

Carlo Emanuele Villa

Via Konrad, 1
Osio Sopra, BG
☎ +39329.2212735
✉ villa.carlo.emanuele@gmail.com
28 August 1978



Professional Profile

Mature and well-versed scientist with an extended experience in physics, computer vision, programming and stem cell research, looking for a new career challenge.

Area of Experties

Optics **Advanced Optics**

Extensive optical microscopy experience. Assemblation of easy to use optical microscopy systems to be used with multiple techniques

Physics **Computer Vision**

Design and application of ad-hoc image analisys, with implementation in project from experimental design to final data

Data Mining

Identification of interesting data from experiment using multiple means, from Digital Signal Processing to distribution analysis, mathematical modeling based on Biological events, error analisys and statistical relevance

Computer science **Programing Language**

Implementation of easy to use application based on different languages (Matlab , C#, UWP, DirectX, C++, or simple script)

Software Tools

Adobe Illustrator, Solidworks 3D Design, Solidworks Simulation, Zemax, OriginLab Origin, Maxon Cinema4D, ImageJ, SVI Huygens, FEI Amira

Management **Organization**

Facility responsible, projects supervision and consultancy

Process optimization

Process assessment aimed to minimize the occurrence of human error and look for cost effective standardized solution

Design engineer **Computer-aided design**

Creation of ad-hoc support for adaptation of experiment to microscopy stand

Mechanosensing

Design of stretch chambers to be paired with advanced microscope stands

Synthetic ECM study

Test multiple synthetics and natural ECM based on physical and biological properties, thoroughly test of Matrigel[®] and syntetic hydrogel in combination with: multiple cell lines and primary cells, multiple ECM protein (laminin, fibronectin and multiple collagen types)

Biology **Molecular Biology**

Cell culture, cloning, lentivirus design and production, transduction

Business **Development**

Client hunting, new market opportunity evaluation inside acquired know-how

Optimization

Cost-effectiveness analysis, Risk assessment, Personnel Management

Work Experience

- December 2012 - **Researcher at department of Oncology, European Institute of Oncology**
now
- ◇ Cancer stem cells study based on dynamics mathematic modeling
 - ◇ Implementation of complex biological experiment
 - ◇ Commercial product research and contact with Company representative
 - ◇ Data mining from multivariate samples
 - ◇ Development of computer vision algorithm and protocols
 - ◇ Mathematical modeling and statistical analysis
 - ◇ Maintenance and development of advanced microscopy instruments
 - ◇ Organization and handling of team work
 - ◇ Organization of training courses for simple data handling and analysis.
- August 2014 - **Visiting Researcher at Kirchhausen Lab - Immune Disease Institute - Harvard Medical School and Associated Personnel of Children's Hospital Boston**
September 2015
- ◇ Implementation of Digital Signal Processing algorithm for analysis of clathrin mediated endocytosis with advanced imaging techniques.
 - ◇ Implementation of single molecule Analysis based on Gaussian Mixture Model.
 - ◇ Study of detection and tracking of diffraction limited objects based on Gaussian fitting and Linear Assignment Problem mathematical framework
 - ◇ Collaboration with The Norwegian Radium Hospital, Oslo University Hospital, Norway; Article in submission
- October 2009 - **Visiting Researcher at Physics department of Università degli studi Milano**
December 2012 **Bicocca**
- ◇ Radiant Zemax study of scanning head to be used with galvanometric mirror
 - ◇ Solidworks project of Reflective scanning head
 - ◇ Alignment and functionality test
- October 1998 - **Founder of Rag. Villa Franco S.A.S.**
December 2012 *Rag. Villa Franco S.A.S., 20041 Agrate Brianza*
- ◇ Buisness entrepreneur
 - ◇ Interaction with international and national company
 - ◇ Interaction with IT manager of multiple client
 - ◇ Mail, ftp, vpn server create for multiple partner
 - ◇ Hiring, training and supervising employees
 - ◇ Study, assembly and maintenance of business Local area network between multiple companies starting from parts
 - ◇ Firewall rule maintenance and file system permissions. Virtual machine creation for single users
 - ◇ Microsoft and Linux server configuration
 - ◇ Creation of multiple Visual Basic software for database and user form
 - ◇ Custom Services and interaction with local authorities
 - ◇ Invoice and Intrastat form writing

Publication

- Author "The Numb/p53 circuitry couples replicative self-renewal and tumor suppression in mammary epithelial cells." The Journal of cell biology 211 (4): 845-62. doi:10.1083/jcb.201505037.
- First Author "Accumulative difference image protocol for particle tracking in fluorescence microscopy tested in mouse lymphonodes" PLoS ONE, vol. 5, no. 8, Article ID e12216, 2010.

Education And Training

24 September **Master Degree in Physics**

2012 *Università degli studi di Milano Bicocca, Biophysics. Thesis: Refractive Scanning Head for Multiphoton Microscopies*

30 September **Bachelor Degree in Physics**

2009 *Università degli studi di Milano Bicocca, indirizzo Biofisica e Fisica Medica. Thesis: Analysis of non linear dynamics process on cells microscopy*

Languages

Italian First language

English Work proficiency

Hobby and personal interest

Activity C4D rendering, reading, opera and classical musics, wood and metal working

Sport Weight lifting, ex professional Roller hockey player