CV of Gastone Castellani

Sex male | Date of birth   Nationality Italian

PERSONAL STATEMENT

He is laureated in Biology and Physics and has a PhD in Physics. He is full Professor at the Bologna University in Applied Physics-Biophysics and is the Director of the Galvani center for Bioinformatics, Biophysics and Biocomplextity. He holds, from the 2000, the position of Associate Professor (Research) at Brown University, Providence RI USA where is doing research within the group of Prof Leon N Cooper on machine learning, neural networks and big data analytics of gene expression. He is coauthor of more than 200 publications on international peer-reviewed journal, and, in total more than 200 printed contributions (5000 citations and H index 45). He has been awarded two International prizes: (Chaos and Complexity prize Blois France 1993, Vice President award Brown University 2003) for innovative research in the field of complex biological systems. He is referee for several journals such as PNAS, Molecular Bio-system, Physical Review and Bioinformatics. He is one of the founder the Italian Society for Systems Biology (SysBioHealth). Recently He obtained a 3 year project from the Programa ciência sem fronteiras – bolsas no país modalidade pesquisador visitante especial titled : SYSAGEOMICS Systems Biology of Aging and Age related diseases by integration of Multiscale Experimental and Computational Methods. He has obtained also a special grant from Brown University for a collaboration with Brasilian Universities of Belo Horizonte on the measurements of circulating nucleic acids.

The current research topics are on Machine Learning Big Data and Artificial Intelligence applied to BioMedical data. Statistical Interpretation of AI methods

WORK EXPERIENCE

Full Professor in Applied Physics (SSD FIS/07)

Research Professor Institute for Brain and
Neural Systems :Brown University Providence R.I. (USA)

Previous Positions   **Associate Professor** : Physics (SSD 02/B3)
Dipartimento di Fisica Università degli Studi di Bologna
Faculty of Medicine and Surgery

1996 Researcher in Physics   Università degli Studi
di Bologna (Veterinary Faculty)

1995 Postdoctoral Fellow CNR (Centro Nazionale Ricerche) Italy

1988 –1990 Visiting Scientist SIS (Società Italiana Sincrotrone) Trieste Italy

---

EDUCATION AND TRAINING

Education

May 1995   *PhD Physics* **Bologna University.**

Field: **Biophysics: Network model of Immune System**
Final score Excellent

March 1992 **Sc.M. Physics** Bologna University
Field: **Biophysics: Mathematical model of Immune System**
Final score 110/110

December 1988 **Sc.M. Biology** Bologna University
Field: **Chemistry-Biophysics: X ray diffraction of Collagen**
Final score 105/110

PERSONAL SKILLS

[Remove any headings left empty.]

Mother tongue(s)   Italian

Other language(s)

ENGLISH,		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
B2	C2	B2	B2	C2

Replace with language

Communication skills
▪ Good communication skills acquired in several years of teaching and participation in European proposals and research groups

Organisational / managerial skills
Leadership (currently responsible for a team of 10 people in the field of Machine Learning and Artificial Intelligence in Medicine)

Job-related skills
▪ Member of the Research Committee for EU grants in Bologna University. Director of the Medical Physics Specialty School

Digital skills

I am currently programming in Linux/Python/C and C++ and I am creating (with my group) AI algorithms				
Information processing	Communication	Content creation	Safety	Problem solving
PROFICIENT USER	PROFICIENT USER	PROFICIENT USER	PROFICIENT USER	PROFICIENT USER

Other skills
▪ Biology , Biophysics, MultiOmics (Sequencing, Genomics etc)

Driving licence   B

ADDITIONAL INFORMATION

Fellowships Academic Awards

1988 Research Fellow SIS (Società Italiana Sincrotrone) Trieste Italy
1990 Scholarship P&G (Procter & Gamble Group)
1991 Chaos and Complexity prize Blois France
1995 Scholarship CNR (Consiglio Nazionale Ricerche) Italy
1996 Scholarship CRPA (Centro Ricerche Produzioni Animali) Italy
1998 Member of INBB (Istituto Nazionale Biofisica e Biosistemi) Italy
1998 Research Fellow INFN (Istituto Nazionale Fisica Nucleare) Italy
Bolologna Section
1997-98-99 Research Fellow Physics Department Brown University
Providence RI
1999 Member of PhD Committee in Applied Neurophysiology and
Biotechnology Bologna University Italy
2000 Co-founder and Scientific Secretary of CIG (Interdipartimental Center
for Biophysics Bioinformatics and Biocomplexity L. Galvani) Bologna
University Italy
2000 Member of INBT (Istituto Nazionale Biologia Teorica) Italy
2000 Associate Professor (Research) Institute of Brain and Neural Systems
:Brown University Providence RI (USA)
2003 Recipient of the Vice President Research grant Brown University RI
USA
2004 Member of Italian Mathematical-Physics group
2005 Associate member of INFN (Istituto Nazionale Fisica Nucleare)
2007 Co-founder and member of the scientific society :Systems Biology and
Medical Informatics Network (SysBioHealth)
2009 Referee for the Bioinformatics journal
2011 President of the Bologna-Brown Exchange Program (Bologna side)
2012 Vice Director of the specialization school in Medical Physics of the
Università di Bologna
2013 Director of the Galvani Centre for Biocomplexity
2014 Coordinator of the PhD program in Physics
2015 Director of the Specialty School in Medical Physics

CurrentProjects
2022 EU SYNTHEMA Synthetic generation of haematological data over federated computing
frameworks
2022-Progetto AIRC Individual Grant - IG 2021 Artificial intelligence for genomics and
personalized medicine in myelodysplastic syndromes (MDS) 700 k€

2021 GENOMED4ALL Genomics and Personalized Medicine for all though Artificial
Intelligence in Haematological Diseases   H2020 Project, started the 18 January 2021.
Great interaction for the AI methods, the Federated Learning approach and the data
standardization methods.

2019 EU Project Versatile Emerging infectious disease Observatory (VEO) 60 months Data
analytics and modeling. Data Analytics and modeling. EU contribution to UNIBO 341378 € (the
whole project is 15M€) Coordinator Marion Koopmans

2019 EU project HARMONY-PLUS: HEALTHCARE ALLIANCE FOR RESOURCEFUL
MEDICINES OFFENSIVE AGAINST NEOPLASMS IN HEMATOLOGY – PLUS (HARMONY
PLUS). 36 months . Data Analytics and Big Biomedical data integration for hematological
malignancies, including the set-up of a pan European computing facility. Role WP Co-Leader.
Coordinator J.M. Hernandez. EU contribution to UNIBO 339.000 € (the whole project is a 12
M€)

2017 EU project HARMONY: Alliance for Resourceful Medicines Offensive against
Neoplasms in HematologY. 60 months . Data Analytics and Big Biomedical data integration
for hematological malignancies, including the set-up of a pan European computing facility.
Role WP Leader. J.M. Hernandez. EU contribution to UNIBO 800.000 € (the whole project is
a 40 M€)

2017 EU project ITN (International Trainig Network) IM4Future: 48 months Innovative training
in methods for future data. The project is a PhD exchange program among selected EU
countries. Role WP Leader for Network methods. Scientific Coordinator. Coordinator Jeanine
Houwing Duistermaat EU contribution to UNIBO 560.000€ (the whole project is 5 M€)

Pubblications (20 most recent)

1	Identification of recurrent genetic patterns from targeted sequencing panels with advanced data science: a case-study on sporadic and genetic neurodegenerative diseasesM Tarozzi, A Bartoletti-Stella, D Dall'Olio, T Matteuzzi, S Baiardi, P Parchi, ...BMC medical genomics 15 (1), 1-12	2022
2	Advantages of manual and automatic computer-aided compared to traditional histopathological diagnosis of melanoma: A pilot study E Dika, N Curti, E Giampieri, G Veronesi, C Misciali, C Ricci, G Castellani, ...Pathology-Research and Practice 237, 154014	2022
3	Intraspecies characterization of bacteria via evolutionary modeling of protein domains I Budimir, E Giampieri, E Saccenti, MS Diez, M Tarozzi, D Dall'Olio, ...	2022
4	Second Revision of the International Staging System (R2-ISS) for Overall Survival in Multiple Myeloma: A European Myeloma Network (EMN) Report Within the HARMONY Project. M D'agostino, DA Cairns, JJ Lahuerta, R Wester, U Bertsch, A Waage, ...Journal of Clinical Oncology	2022
5	Effectiveness of Biologically Inspired Neural Network Models in Learning and Patterns Memorization L Squadrani, N Curti, E Giampieri, D Remondini, B Blais, G Castellani Entropy 24 (5), 682	2022
6	Automated Prediction of the Response to Neoadjuvant Chemoradiotherapy in Patients Affected by Rectal Cancer G Filitto, F Coppola, N Curti, E Giampieri, D Dall'Olio, A Merlotti, ...Cancers 14 (9), 2231	2022
7	Mortality prediction of COVID-19 patients using radiomic and neural network features extracted from a wide chest X-ray sample size: A robust approach for different medical … M Iori, C Di Castelnuovo, L Verzellesi, G Meglioli, DG Lippolis, A Nitrosi, ... Applied Sciences 12 (8), 3903	2022
8	Circumventing the curse of dimensionality in magnetic resonance fingerprinting through a deep learning approach M Barbieri, PK Lee, L Brizi, E Giampieri, F Solera, G Castellani, ... NMR in Biomedicine 35 (4), e4670	2022
9	METABOLIC STRATEGIES OF MYELOID BLAST SURVIVAL G Simonetti, C Mengucci, A Padella, E Fonzi, G Picone, C Delpino, ... HAEMATOLOGICA 107, 6-6	2022
10	FUSION LANDSCAPE IN ACUTE LEUKEMIAS: A SUBMERGED WORLD OF NOT ROUTINELY CHARACTERIZED TRANSCRIPTS A Ferrari, S Vitali, E Fonzi, C Domizio, D Rora, AG Luserna, M Tebaldi, ... HAEMATOLOGICA 107, 21-21	2022
11	Canine smooth muscle tumors: A clinicopathological study G Avallone, V Pellegrino, LV Muscatello, P Roccabianca, G Castellani, ... Veterinary Pathology 59 (2), 244-255	2022
12	CometAnalyser: A user-friendly, open-source deep-learning microscopy tool for quantitative comet assay analysis A Beleon, S Pignatta, C Arienti, A Carbonaro, P Horvath, G Martinelli, ... Computational and Structural Biotechnology Journal 20, 4122-4130	2022
13	Prediction of Overall Survival in Cervical Cancer Patients Using PET/CT Radiomic Features G Carlini, N Curti, S Strolin, E Giampieri, C Sala, D Dall'Olio, A Merlotti, ... Applied Sciences 12 (12), 5946	2022
14	The future of research in hematology: Integration of conventional studies with real-world data and artificial intelligence F Passamonti, G Corrao, G Castellani, B Mora, G Maggioni, RP Gale, ... Blood Reviews, 100914	2021
15	Impact of concurrency on the performance of a whole exome sequencing pipeline D Dall'Olio, N Curti, E Fonzi, C Sala, D Remondini, G Castellani, ... BMC bioinformatics 22 (1), 1-15	2021
16	Clinical relevance of clonal hematopoiesis in persons aged≥ 80 years M Rossi, M Meggendorfer, M Zampini, M Tettamanti, E Riva, E Travaglino, ... Blood 138 (21), 2093-2105	2021
17	MISpheroID: a knowledgebase and transparency tool for minimum information in spheroid identity A Peirsman, E Blondeel, T Ahmed, J Anckaert, D Audenaert, T Boterberg, ... Nature methods 18 (11), 1294-1303	2021
18	Characterization and comparison of gene-centered human interactomes E Mosca, M Bersanelli, T Matteuzzi, N Di Nanni, G Castellani, L Milanesi, ... Briefings in bioinformatics 22 (6), bbab153	2021
19	R2-ISS, A NEW RISK STRATIFICATION MODEL IN NEWLY DIAGNOSED MULTIPLE MYELOMA (NDMM): ANALYSIS OF 7077 PATIENT DATA BY THE EUROPEAN MYELOMA NETWORK (EMN) WITHIN HARMONY BIG DATA … M D'Agostino, JJ Lahuerta, R Wester, A Waage, U Bertsch, E Zamagni, ... HAEMATOLOGICA 106 (10), 12-12	2021
20	Integrated genomic-metabolic classification of acute myeloid leukemia defines a subgroup with NPM1 and cohesin/DNA damage mutations G Simonetti, C Mengucci, A Padella, E Fonzi, G Picone, C Delpino, ... Leukemia 35 (10), 2813-2826	2021