

# CURRICULUM VITAE



## PERSONAL INFORMATION

	DICHIARAZIONE SOSTITUTIVA DI CERTIFICAZIONE resa ai sensi degli artt.19, 46 e 47 decreto del Presidente della Repubblica 28 dicembre 2000, n.445
Name	<b>GRECO ALBERTO</b>
Address	<b>39, VIA PASSAMONTI Trav. II, 55100, LUCCA (LU), ITALIA</b>
Telephone	<b>+39 380 5073861</b>
Codice Fiscale	<b>GRCLRT84P30E715K</b>
E-mail	<b>alberto.greco@centropiaggio.unipi.it</b>
Web-Page	<b>http://www.centropiaggio.unipi.it/~greco</b>
Nationality	Italian
Date of birth	30/09/1984
	<b>consapevole delle sanzioni penali previste dal codice penale e dalle leggi speciali in materia, in caso di dichiarazioni mendaci (art.76 d.p.r. 28 dicembre 2000, n.445)</b>

## WORK EXPERIENCE

<ul style="list-style-type: none"><li>• Date (2015 to date)</li><li>• Name of employer<ul style="list-style-type: none"><li>• Sector</li></ul></li><li>• Main activities</li></ul>	Postdoctoral researcher Research Centre "E. Piaggio", University of Pisa Bioengineering, Robotics and Automation Research Center Biomedical Signal Processing, Machine Learning, Statistics, Wearable Systems, Convex Optimization, System, Physiological Modeling, Eyetracking systems
<ul style="list-style-type: none"><li>• Date (01/2014 - 09/2014)</li><li>• Name of employer<ul style="list-style-type: none"><li>• Sector</li></ul></li><li>• Main activities</li></ul>	Visiting Fellow University of Essex, Wivenhoe Park, Colchester, UK School of computer science and electronic engineering Computer science, Bioengineering Convex Optimization, Biomedical Signal Processing, Machine Learning. Development of a new mathematical model for the analysis of the Electrodermal Activity
<ul style="list-style-type: none"><li>• Date (01/2012 - 09/2015)</li><li>• Name of employer<ul style="list-style-type: none"><li>• Sector</li></ul></li><li>• Main activities</li></ul>	PhD student in in Bioengineering, Robotics and Automation Research Centre "E. Piaggio", University of Pisa Bioengineering, Robotics and Automation Research Center Biomedical Signal Processing, Eyetracking systems, Machine Learning, Statistics, Wearable Systems, Convex Optimization, System, Physiological Modeling.
<ul style="list-style-type: none"><li>• Date (05/2011 - 12/2011)</li><li>• Name of employer<ul style="list-style-type: none"><li>• Sector</li></ul></li><li>• Main activities</li></ul>	Academic Scholarship Research Centre "E. Piaggio", University of Pisa Bioengineering, Robotics and Automation Research Center Wearable Systems
<ul style="list-style-type: none"><li>• Date (01/2011 - 05/2011)</li><li>• Name of employer<ul style="list-style-type: none"><li>• Sector</li></ul></li></ul>	R&D specialist <b>a-circle s.p.a.</b> via Ferrara 21 - 40018 San Pietro in Casale (BO) Italia Biotechnology

- Main activities

Management of multidisciplinary electromedical devices, installed in the neurological rehabilitation unit of the Azienda Ospedaliera Pisana. Data processing

## ACADEMIC AND PROFESSIONAL QUALIFICATION

- Name and type of organization providing education and training
- Title of qualification awarded
- Date (da - a)

University of Pisa, Research Centre "E. Piaggio"

Ph.D. Fellowship in Automation, Robotics, and Bioengineering

January 2012 – December 2015

Main subjects / professional skills object of study

Biomedical Signal Processing, Eyetracking systems, Machine Learning, Statistics, Wearable Systems, Convex Optimization, System, Physiological Modelling

- Thesis

"A new processing approach and modeling for the analysis of the electrodermal activity during multi-sensory affective stimulation".

- Name and type of organization providing education and training
- Title of qualification awarded
- Date (da - a)

University of Pisa, faculty of Biomedical Engineering (*master course degree*)

Master Degree in Biomedical Engineering (110/110 with honor)

September, 2007 – December, 2010

Main subjects / professional skills object of study

Biomedical Electronics, Bio-images Elaboration, Radiation Bioengineering, Models of Biological Systems, Complex systems biophysics, Bioinformatics

- Thesis

"Design and development of a wearable device for the acquisition and analysis of the electrodermal response". Carried on in the BioLab laboratory at the Department of Information, University of Pisa.

- Name and type of organization providing education and training
- Title of qualification awarded
- Date (da - a)

University of Pisa, faculty of Biomedical Engineering

Degree in Biomedical Engineering (110/110)

September, 2003 – April, 2007

Main subjects / professional skills object of study

Elaboration of Biomedical signals, Medical Informatics, Biomedical Instrumentation, Bioelectric Phenomenons, Biosensors and Electronics

- Thesis

"Analysis, project review and testing of the firmware of an electronic system to increase safety in blood transfusion processes"

- Name and type of organization providing education and training
- Title of qualification awarded
- Date (da - a)

Liceo Scientifico Vallisneri, Lucca

High School diploma (100/100)

September, 1998 – April, 2003

Main subjects / professional skills object of study

Mathematics, Physics, Italian, Latin, Biology, Chemistry, History, Philosophy, English

## PERSONAL SKILLS AND COMPETENCES

MOTHER TONGUE

**ITALIAN**

FOREIGN LANGUAGES

- Reading
- Speaking
- Writing

**ENGLISH**

VERY GOOD

VERY GOOD

VERY GOOD

SOCIAL SKILLS AND COMPETENCES

I can communicate in a clear and accurate way, answering to specific requests and needs. I am resourceful, with group and problem-solving work skills and I have personality.

ORGANIZATIONAL SKILLS AND

I am able to work on my own initiative, defining priorities and assuming responsibility in my

## COMPETENCES

professional experience, when asked to manage different activities complying with terms and working aims.

## TECHNICAL SKILLS AND COMPETENCES

- Excellent knowledge of Windows and IOS operating systems and Microsoft Office package.
- Ability to use laboratory equipment (oscilloscope, multimeter, welder..).
- Very good level of programming (C / C ++, Assembly, Matlab, Delphi, SQL, G etc..) and databases.
- Excellent experience in signal processing and advanced statistics
- Excellent experience in video processing techniques for eye-tracking systems
- Excellent knowledge of convex optimization techniques
- Excellent knowledge of Machine Learning
- Excellent knowledge of Nonlinear analysis techniques

## SCIENTIFIC ACTIVITY

### Research Interests:

- Biomedical Signal Processing
- Physiological Modeling
- Wearable Monitoring Systems
- Machine learning

### Track-record of the Scientific Curriculum (Short):

**Alberto Greco, M.Eng., Ph.D.**, is currently an Research Fellow of Bioengineering at the University of Pisa, Pisa, Italy. He received the Graduate degree in biomedical engineering and the Ph.D. degree in automatics, robotics, and bioengineering from the University of Pisa, Pisa, Italy, in 2010 and 2015, respectively. In 2014, He has been a Visiting Fellow at the University of Essex, U.K.

His research interests include statistical biomedical signal processing, machine learning, physiological modeling, wearable systems for physiological monitoring and eye-tracking systems. Applications include the assessment of the autonomic nervous system and central nervous system, affective computing and the assessment of mood and consciousness disorders.

He is author of more than 30 international scientific contributions in these fields published in peer-reviewed international journals, conference proceedings, and book. He has been involved in several European research projects.

### Participation in International Research Projects:

European Commission Funded Collaborative Projects:

*Key Person* - FP7-FET 258749 CEEDs (The Collective Experience of Empathic Data Systems)

*Collaborator* - FP7-ICT-247777-PSYCHE (Personalised monitoring SYstems for Care in mental HEalth)

*Key Person* - FP7-601165 WEARHAP (Wearable Haptics for Humans and Robots)

*Collaborator* - H2020-SOFT-PRO (Synergy-based Open-source Foundations and Technologies for Prosthetics and RehabilitatiOn)

*Key Person* - H2020-PHC-2015-689691 NEVERMIND (NEurobehavioural predictiVE and peRsonalised Modelling of depressIve symptoms duriNg primary somatic Diseases with ICT-enabled self-management procedures)

### Teaching Assistant

Biomedical instrumentation from 2013 to date

Laboratory and design of biomedical devices from 2012 to date

Biomedical Electronics from 2015 to date

### Peer reviews

IEEE Transaction on Biomedical Engineering, Journal of Biomedical and Health Informatics, IEEE Robotics and Automation Letters, Journal of Psychiatric Research, IEEE Sensors

## **Fellowships and Awards :**

Best Paper Award - Expressive Humanoid Face: a Preliminary Validation Study – International Academy, Research, and Industry Association - The Eighth International Conference on Advances in Computer-Human Interactions, ACHI 2015, Lisbon, Portugal, February 22 - 27, 2015.

Best Paper Award - Interpreting Psychophysiological States Using Unobtrusive Wearable Sensors in Virtual Reality - International Academy, Research, and Industry Association - The Seventh International Conference on Advances in Computer-Human Interactions, ACHI 2014, Barcelona, Spain, March 23 - 27, 2014.

Visiting Fellow

2014: Visiting Fellow, University of Essex, Wivenhoe Park, Colchester, UK

2011-2016: Research Fellow, University of Pisa, Italy.

## **Publications**

### **Books**

A. Greco, G. Valenza and E.P. Scilingo, *Advances in Electrodermal Activity Processing with Applications on Emotions and Mental Health: From Heuristic Methods to Convex Optimization*. Series in BioEngineering, Springer International Publishing, 2016, in press.

### **International Journals:**

A. Greco, G Valenza, M Nardelli, M Bianchi, L. Citi, and EP Scilingo, *Force-Velocity Assessment of Caress-like Stimuli through the Electrodermal Activity Processing: Advantages of a Convex Optimization Approach*, IEEE Transactions on Human-Machine Systems, 2016, in press.

M. Bianchi, G Valenza, A Lanata, A Greco, M Nardelli, A Bicchi, EP Scilingo, *On the role of affective properties in hedonic and discriminant haptic systems*, International Journal of Social Robotics, 2016, in press

A Greco, A Lanata, G Valenza, N Vanello, L Citi, EP Scilingo, *Source Oscillations of Skin Admittance for Emotion Recognition: a Study in the Frequency Domain*, Electronics, vol. 5, num. 46, pp. 1-13, 2016.

G Valenza, A Greco, L Citi, M Bianchi, R Barbieri, EP Scilingo, *Inhomogeneous Point-Processes to Instantaneously Assess Affective Haptic Perception through Heartbeat Dynamics Information*, Scientific Reports, vol. 6, num. 28567, pp. 1-14, 2016.

G. Valenza, A. Greco, C. Gentili, A. Lanata, L. Sebastiani, D. Menicucci, A. Gemignani, E.P. Scilingo, *Combining EEG Activity and Instantaneous Heart Rate for Assessing Brain-Heart Dynamics during Visual Emotional Elicitation in Healthy Subjects*, Philosophical Transactions of the Royal Society A, vol. 374, 20150176, 2016.

A Greco, G Valenza, A Lanata, EP Scilingo, L Citi. *cvxEDA: a Convex Optimization Approach to Electrodermal Activity Processing*, IEEE Transactions on Biomedical Engineering, vol. 63, num. 4, 2016.

M Nardelli, G Valenza, A Greco, A Lanata, and EP Scilingo, *Recognizing Emotions Induced by Affective Sounds through Heart Rate Variability*, IEEE Transactions on Affective Computing, vol. 6, num 4, pp. 385-394, 2015.

Betella, A., Zucca, R., Cetnarski, R., Greco, A., Lanatà, A., Mazzei, D., ... & Verschure, P. F. (2015). Inference of human affective states from psychophysiological measurements extracted under ecologically valid conditions. *Using Neurophysiological Signals that Reflect Cognitive or Affective State*, 66.

Lazzeri, N., Mazzei, D., Greco, A., Rotesi, A., Lanatà, A., & De Rossi, D. E. (2015). Can a humanoid face be expressive? A psychophysiological investigation. *Frontiers in bioengineering and biotechnology*, 3.

A. Lanata, G. Valenza, A. Greco, E.P. Scilingo, *Robust head mounted wearable eye tracking system for dynamical calibration*. Journal of Eye Movement Research, vol. 8, num. 5, pp. 1-15 2015.

A. Lanata, G. Valenza, G. Greco, R. Bartolozzi, F. Bucchi, F. Frenzo, E.P. Scilingo. *How the autonomic nervous system and driving style change with incremental stressing conditions during simulated driving*, IEEE Transactions on Intelligent Transportation Systems, vol. 16, num. 3, pp. 1505-1517, 2015.

A. Greco, G. Valenza, A. Lanata, G. Rota, and E.P. Scilingo, *Electrodermal Activity in Bipolar Patients during Affective Elicitation*, IEEE Journal of Biomedical and Health Informatics, vol. 18, num. 6, pp. 1865-1873, 2014.

### **International Proceedings:**

M Bianchi, G Valenza, A Greco, M Nardelli, E Battaglia, A Bicchi, EP Scilingo, *Towards a Novel Generation of Haptic and Robotic Interfaces: Integrating Affective Physiology in Human-Robot Interaction*, 25th IEEE International Symposium on Robot and Human Interactive Communication, (RO-MAN) 2016.

M Nardelli, A Greco, M Bianchi, EP Scilingo, and G Valenza, *On the Pleasantness of a Haptic Stimulation: How Different Textures can be Recognized through Heart Rate Variability Nonlinear Analysis*, Engineering in Medicine and Biology Society (EMBC), 38th Annual International Conference of the IEEE, Orlando (FL), USA, 2016, in press.

A Greco, EP Scilingo, G Valenza, *Investigating Mechanical Properties of a Fabric-based Affective Haptic Display through Electrodermal Activity Analysis*, Engineering in Medicine and Biology Society (EMBC), 38th Annual International Conference of the IEEE, Orlando (FL), USA, 2016, in press.

G Valenza, A Greco, C Gentili, A Lanata', N Toschi, R Barbieri, L Sebastiani, D Menicucci, A Gemignani, EP Scilingo, *Brain-Heart Linear and Nonlinear Dynamics during Visual Emotional Elicitation in Healthy Subjects*, Engineering in Medicine and Biology Society (EMBC), 38th Annual International Conference of the IEEE, Orlando (FL), USA, 2016, in press.

M. S. Morelli, G Valenza, A Greco, A Giannoni, M Emdin, C Passino, EP Scilingo, N Vanello, *Exploratory analysis of nonlinear coupling between EEG global field power and end-tidal carbon dioxide in free breathing and breath-hold tasks*, Engineering in Medicine and Biology Society (EMBC), 38th Annual International Conference of the IEEE, Orlando (FL), USA, 2016, in press.

A Lanata', A Guidi, A Greco, G Valenza, F Di Francesco, EP Scilingo, *Quantitative Heartbeat Coupling Measures in Human-Horse Interaction*, Engineering in Medicine and Biology Society (EMBC), 38th Annual International Conference of the IEEE, Orlando (FL), USA, 2016, in press.

A Greco, G Valenza, EP Scilingo, *Valence-dependent changes in Visual Arousing Elicitation: an Exploratory Study in EEG Gamma Oscillations*, Engineering in Medicine and Biology Society (EMBC), 38th Annual International Conference of the IEEE, Orlando (FL), USA, 2016, in press.

A Greco, A Lanata', G Valenza, F Di Francesco, EP Scilingo, *Gender-Specific Automatic Valence Recognition of Affective Olfactory Stimulation through the Analysis of the Electrodermal Activity*, Engineering in Medicine and Biology Society (EMBC), 38th Annual International Conference of the IEEE, Orlando (FL), USA, 2016, in press.

G. Valenza, A Greco, C. Gentili, A. Lanata, N. Toschi, R. Barbieri, L. Sebastiani, D. Menicucci, A. Gemignani, E.P. Scilingo, *Maximal Information Coefficient to Estimate Brain-Heart Dynamics during Visual Emotional Elicitation*. Proceedings of the International Conference of the European Study Group on Cardiovascular Oscillations (ESGCO), Lancaser (UK), 2016.

G. Valenza, A. Greco, A. Lanata, C. Gentili, D. Menicucci, L. Sebastiani, A. Gemignani, and EP Scilingo, *Brain Dynamics During Emotion Elicitation in Healthy Subjects: an EEG Study*,

Proceedings of the AEIT International Annual Conference, Naples (Italy), 2015.

A. Virgillito, A. Greco, M. Nardelli, L. Bonfiglio, B. Rossi, G. Valenza, E.P. Scilingo, M.C. Carboncini, *EEG and autonomic response to pleasant touch. An insight in healthy subject and in patients with Disorders of Consciousness*, Proceedings of the Italian association of Psychophysiology, Lucca (Italy), 2015.

Valenza, G., Greco, A., Nardelli, M., Bianchi, M., Lanata, A., Rossi, S., & Scilingo, E. P. (2015, August). Electroencephalographic spectral correlates of caress-like affective haptic stimuli. In *2015 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*(pp. 4733-4736). IEEE.

M. Nardelli, G. Valenza, A. Greco, A. Lanata', E.P. Scilingo, *Arousal Recognition System based on Heartbeat Dynamics During Auditory Elicitation*, Engineering in Medicine and Biology Society (EMBC), 37th Annual International Conference of the IEEE, Milan (Italy), 2015.

M. Nardelli, G. Valenza, M. Bianchi, A. Greco, A. Lanata, A. Bicchi, E.P. Scilingo, *Gender-Specific Velocity Recognition of Caress-like stimuli through Nonlinear Analysis of Heart Rate Variability*, Engineering in Medicine and Biology Society (EMBC), 37th Annual International Conference of the IEEE, Milan (Italy), 2015.

A. Greco, G. Valenza, M. Nardelli, M. Bianchi, A. Lanata' , E.P. Scilingo, *Electrodermal Activity Analysis during Affective Haptic Elicitation*, Engineering in Medicine and Biology Society (EMBC), 37th Annual International Conference of the IEEE, Milan (Italy), 2015.

A. Lanata, A. Greco, G. Valenza, E.P. Scilingo, *On the Tridimensional Estimation of the Gaze Point by a Stereoscopic Wearable Eye Tracker*, Engineering in Medicine and Biology Society (EMBC), 37th Annual International Conference of the IEEE, Milan (Italy), 2015.

A. Greco, A. Lanata, G. Valenza, E.P. Scilingo, L. Citi, *Electrodermal Activity Processing: a Convex Optimization Approach*, Engineering in Medicine and Biology Society (EMBC), 36<sup>th</sup> Annual International Conference of the IEEE, Chicago (USA), 2014.

A. Lanata, A. Greco, G. Valenza, E.P. Scilingo. *A Pattern Recognition Approach based on Electrodermal Response for Pathological Mood Identification in Bipolar Disorders*, 39<sup>th</sup> International Conference on Acoustics, Speech and Signal Processing (ICASSP), Florence (Italy), May 4-9, 2014.

M. Bianchi, G. Valenza, A. Serio, A. Lanatà, A. Greco, M. Nardelli, E.P. Scilingo, A. Bicchi. *Design and Preliminary Affective Characterization of a Novel Fabric-based Tactile Display*, IEEE Haptics Symposium, Houston, Texas (USA), 2014.

A. Greco, M.C. Carboncini, A. Virgillito, A. Lanatà, G. Valenza, E.P. Scilingo, *Quantitative EEG Analysis in Minimally Conscious State Patients During Postural Changes*, Engineering in Medicine and Biology Society (EMBC), 35<sup>th</sup> Annual International Conference of the IEEE, p. 6313-6316, 2013.

A. Betella, D. Pacheco, R. Zucca, X. D. Arsiwalla, P. Omedas, A. Lanata, D. Mazzei, A. Tognetti, A. Greco, N. Carbonaro, J. Wagner, F. Lingenfeller, E. Andre, D. De Rossi, P.F.M.J. Verschure, *Interpreting psychophysiological states in ecologically valid conditions using unobtrusive wearable sensors*, 4th Int. Workshop on Human Behavior Understanding (HBU'2013) & ACM Multimedia'2013, 22 October, Barcelona, Spain.

Carbonaro, N., Greco, A., Anania, G., Dalle Mura, G., Tognetti, A., Scilingo, E. P., ... & Lanata, A. (2012). Unobtrusive physiological and gesture wearable acquisition system: a preliminary study on behavioral and emotional correlations. *Global Health*, 88-92.

Mazzei, D., Greco, A., Lazzeri, N., Zarak, A., Lanatà, A., Iglizzo, R., ... & De Rossi, D. (2012, September). Robotic social therapy on children with autism: preliminary evaluation through multi-parametric analysis. In *Privacy, Security,*

*Risk and Trust (PASSAT), 2012 International Conference on and 2012 International Confernece on Social Computing (SocialCom)* (pp. 955-960). IEEE.

A. Greco, A. Lanatà, G. Valenza, G. Rota, N. Vanello, E.P. Scilingo, *On the deconvolution analysis of the elctrodermal response in bipolar patients*, Proceedings of the International IEEE Engineering in Medicine and Biology Conference, San Diego (CA), USA, 2012.

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