







## PERSONAL INFORMATION

**Federico Cecati**

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Gender Male | Date of birth May, 4th 1994  
Nationality Italian



JOB APPLIED FOR Ph.D. Candidate

**ENGINEERING CAREER**

January 2018 - June 2018

**Guest Researcher in CAU of Kiel for HEART project**

Scientific Staff member of "Christian-Albrechts-Universität" of Kiel, Chair of Power Electronics headed by Prof. Marco Liserre. He was involved in the project "the Highly Efficient And Reliable smart Transformer (HEART), a new Heart for the Electric Distribution System". His researches deal with control of MicroGrid with high penetration of renewable energies. Particular attention is posed on the phenomenon of Harmonic Instability caused by frequency couplings, interaction between power converters, computation and transmission delays. NonLinear control, robust control, distributed control, parameter estimation applied to power electronic based power systems are object of the research.

October 2015 - October 2017

**Master Degree in Control and Automation Engineering with honors**

University of L'Aquila - Italy. Thesis title: "[MODELING AND NONLINEAR CLOSED-LOOP GAIT CONTROL OF HUMANOID ROBOTS](#)". Supervisor: Prof. Costanzo Manes; Language: English;

October 2012 – July 2015

**Bachelor Degree in ICT Engineering with honors**

University of L'Aquila - Italy. Thesis title: "[LQR OPTIMAL CONTROL OF A BALL-ON-PLATE SYSTEM MOUNTED ON AN INDUSTRIAL ROBOT](#)". Supervisor: Prof. Costanzo Manes; Language: Italian;

**AWARDS**

January 2016 - January 2018

Winner of one of the four scholarships for Master Degree students provided by Istituto Nazionale di Fisica Nucleare (INFN) - Gran Sasso Science Institute (GSSI) branch, with merit

**ENGINEERING SKILLS**

- Basic Maths and Physics
- Linear Systems Analysis and Control
- NonLinear Systems Analysis and Control
- Estimation and Kalman Filtering Theory
- Digital Electronics and Embedded Systems
- Hybrid Systems
- Robust Control
- Time-Delay Systems
- Stochastic Processes and Stochastic Control
- Optimal Control and Optimization
- Robotics
- Signal Theory, Modulation Theory applied to Telecommunications
- Analog Electronics
- Digital Signal Processing, Audio and Image Processing
- Fundamentals of Electrical Science, Electrical Drives
- Power Electronics and Power Systems

## ENGINEERING PROJECTS

- Trajectory tracking applied to car obstacle avoidance
- Inverse pendulum
- Random labyrinth generation and exit algorithm with shortest path
- FIR filter implementation via FPGA: design of the MAC and processor interfacing
- Simulation of space vector modulation algorithm
- Robust state observer applied to Micro Grid with sensors subject to cyber attacks
- Several projects related to audio processing and electronic musics

## COMPUTER SKILLS

- MATLAB®
- C oriented to Embedded Systems
- C++, Java
- ECDL Certification
- L<sup>A</sup>T<sub>E</sub>X

## LANGUAGE SKILLS

Mother tongue Italian

| Other languages | UNDERSTANDING |         | SPEAKING           |                   | WRITING |
|-----------------|---------------|---------|--------------------|-------------------|---------|
|                 | Listening     | Reading | Spoken interaction | Spoken production |         |
| English         | C1            | C1      | C1                 | C1                | C1      |
| German          | A1            | A1      | A1                 | A1                | A1      |

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2: Proficient user  
[Common European Framework of Reference \(CEF\) level](http://europa.eu/cefr/)

## MUSICAL CAREER

### October 2013 – Present **Composition Student at the Conservatory of Music of L'Aquila**

In October 2013 he was admitted to the Composition class at the Conservatory of Music of L'Aquila, ranked first. Actually he is a Bachelor student of Music Composition with Maestro Claudio Perugini as supervisor

### October 2013 – July 2017 **Master Degree in Piano**

The Conservatory of Music of L'Aquila - Italy, with Maestro Luciano Bellini

Program performed during final test:

- **Bach:** *Italian Concerto*
- **Beethoven:** *Sonata op. 90*
- **Sckjabin:** *Sonata n. 5*
- **Debussy:** *La fille aux cheveux de lin, La cathédrale engloutie*
- **Chopin:** *Nocturne op.37 n. 1, Nocturne op.27 n. 1, Mazurka op.63 n. 2*
- **Saint-Saens:** *Le Cloches de la Palmas*

### October 2009 – October 2013 **Intermediate Level Degree in Piano**

The Conservatory of Music of L'Aquila - Italy, with Maestro Luciano Bellini

### October 2004 – October 2009 **First Level Degree in Piano**

The Conservatory of Music of L'Aquila - Italy, with Maestro Luciano Bellini

### August 2011 – Present **Masterclasses for Music Composers**

He attended with merit to a number of masterclasses and discussed his musical works with international composers including Sydney Corbett, Alessio Elia, Andrea Portera, gaining their appreciation

### August 2007 – Present **Masterclasses for Pianists**

He attended with merit to several masterclasses under supervision of musicians like Maestro Fausto Di Cesare, Maestro Massimiliano Scatena and Maestro Luciano Bellini

### August 2014 – Present **Masterclass for Orchestra Conductors**

He attended with merit to several masterclasses with Maestro Luciano Bellini

### September 2015 – Present **Theater Acting**

He studies theater acting in L'Aquila under direction of Mrs. Rosanna Lancione

## WORK EXPERIENCE

- October 2016 **Staff Member of the IEEE IECON 2016 - Florence**  
Managing Conference Registrations, Payments, Invoices
- October 2014 – Present **Orchestral Conductor**  
Most relevant performances: Beethoven 5th and 7th Symphonies, Dvořák 9th Symphony and Rachmaninov 2nd Piano Concerto performed with *Orchestra Internazionale di Roma* in "Torti Theater", Bevagna (Perugia) - Italy
- August 2013 – Present **Music Composer**  
His works were performed in several concert halls, including "Auditorium del Parco" in L'Aquila, "Villa Castiglione Music Hall" in Florence, and "Auditorium of The Conservatory of Music of L'Aquila"
- September 2006 – Present **Classical Soloist Pianist**  
He plays music by Johann Sebastian Bach, Wolfgang Amadeus Mozart, Ludwig van Beethoven, Fryderyk Chopin, Claude Debussy, Johannes Brahms, Aleksandr Nikolaevič Scriabin and many others. He has played in several concert halls in Italy
- September 2015 – Present **Theater Actor**  
Most relevant roles: Alfred Lee in *Hercule Poirot's Christmas* by Agatha Christie, Novecento in *Novecento* by Alessandro Baricco. In Baricco's novel, Novecento is a pianist, therefore he performed both as actor and as pianist
- March 2007 – Present **Keyboard Player in a Rock Band**  
Musical genres: Blues, Funk, Hard Rock, Progressive Rock, Classic Rock, Jazz. He likes improvisation, so he often performs in jam sessions in Kiel, in Rome and in L'Aquila

## ADDITIONAL INFORMATION

Driving licence A, B

**About me** I always have a mathematical approach to engineering problems and I like to see how abstract maths takes shape in real systems. I like to find relationships among apparently far topics and to observe the same problem under several points of view.  
I love music, cinema and art. I like nature, therefore I practice sports like ski, jogging, mountain biking and sea swimming. In the past I have practiced several team sports like football, basketball, volleyball, handball. I love to travel and meet new people.