

CURRICULUM VITAE
PIERLUIGI FAILLA



PERSONAL INFORMATION

Name **PIERLUIGI FAILLA**
Address #####
Mobile #####
E-Mail pierluigi[dot]failla[at]gmail[dot]com
Nationality ITALIAN
Place and birth day GROSSETO, 29TH NOVEMBER 1981
National Identification Code #####

WORK EXPERIENCE

- Dates From 1st September 2010 - present
- Name and address of employer Elt Elettronica SpA
Via Tiburtina Valeria Km 13,700 - 00131 Roma - Italy
- Type of business or sector Defense & Space
- Occupation or position held **System Analyst - Research and Advanced System Design**
Research and systems design for Cyber Warfare and Electronic Warfare.
Study and design of advanced signal/data processing algorithms; algorithms for real-time processing, pattern recognition systems and decision support systems.
Functional Architectural Designer.
Systems and algorithms architectural designer also using tools like TopCased or Rhapsody.
- Dates From 20th September 2010 to 19th October 2010
- Name and address of employer Department of Information Engineering University of Siena
Via Roma, 56 - 53100 Siena (SI) - Italy
- Type of business or sector Research and development
- Occupation or position held **Software Engineer, Developer**
Design and software development of an authentication system based on encrypted biometric signals (fingerprints).
- Dates From 15th June 2009 to 10th December 2009
- Name and address of employer Polytechnic Institute of New York University
6, Metrotech Center, Brooklyn, 11201 New York
- Type of business or sector Research and development
- Occupation or position held **Visiting Ph.D.**
Visiting Ph.D. in the research group of Prof. Nasir Memon. Research in forensic application. Biometric systems. Design of protocols and algorithms for people identification using encrypted biometrics.

- Dates From 27th October 2008 to 26th November 2008
 - Name and address of employer Department of Information Engineering University of Siena
Via Roma, 56 - 53100 Siena (SI) - Italy
 - Type of business or sector Research and development
 - Occupation or position held **Software Engineer, Developer**
 - Main activities and responsibilities Homomorphic cryptographic technique to electronic watermarking systems.
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- Dates From 13th October 2007 to 15th November 2007
 - Name and address of employer Department of Information Engineering University of Siena
Via Roma, 56 - 53100 Siena (SI) - Italy
 - Type of business or sector Research and development
 - Occupation or position held **Software Engineer, Developer**
 - Main activities and responsibilities Analysis of homomorphic cryptographic technique to compute the discrete Fourier transform in the cipher domain with prototypal software development.
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- Dates Summer season 2006, 2005, 2004, 2003, 2002, 2001
 - Name and address of employer Conserve Italia Soc. Coop. Agricola
Via Paolo Poggi, 11 - 40068 San Lazzaro di Saven (BO), Italy
Establishment of Albinia (GR)
 - Type of business or sector Transformation of fruit and vegetable products
 - Occupation or position held Employed to control metal box airtightness
 - Main activities and responsibilities Utilization of sensible electronic tool for measurement, in particular utilization of SEAMetal 9000W system produced by the Quality By Vision Ltd (www.qbv.com).

RESEARCH PROJECTS

- Dates From September 2008 to September 2010
 - Project Priv-Ware: Privacy aware processing of encrypted signals for treating sensitive information
 - Characteristics Reseach Project of National Interest. Study of techniques to processing biomedical and biometric data in an un-trusted scenario, preserving the parties privacy. *Partner:* Department of Information Engineering University of Siena, Department of Information Technology University of Milano, Department of Mathematical and Physical Sciences University of Catania, Department of Electronics and Telecommunications University of Firenze. (<http://clem.dii.unisi.it/~vippp/projects/prin/index.php>)
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- Dates From December 2006 to October 2009
 - Project SPEED (Signal Processing in Encrypted Domain)
 - Characteristics European Project. Partners: Siena University of Information Engineering, Delft University of Technology, Ruhr-Universitaet Bochum, Katholieke Universiteit Leuven, Florence University of Information Engineering, Philips Electronics Nederland. (www.speedproject.eu)

EDUCATION AND TRAINING

- Dates From 1th October 2007 to 30th September 2010
- Name and type of organization providing education and training Department of Information Engineering - University of Siena
- Principal subjects/occupational skills covered Cryptography, Machine Learning, Data Mining, Pattern Recognition, Signal Processing, Software engineering and coding.
- Title of qualification awarded **Ph.D. in Engineering of Information**
Thesis title: "*Privacy-Preserving Processing of Biometric Templates by Homomorphic Encryption*".
Committee: Prof. Patrizio Campisi, Prof. Fabio Massacci and Prof. Sandro Bartolini.
Reviewers: Prof. Stefan Katzenbeisser and Prof. Patrizio Campisi.

- Dates 2005 – 2007
- Name and type of organization providing education and training Engineering in Computer Science - University of Siena
- Principal subjects/occupational skills covered Number Theory, Cryptography, Machine Learning, Pattern Recognition, Distributed and Mobile Systems, Computer Graphics.
- Title of qualification awarded **(ECS) Master Science Engineering in Computer Science**
Mark: 110/110 cum laude (Summa cum Laude)
Supervisor: Prof. Mauro Barni
Title: "*Analysis and development of algorithms to compute discrete Fourier transform on encrypted data*".

- Dates 2000 – 2005
- Name and type of organization providing education and training Engineering in Computer Science - University of Siena
- Principal subjects/occupational skills covered Operative Systems; Software Engineering; Computers Networks; Multimedia Databases; Databases; Advanced C++ programming.
- Title of qualification awarded **Bachelor Degree Engineering in Computer Science**
Subject of thesis: Databases, Primary Supervisor: Prof. Marco Maggini; Secondary Supervisor: Prof. Franco Scarselli.
Title: "*Project and development of dynamic web pages for the extension of informative service offered by department's internet web site*".

- Dates 1995 – 2000
- Name and type of organization providing education and training Scientific Lycee G. Marconi, Grosseto
- Title of qualification awarded **Scientific General Certificate of Education**

PERSONAL SKILLS AND COMPETENCES

- MOTHER TONGUE **ITALIAN**
- OTHER LANGUAGES **ENGLISH**
- Reading skills Very good

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| • Writing skills | Very good |
| • Verbal skills | Very good |
| ORGANIZATIONAL SKILLS AND COMPETENCES | <i>Strong team spirit, organizational skills and determination.</i> Excellent ability to adapt in multicultural environments gained through my experience in different countries and business travels. Ability to evaluate the specific working partners qualities with the goal of reaching the best possible result for the project exploiting the partners peculiarities. |
| TECHNICAL SKILLS AND COMPETENCES | - Very good knowledge of programming languages C, C++ and some Java notions; web languages: HTML, XML, PHP, Ruby, JavaScript and Python. Mobile programming: Qt and Android. - Software development in the framework of artificial intelligence and of machine learning, in particular development of an Open Source C++ library for neural networks (Neural Network Framework plus plus) available at http://nnfpp.sourceforge.net . NNFpp 3.0.1 is chosen to be part of Softpedia.com. - Cryptographic software development: cryptosystem implementation in C++ and Google Gadget. |
| ARTISTIC SKILLS AND COMPETENCES | Guitar autodidact. Photography. Music. |
| OTHER SKILLS AND COMPETENCES | Volley-ball, swimming, footing, gym. Travel experiences in Europe: Germany, Holland, Belgium, Switzerland, France. Lived in New York City for six months during my PhD. |
| DRIVING LICENCE(S) | Category B |
| ADDITIONAL INFORMATION | - Professional qualification: Engineer in Computer Science Journal reviewer: - IET Information Security - IEEE Transactions on Circuits and Systems for Video Technology - IEEE Transactions on Information Forensic and Security - Publications: 2011 (10) - <u>P. Failla</u> , M. Barni - Gram - Schmidt Orthogonalization on Encrypted Vectors - Chapter 7 in <i>Trustworthy Internet</i> - Springer Verlag 2011 (9) - M. Barni, <u>P. Failla</u> , R. Lazzeretti, A.R. Sadeghi, T. Schneider - Privacy-Preserving ECG Classification with Branching Programs and Neural Networks - IEEE Transaction on Information Forensic and Security 2010 (8) - <u>P. Failla</u> , M. Barni - Gram – Schmidt Orthogonalization on Encrypted Vectors - 21st International Tyrrhenian Workshop on Digital Communications - ITWDC 2010 (7) - M. Barni, D. Catalano, M. Di Raimondo, R. Donida Labati, <u>P. Failla</u> , T. Bianchi - A Privacy-compliant Fingerprint Recognition System Based on Homomorphic Encryption and Fingerprint Templates - IEEE International Conference on Biometrics: Theory, Applications and Systems - IEEE BTAS 2010 (6) - M. Barni, D. Catalano, M. Di Raimondo, R. Donida Labati, <u>P. Failla</u> , T. Bianchi - Privacy-Preserving Fingerprint Authentication - ACM MMsec 2010 (5) - <u>P. Failla</u> , Y. Sutcu, M. Barni, - eSketch: a Privacy-Preserving Fuzzy Commitment |

Scheme for Authentication using Encrypted Biometrics - ACM MMsec 2010

(4) - P. Failla - **Heuristic Search in Encrypted Graphs** - IARIA SecurWare 2010 -
Acceptance Rate 30%

2009

(3) - M. Barni, P. Failla, V. Kolesnikov, R. Lazzeretti, A.R. Sadeghi, T. Schneider, - **Combining Signal Processing and Cryptographic Protocol Design for Efficient ECG Classification** - SPEED 2009 Workshop at CHES 2009

(2) - M. Barni, P. Failla, R. Lazzeretti, A. Paus, A.R. Sadeghi, T. Schneider, V. Kolesnikov - **Efficient Privacy-Preserving Classification of ECG Signals** - IEEE WIFS 2009 -
Acceptance Rate 32.5%

(1) - M. Barni, P. Failla, V. Kolesnikov, R. Lazzeretti, A.R. Sadeghi, T. Schneider - **Secure Evaluation of Private Linear Branching Programs with Medical Applications** - ESORICS 2009 - Acceptance Rate 19.1%

Updated: *February, 2011*