++, R, Python, php, Javascript ...*
Operative Systems: *Windows, Unix*
CAD system: *PROE, Patran, AutoCad, Pointline, Gambit*
FEM codes: *Fidap, Abaqus, Fluent, Femlab*

PAPERS

International Journals:

1. Caduff A, Lutz HU, Heinemann L, Di Benedetto G, Talary MS, Theander S., Dynamics of blood electrolytes in repeated hyper- and/or hypoglycaemic events in patients with type 1 diabetes. *Diabetologia*. 2011 Jun 15. [Epub ahead of print]
2. Caduff A, Heinemann L, Talary MS, Di Benedetto G, Lutz HU, Theander S., A 4-h hyperglycaemic excursion induces rapid and slow changes in major electrolytes in blood in healthy human subjects. *Acta Diabetol*. 2011 May 15. [Epub ahead of print]
3. Morbiducci U, Di Benedetto G, Kautzky-Willer A, Deriu MA, Pacini G, Tura A., Identification of a model of non-esterified fatty acids dynamics through genetic algorithms: the case of women with a history of gestational diabetes. *Comput Biol Med*. 2011 Mar;41(3):146-53.
4. Deriu M.A., Bidone T.C., Mastrangelo F., Di Benedetto G., Soncini M., Montevocchi F.M., Morbiducci U., Biomechanics of actin filaments: a computational multi-level study. *J Biomech*. 2011 Feb 24;44(4):630-6.
5. Thomassen J,S,, Di Benedetto G., Hess B.J., Decoding 3D search coil signals in a non-homogeneous magnetic field, *Vision Research*, 2010, June 18, 50(13)
6. U. Morbiducci, G. Di Benedetto, A. Kautzky-Willer, G. Pacini, A. Tura. Improved usability of the Minimal Model of insulin sensitivity based on automated approach and Genetic Algorithms for parameter estimation. *Clin Sci (Lond)*. 2007 Vol 112(4)
7. M. Grigioni, U. Morbiducci, G D'Avenio, G Di Benedetto, C Del Gaudio. A novel formulation for blood trauma prediction by a modified power-law mathematical model. *Biomechanics and Modeling in Mechanobiology* 2005 Dec;4(4):249-60.
8. Grigioni M., Daniele C., Morbiducci U., Di Benedetto G., D'Avenio G., Barbaro V. Evolutive algorithms in beat-by-beat estimation of the left ventricular mechanics. *Annali Istituto Superiore di Sanita'* 2004; 40(4): 401-409.
9. Grigioni M, Daniele C, Morbiducci U, D'Avenio G, Di Benedetto G, Barbaro V. Morphological analysis of in vivo velocity field in the alteration of the vasomotor tone. *Int J Artif Organs*. 2004 Oct;27(10):868-81.
10. Grigioni M, Daniele C, Morbiducci U, D'Avenio G, Di Benedetto G, Barbaro V. The Power-law Mathematical Model for Blood Damage Prediction: Analytical Developments and Physical Inconsistencies. *Artif Organs*. 2004 May; 28(5):467-75.
11. Grigioni M., Daniele C., Morbiducci U., Di Benedetto G., D'Avenio G., Barbaro V. Computational model of the fluid dynamics of a cannula inserted in a vessel: incidence of the presence of side holes in blood flow. *J Biomech*. 2002 Dec;35(12):1599-612.
12. Grigioni M., Daniele C., Morbiducci U., Di Benedetto G., D'Avenio G., Barbaro V. Potential mechanical blood trauma in vascular access devices: a comparison of case studies. *Int J Artif Organs*. 2002 Sep;25(9):882-91.
13. Grigioni M, Daniele C, Morbiducci U, Di Benedetto G, D'Avenio G, Barbaro V. Il sistema cardiovascolare fetale: un modello numerico che utilizza gli algoritmi genetici come metodo di identificazione. *Rapporto ISTISAN*, aprile 2002; pagine 33.

14. Grigioni M, Carotti A, Daniele C, D'Avenio G, Morbiducci U, Di Benedetto G, Albanese S, Di Donato R, Barbaro V. "A mathematical model of the fetal cardiovascular system based on genetic algorithms as identification technique". *Int J Artif Organs* 2001; 24: 286-296.
15. Grigioni M., Daniele C., Morbiducci U., Di Benedetto G., D'Avenio G.: A parametric model of cannula to investigate hemolysis by using CFD. *Engineering in Medicine and Biology Society*, 2000. *Proceedings of the 22nd Annual International Conference of the IEEE*, Volume: 2 , 23-28 July 2000 Pages:1154 - 1157 vol.2.
16. Ravazzani P., Tognola G., Grandori F., Budai R., Locatelli T., Corsi M., Comi G., Di Benedetto G.: Temporal segmentation and multiple source analysis of short-latency median nerve SEP, *Journal of Medical Engineering and Technology*, 19, 1995, pp.70-76.

International and national conferences proceedings:

1. Bidone T. C., Deriu M. A., Di Benedetto G., Mastrangelo F., Morbiducci U., Montevecchi F. M., "Conformational investigation of globular actin by means of equilibrium molecular dynamics". *Proceedings of the GNB Second National Congress of Bioengineering 2010*, July 8-10, Torino, p. 317-318, ISBN 978-88-555-3082-8.
2. Bidone T. C., Deriu M. A., Mastrangelo F., Di Benedetto G., Soncini M., Morbiducci U., "Elastic network modeling of actin filaments". *Proceedings of the ASME 2010 Summer Bioengineering Conference* June 16-19, Naples, Florida, 2 pages,
3. Deriu M. A., Bidone T. C., Mastrangelo F., Di Benedetto G., Soncini M., Morbiducci U., Montevecchi F. M., "Biomechanics of actin filaments by molecular simulations". *Proceedings of the GNB Second National Congress of Bioengineering 2010*, July 8-10, Torino, Italy, p. 642-644, ISBN 978-88-555-3082-8.
4. Gaetano L., Kim S.H.J., Di Benedetto G., Morbiducci U., Montevecchi F.M., Hunt CA. "Approximating biological truth: an agent based approach to study plausible cancer stem cell behaviours in epithelial cyst formation.", *Proceedings of the GNB Second National Congress of Bioengineering 2010*, July 8-10, Torino, ISBN 978-88-555-3082-8.
5. Gaetano L., Di Benedetto G., Tura A., Balestra G., Montevecchi F.M., Kautzky-Willer A., Pacini G., Morbiducci U., "Shaping data: a self organizing map approach for data mining of oral glucose tolerance test curves in women with previous gestational diabetes.", *Proceedings of the GNB Second National Congress of Bioengineering 2010*, July 8-10, Torino, ISBN 978-88-555-3082-8.
6. Gaetano L., Di Benedetto G., Tura A., Balestra G., Montevecchi F.M., Kautzky-Willer A., Pacini G., Morbiducci U. "A Self-organizing map based morphological analysis of oral glucose tolerance test curves in women with gestational diabetes mellitus", *Stud Health Technol Inform.* 2010;160:1145-9, MEDINFO2010, September 2010.
7. Gaetano L., Di Benedetto G., Morbiducci U., Montevecchi F.M., Hunt C.A. "An agent-based system model to support cardiac tissue engineering: preliminary results.", In *Proc. of 19th International Conference on Software Engineering and Data Engineering (SEDE2010)*, June 2010.
8. Gallo D., Di Benedetto G., Ponzini R., Antiga L., Redaelli A., Steinman D.A., Morbiducci U., "Identification of morphological features in wall shear stress waveforms". *Proceedings of the 5th International Symposium on Biomechanics in Vascular Biology and Cardiovascular Disease*, April 15-16, Rotterdam, Netherland, 2 pages.
9. Gallo D., Di Benedetto G., Gaetano L., Massai D., Antiga L., Ponzini R., Deriu M.A., Redaelli A., Morbiducci U., "Identification of atheroprone morphological features in wall shear stress waveforms in carotid bifurcations: a CFD-based integrated approach". *Proceedings of the ASME 2010 Summer Bioengineering Conference*, June 16-19, Naples, Florida (USA), 2 pages, ISBN 978-0-7918-3874-7.

10. Gallo D., Massai D., Ponzini R., Antiga L., Consolo F., Redaelli A., Deriu M.A., Montevecchi F.M., Morbiducci U., "Quantitative analysis of bulk flow in a multiscale image-based model of carotid artery bifurcation". Proceedings of the GNB Second National Congress of Bioengineering 2010, July 8-10, Torino, p. 223-224, ISBN 978-88-555-3082-8.
11. Di Benedetto G., Gallo D., Massai D., Gaetano L., Ponzini R., Antiga L., Redaelli A., Montevecchi F.M., Morbiducci U., "Arterial haemodynamic waveform morphologies and their relationship with atheroprotective and atherosusceptible regions of human vasculature". Proceedings of the GNB Second National Congress of Bioengineering 2010, July 8-10, Torino, p. 211-212, Italy, ISBN 978-88-555-3082-8.
12. Tura A., Di Benedetto G., Morbiducci U., Winhofer Y., Montevecchi F.M., Pacini G., Roden M., Kautzky-Willer A. "Non-esterified fatty acids dynamics during an oral glucose tolerance test in women with a history of gestational diabetes." Abstract accepted for Oral Presentation at EASD, European Association for the Study of Diabetes 45th Annual Meeting Vienna, 29 September - 2 October 2009.
13. Gaetano L., Antunes L., Di Benedetto G., Balestra G., Montevecchi F.M., Morbiducci U. "In silico bioreactor for simulating tissue engineering using a multi agent model. Preliminary results.", In: Proceedings of IV International Conference of Computational Bioengineering 2009 (ICCB 2009).

TECHNICAL REPORTS

1. Di Benedetto G., Cassano G., Morbiducci U. Descrizione di un modello 3-D di catetere per analisi fluidodinamiche. Report P.N.R. .in Cardiologia Ottobre 1998 Milano
2. Di Benedetto G., Cassano G., Morbiducci U. Descrizione di un modello 3-D di valvola mitrale per analisi strutturale. Report P.N.R. .in Cardiologia Ottobre 1998 Milano
3. Di Benedetto G., Cassano G., Morbiducci U. Validazione di un modello di ODC di bovino. Report P.N.R.. in Cardiologia Ottobre 1998 Milano
4. Di Benedetto G. Ricerca di un CRN per controllare il flusso durante il prime per l'ottenimento del valore di ematocrito di uscita di target con sangue bovino Report P.N.R. .in Cardiologia. Aprile 1999 Mirandola