

# CURRICULUM VITAE



## PERSONAL INFORMATION

Name: Mr. Andrea Pietrelli

Nationality: Italian

Drive Licence A and B

## EDUCATION AND TRAINING

**Ph.D.** in Information and communications technologies “ICT” at Sapienza University of Rome and at the Ecole Centrale de Lyon (double Ph.D. title) and title of “*doctor europaeus*”

- Date 2015 – 2019

- Thesis title: “*Electrical valorization of Microbial fuel cell: application to monitoring*”

**Master’s Degree** in Communications Engineering

- Date 2009 – 2014

- Faculty of Engineering - Sapienza University of Rome

- Principal subject covered or skills acquired: Circuits and algorithms for signal processing, image processing, sound engineering, electronic for environment, access systems, sensors network, radar, Rf circuits, energy harvesting.

- Thesis title: “*Microbial fuel cell: Sustainability of a communication network*”

**Bachelor’s Degree** in Automation Engineering and Control Systems

- Date 2004 – 2008

- Faculty of Engineering - Sapienza University of Rome

- Principal subject covered or skills acquired: Physics, chemistry, statistics, telecommunications, automatic controls, digital audio, acoustic, electronic, electroacoustic, economy, computer science, operating systems, robotics, audio amplifiers design, programming techniques.

- Thesis Title: “*Design and implementation of a parser for command strings of control systems*”

**High School Graduation**

- Date 1998 - 2003

- High School: Liceo scientifico statale "Augusto Righi" di Roma (Scientific High School)

**Qualification as Associate Professor (Maitre de Conférence) in France** : Numéro 22263361361 - Section : 63 - Génie électrique, électronique, photonique et systèmes ; obtained in 2022

## WORK EXPERIENCE

- **2021 - 2023** ATER “Attaché Temporaire d’Enseignement et de Recherche” (assegnista di insegnamento e ricerca) at Université Lyon 1 UCBL with 192 hours of teaching activities each year (384 hours of teaching in total).
- **2020 - 2021**: Contract Lecturer for “Electronics Laboratory” course at University INSA Lyon (electrical engineering faculty) 18 hours of teaching duties.
- **2019 - 2021** - Post-Doctoral researcher at Université Lyon 2, Laboratoire ECP (H2020 Project MovingK).
- **2019** – external consultant: “prestazione di lavoro autonomo su Sviluppo di strutture innovative per “energy harvesting in sistemi di monitoraggio ambientale - Innovative energy harvesting systems for environmental monitoring”- Electronics for the environment lab, DIET dept., Sapienza University of Rome
- **2019** - Research Engineer on Design and implementation of RIA Horizon H2020 call SC 5-13 2019: “*Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems*” at INSA Lyon, Laboratoire Ampere, INSAVALOR, UDL.
- **2016 - 2017** Research contract on “*Design and implementation of an FMCW GPR radar system (continuous wave modulated in frequency Ground Penetrating Radar), compatible with transport through UAV (Unmanned Aerial*

Vehicle), for localization applications and rescue of people buried by snow or debris, in emergency scenarios " at Department of Information Engineering, Electronics and Telecommunications DIET. Sapienza University of Rome,

- **Other** - work experience in the field of art, music and audio-visual sector; project design and management; technical, logistic and artistic events organisation, theatre, live music. Light design, Audio mixing, recording. Project management and building.

## PUBLICATIONS:

### International Journal

**Pietrelli, A.**, Micangeli, A., Ferrara, V., Raffi, A. Wireless sensor network powered by a terrestrial microbial fuel cell as a sustainable land monitoring energy system. *Sustainability*, 6(10),7263-7275. **2014**. <https://doi.org/10.3390/su6107263>

Ferrara, V., **Pietrelli, A.**, Chicarella, S., Pajewski, L.. GPR/GPS/IMU system as buried objects locator. *Measurement*, 114, 534-541. **2018**. DOI: 10.1016/J.MEASUREMENT.2017.05.014\*

Ancona V., Barra A., Borello D., Ferrara V., Grenni P., **Pietrelli A.**, Microbial fuel cell: An energy harvesting technique for environmental remediation, *Int. Journal Environ. Impacts*, 1-12, **2020**. DOI: 10.2495/EI-V3-N2-168-179

Tsipa, A., Varnava, C. K., Grenni, P., Ferrara, V., **Pietrelli, A.** Bio-Electrochemical System Depollution Capabilities and Monitoring Applications: Models, Applicability, Advanced Bio-Based Concept for Predicting Pollutant Degradation and Microbial Growth Kinetics via Gene Regulation Modelling. *Processes*, 9(6), 1038. **2021**. doi.org/10.3390/pr9061038

Kaplan G., Rashid T., Gasparovic M., **Pietrelli A.**, Ferrara V. "Monitoring War-Generated Environmental Security Using Remote Sensing - A Review," *Land Degradation Development*, 2022. doi.org/10.1002/ldr.4249

Kaplan, G., Aydinli, H. O., **Pietrelli, A.**, Mieyeville, F., & Ferrara, V. (2022). Oil-contaminated soil modeling and remediation monitoring in arid areas using remote sensing. *Remote Sensing*, 14(10), 2500. DOI:10.1002/ldr.4249

Kordek-Khalil, K., Altiok, E., Salvian, A., Siekierka, A., Torres-Mendieta, R., Avignone-Rossa, C., **Pietrelli A.** ... & Yalcinkaya, F. (2023). Nanocomposite use in MFCs: a state of the art review. *Sustainable Energy & Fuels*. DOI: 10.1039/D3SE00975K

Lovecchio, N., Di Meo, V., & **Pietrelli, A.** (2023). Customized Multichannel Measurement System for Microbial Fuel Cell Characterization. *Bioengineering* 2023, 10, 624. DOI:10.3390/bioengineering10050624

Nastro, R. A., Salvian, A., Kuppam, C., Pasquale, V., **Pietrelli, A.**, & Rossa, C. A. (2023). Inorganic Carbon Assimilation and Electrosynthesis of Platform Chemicals in Bioelectrochemical Systems (BESs) Inoculated with *Clostridium saccharoperbutylacetonicum* N1-H4. *Microorganisms*, 11(3), 735. DOI:10.3390/microorganisms11030735

Nguyen, T. D. T., Altiok, E., Siekierka, A., **Pietrelli, A.**, & Yalcinkaya, F. (2023). Preparation and Characterization of Microfiltration membrane by Utilization Non-Solvent Induced Phase Separation Technique. *Journal of Membrane Science and Research*, 9(2). DOI:10.22079/jmsr.2023.1995689.1594

Yalcinkaya, F., Torres-Mendieta, R., Hruza, J., Vávrová, A., Svobodová, L., **Pietrelli, A.**, & Ieropoulos, I. (2024). Nanofiber applications in microbial fuel cells for enhanced energy generation: a mini review. *RSC advances*, 14(13), 9122-9136. DOI: 10.1039/D4RA00674G

Berlitz, C. A., **Pietrelli, A.**, Mieyeville, F., Pilonnet, G., & Allard, B. (2023). Microbial Fuel Cell as Battery Range Extender for Frugal IoT. *Energies*, 16(18), 6501. DOI:10.3390/en16186501

Lazar, N. E., Mazkad, D., Kharti, H., Yalcinkaya, F., **Pietrelli, A.**, Ferrara, V., ... & Lotfi, E. M. (2024). Maximizing power generation in single-chamber microbial fuel cells: the role of LiTaO<sub>3</sub>. 5NbO<sub>5</sub>/g-C<sub>3</sub>N<sub>4</sub> photocatalyst. *Materials for Renewable and Sustainable Energy*, 1-10. DOI: 10.1007/s40243-024-00259-6

### International Conference

Chicarella, S., Ferrara, V., & **Pietrelli, A.** (2015, October). Integration of Ground Penetrating Radar with Global Position System and Inertial Measurement Unit for archaeological applications. In 1st International Conference on Metrology for Archaeology (Vol. 1, pp. 112-115). **2015**.

**Pietrelli, A.**, Ferrara, V., Micangeli, A., & Uribe, L. (2015, February). Efficient energy harvesting for microbial fuel cell dedicated to wireless sensor network. In *AISEM Annual Conference*, **2015 XVIII** IEEE. <https://doi.org/10.1109/AISEM.2015.7066817>

**Pietrelli, A.**, Ferrara, V., Khaled, F., Allard, B., Buret, F., Costantini, F. (2016, June). Electrical characterization of MFC for low power applications. In *Environment and Electrical Engineering (EEEIC)*, 2016 *IEEE 16th International Conference on* (pp. 1-5). IEEE. **2016**. DOI: 10.1109/EEEIC.2016.7555624

Chizh M., **Pietrelli A.**, Ferrara V., Zhuravlev A., 'Development of embedded and user-side software for interactive setup of a frequency-modulated continuous wave ground penetrating radar dedicated to educational purpose,' *Microwaves, Antennas, Communications and Electronic Systems (COMCAS)*, 2017 IEEE International Conference on, pp. 1-5. **2017**. DOI [10.1109/COMCAS.2017.8244780](https://doi.org/10.1109/COMCAS.2017.8244780)

**Pietrelli A.**, Ferrara V., Allard B., Buret F., Lovecchio N., Bavasso I., 'Custom measuring instrument dedicated to microbial fuel cell characterization,' poster presentation, *EU-ISMET 4, International Society for Microbial Electrochemistry and Technology European edition*, 12<sup>th</sup>-14<sup>th</sup> September, Newcastle, UK, **2018**.

**Pietrelli A.**, Bavasso I., Lovecchio N., Ferrara V., Allard B., 'MFC as biosensor, bioreactor, bioremediator,' IWASI 2019 conference, IEEE *International Workshop on Advances in Sensors and Interfaces*, June **2019**, Otranto, Italy. DOI [10.1109/IWASI.2019.8791412](https://doi.org/10.1109/IWASI.2019.8791412)

**Pietrelli A.**, Lovecchio N., Ferrara V., Allard B., 'Custom measuring system tailored for MFCs,' IWASI 2019 conference, IEEE *International Workshop on Advances in Sensors and Interfaces*, June **2019**, Otranto, Italy. DOI [10.1109/IWASI.2019.8791385](https://doi.org/10.1109/IWASI.2019.8791385)

**Pietrelli A.**, Allard B., Ferrara V., Mieveville F. 'Review on MFC for application to monitoring,' 3rd MEEP *International Symposium 2019 Microbial, Enzymatic & Bio-Photovoltaic Electrochemical Reactors*, 3rd-4th July, Lucerne, Switzerland, **2019**.

Ancona, V., Caracciolo, A. B., Borello, D., Ferrara, V., Grenni, P., **Pietrelli, A.** (2020). *Microbial fuel cell: an energy harvesting technique for environmental remediation*. 6th International Conference on Disaster Management and Human Health Risk: Reducing Risk, Improving Outcomes, 25 – 27 September 2019, Ancona, Italy. *WIT Transactions on The Built Environment*, vol. 190, **2020**, [10.2495/EI-V3-N2-168-179](https://doi.org/10.2495/EI-V3-N2-168-179)

Aimola G., Gagliardi G, **Pietrelli A.**, Ancona V., Barra Caracciolo A., et Al. ENVIRONMENTAL REMEDIATION AND POSSIBLE USE OF TERRESTRIAL MICROBIAL FUEL CELLS, *WIT Transactions on The Built Environment*, Vol. 207, ISSN 1743-3509, [doi: 10.2495/DMAN210101](https://doi.org/10.2495/DMAN210101), pp. 121–133, **2022**.

### National Conferences

**Pietrelli, A.**, Ferrara, V., Allard, B., Buret, F., Costantini, F., Lovecchio, N. Khaled F., (2017). "Microbial Fuel Cells: Performance and Applications." *World Academy of Science, Engineering and Technology, International Journal of Energy and Power Engineering*. **2017**.

**Pietrelli, A.**, Ferrara, V., Allard B., Buret, F., Khaled, F., Bavasso, I., Costantini F., 'MFC Performance and Applications,' poster presentation at *SIE 2017, 49th Annual Meeting of the Associazione Società Italiana di Elettronica*, Palermo, **2017**.

**Pietrelli, A.**, Allard, B., Ferrara, F., Buret, F., "Electrical valorisation of Microbial fuel cell", *proceedings Symposium de Genie Electrique SGE, Nancy*. **2018**.

**Pietrelli A.**, V. Ferrara V., Allard B., Buret F., Lovecchio N., 'An original measuring board for MFC electrical characterization,' poster presentation at *SIE 2018 50th Annual Meeting of the Associazione Società Italiana di Elettronica*, Naples, **2018**.

### Events, Seminars, Books

Ferrara V., **Pietrelli A.**, Chizh M., Mazzetta M., 'Radar onda continua modulata in frequenza (FMCW) a uso educazionale: rilevatore di distanza e velocità, applicazioni Ground Penetrating Radar,' poster et seminare, *Maker Faire 2017 European edition 4.0*, Rome, Italy, **2017**.

Ancona V., Borello D, Grenni P., Gagliardi G., Aimola G., Ferrara V., **Pietrelli A**, Barra Caracciolo A, 2021. Celle a combustibile microbiche terrestri: uno strumento efficace nel recupero di suoli contaminati e nella produzione di energia. *Geologia dell'Ambiente* (SIGEA-Società Italiana di Geologia Ambientale), Supplemento BONIFICA DEI SITI INQUINATI, ISSN 1591-5352 -, **2021**.

PHOENIX COST ACTION CA19123 PROTECTION, RESILIENCE, REHABILITATION OF DAMAGED ENVIRONMENT, Proceedings of the 2022 Rome Meeting - Rome, 19-22 January 2022. ISBN 9788897655039, **2022**.

#### • Reviewer for International Journal :

- ✓ 'IEEE Transactions on Industrial Electronics',
- ✓ 'MDPI'

#### • Scientific Commitee in International Conference :

- ✓ MEEP Symposium 2022+2023, Lucerne, Switzerland
- ✓ ICERS 2024 International Conference of Environmental Remote Sensing and GIS (ICERS), Zagreb, Croatia

**LANGUAGE SKILL:**

MOTHER TONGUE:

*Italian*

OTHER LANGUAGE:

*English - Level C1**French - Level C1**Spanish - Level A1***COURSES, DOCTORAL TRAINING SCHOOLS AND CONFERENCES:**

- ✓ Foreign research experience hosted by *the Research Center C.I.A.*, University of Costa Rica in San José on Terrestrial Microbial fuel cell, July-September 2014.
- ✓ Conference: "2015 XVIII AISEM Annual Conference", 3-5 February 2015, Trento, Italy.
- ✓ Conference: "1st international conference on Metrology for Archaeology", Benevento, Italy, 22-23 October 2015.
- ✓ Conference: "16 IEEE International Conference on Environment and Electrical Engineering", Florence 7-10 June, Italy, 2016
- ✓ PhD school of "Technical scientific writing", Sapienza University of Rome, Italy, 10-11 and 24-25 February 2015
- ✓ International PhD school "Application of GPR: the sensitive Case of Historical Cities", COST Action Tu1208, Cracow Poland May 5th-7th, 2015.
- ✓ International PhD autumn school in *Artificial science, Microbial fuel cell and Liquid Handling Robotics*, IT University of Copenhagen, Copenhagen, 2-5 October 2017.
- ✓ ApplePies international conference - Applications in Electronics Pervading Industry, Environment and Society, May 2016, Rome, Italy
- ✓ EU-ISMET 3, *International Society for Microbial Electrochemistry and Technology European edition*, 26<sup>th</sup>-28<sup>th</sup> September 2016, Rome, Italy
- ✓ EXPERIMENTA 2016, Minatec, Scientific Forum, BioVille stand, October 2016. Grenoble, France.
- ✓ 15<sup>th</sup> *International Conference on Environment and Electrical Engineering (IEEEIC)*, October 2016, Florence, Italy
- ✓ *SIE 2017 (49th Annual Meeting of the Associazione Società Italiana di Elettronica)*, annual conference + PhD school, June 2017, Palermo, Italy
- ✓ Final Conference of the *European COST Action TU1208*: September 2017 Warsaw, Poland
- ✓ *Evobliiss Triple Autumn PhD School*, in *Artificial science, Microbial fuel cell and Liquid Handling Robotics*, IUT University of Copenhagen, September 2017, Copenhagen, Denmark
- ✓ *ICFCET 2017 : 19th International Conference on Fuel Cell Engineering and Technology* on November 2017, London, UK
- ✓ *Maker Faire - European Edition 4.0*, Roma, December 2017, Italy
- ✓ *SIE 2018 (50th Annual Meeting of the Associazione Società Italiana di Elettronica) Napoli*, June 2018, Napoli, Italy
- ✓ *SGE 2018, Symposium de Génie Electrique*, July 2018 Nancy, France
- ✓ *EU-ISMET 4 2018, International Society for Microbial Electrochemistry and Technology*, 12<sup>th</sup>-14<sup>th</sup> September, Newcastle, UK
- ✓ IWASI- IEEE International Workshop on Advances in Sensors and Interfaces - June 2019 – Otranto – Italy
- ✓ European Fuel Cell Forum - 3rd MEEP Symposium 2019 Microbial, Enzymatic & Bio-Photovoltaic Electrochemical Reactors – July 2019 – Lucerne – Switzerland
- ✓ MovingK Consortium Meeting – September 2019 – Lyon - France
- ✓ Societal Challenge 6 Brokerage Event 2019 - Net4Society – November 2019 – Bratislava – Slovakia
- ✓ MovingK consortium meeting – November 2019 – Lyon – France
- ✓ CA19123 H2020 COST Action first Management Committee – September 2020
- ✓ CA19123 H2020 COST Action Main Conference – Rome – 2021
- ✓ MEEP Symposium 2021 Microbial, Enzymatic & Bio-Photovoltaic Electrochemical Reactors– Lucerne – Switzerland
- ✓ ISMET8 2022 in Chania, Crete, Greece, *International Society for Microbial Electrochemistry and Technology*
- ✓ MEEP Symposium 2023 Microbial, Enzymatic & Bio-Photovoltaic Electrochemical Reactors– Lucerne – Switzerland
- ✓ EU- ISMET 5 Wageningen, September 2023 - Netherlands

**Prizes and grants :**

- 2015 - Call for grant for researcher mobility "Torno subito", funded by EU, **12k euro**
- 2016 – Call for grant for young researchers, starting grant for research – Sapienza University, grant **1k euro**
- 2016 - Call for grant for PhD mobility of Rome University, funded by national government grant **10k euro**
- 2017 - Call for grant IDEXLYON for PhD mobility - Ecole Centrale de Lyon - grant: **6k euro**
- 2019 – Call for grant ANR MRSEI, support for H2020 proposal building - LYON 2 Univ. – grant **25k euro**
- 2020 – 2024 COST Action PHOENIX – CA19123 – Main Proposer/Chair - <https://www.cost-phoenix.eu/> <https://www.cost.eu/actions/CA19123/> - 4 years - grant **750k euro**