University Academic Curriculum Vitae

Personal information	Name: Pietro Ibba E-Mail: pietro.ibba@unibz.it
Education since leaving school	11/2017 – 07/2021 - **Doctoral degree** in "Food Engineering and Biotechnology", Faculty of Science and Technology, Free University of Bozen-Bolzano, Bozen-Bolzano (Italy). Funded in collaboration with Istituto Italiano di Tecnologia (IIT). Project title: "Development of Electrical Impedance Spectroscopy Methods for the Characterization of Fruit Quality". Supervisor: Prof. Paolo Lugli. 01/2020 – 07/2020 - **Visiting researcher** at the Oslo Bioimpedance and Medical Technology Group, University of Oslo, Oslo (Norway) Project title: "Machine Learning Methods for Fruit Ripening Classification from Bio–impedance Data". Supervisor: Prof. Ørjan G. Martinsen. 02/2017 - **M.Sc.** in "Sicurezza e Qualità Agroalimentare" ("Food Quality and Safety" - (LM-70)), Universitá degli Studi della Tuscia, Viterbo (Italy) Thesis title: "SOS WINE - Precision Viticulture Through the Use of Internet of Things (IOT) and Near-Infrared Spectroscopy". Grade: 110/110 summa cum laude, Supervisor: Prof. Andrea Bellincontro. 09/2015 – 01/2016 - **Visiting student** within the Erasmus+ Programme, Universitat Politècnica de València, Valencia (Spain) 10/2014 - **B.Sc**. in "Biotecnologie Agrarie e Industriali" ("Industrial and Agricultural Biotechnology"), Università degli Studi della Tuscia, Viterbo (Italy) Thesis title: "Evaluation of Arsenic Resistant Fungi from Contaminated Soils". Grade: 86/110, Supervisor: Prof. Silvia Crognale.
Professional experience	01/2022 – 04/2022 - **Research Assistant (AR)**, Faculty of Science and Technology, Free University of Bozen-Bolzano, Bozen-Bolzano (Italy). Project: "Miglioramento elettronico di sistemi bio-fotosintetici (ELPLANT)". Tasks: Interface of engineered nanoparticles (e.g., conjugated polymer nanoparticles) with bio-photosynthetic materials (e.g., plants, algae, bacteria) for the improvement of their photosynthetic activity. Supervisor: Prof. Luisa Petti. 01/2021 – 01/2022 - **Research Assistant (AR)**, Faculty of Science and Technology, Free University of Bozen-Bolzano, Bozen-Bolzano (Italy). Project: "BIOFRUIT: New directions in statistical methods for BIO-impedance analysis of FRUIT ripeness". Supervisor: Prof. Luisa Petti Tasks: (i) Acquisition and handling of large on-plant and post-harvest fruit bio-impedance datasets. (ii) Fruit quality prediction model building and growth curve modeling (MATLAB). (III) Data-driven optimization of custom-made the portable impedance analyzer *FruitMeter*. (IV) Coordination and mentoring of two PhD students. Supervisor: Prof. Luisa Petti.

	05/2017 – 09/2017 - **Research Assistant (AR),** Aberystwyth University - Institute of Biological, Environmental and Rural Sciences (IBERS), Aberystwyth (Wales, United Kingdom). Tasks: Analysis of Hyperspectral Imaging Data collected from UAVs for the Detection and Discrimination of Drought Stress in Bioenergy Crops (*Arundo donax* and *Populus Nigra*). Supervisor: Mr. Alan Gay.
Experience in academic teaching	**<u>Teaching at Free University of Bolzano-Bozen</u>** - Academic year 2019/2020, organization and support for the bioimpedance laboratory module for the course "Sensor and biosensor for food processing" for M.Sc. students of "Food Sciences for Innovation and Authenticity" (LM70) at the Free University of Bozen-Bolzano. Total number of hours: 8 - Academic year 2021/2022, hybrid teaching (**Lecturer**), exercise and laboratories for the course of "Sensors and Biosensors for Food Processing" for M.Sc. students of "Food Sciences for Innovation and Authenticity" (LM70) at the Free University of Bozen-Bolzano. Total number of hours: 10 - Academic year 2021/2022, hybrid teaching (**Teaching Assistant**), exercise and laboratories for the course of "Information and dss in fruit production" for M.Sc. students of the "International Master in Horticultural Science (IMaHS)" (LM69) at the Free University of Bozen-Bolzano. Total number of hours: 12 **<u>Other teaching responsibilities</u>** - Hybrid teaching (**Lecturer**) and laboratory in the mini workshop "Practical Bioimpedance measurements on the basis of AD5933EBZ", held at the Universidad Autónoma de San Luis Potosí on November 10th, 2021, at the IV Latin American Conference on Bioimpedance CLABIO. Total number of hours: 4 **<u>Ph.D. student co-supervision at Free University of Bolzano-Bozen</u>** - Maria Rivola, "Food Quality Monitoring Using Electrical Impedance Spectroscopy (EIS)", Ph.D. in Food Engineering and Biotechnology, 35th cycle. - Mukhtar Ahmad, "Biodegradable Wireless Sensors for Precision Agriculture", Ph.D. in Advanced Systems Engineering, 35th cycle. - Saleh Hamed, "In planta sensing technologies for Agriculture 4.0", Ph.D. in Advanced Systems Engineering, 36th cycle. - Fahimeh Masoumi, "Fruit waste reduction and recycle through post-harvest early disease detection using 3D imaging methods and fruit waste-based bioprinting technologies", Ph.D. in Food Engineering and Biotechnology, 37th cycle.

Experience in project writing	- Contributed to the writing of the PRIN project "AROMA - smArt dRying fOr iMproved hops quality", **submitted in March 2022** in the Progetti di Rilevante Interesse Nazionale 2022 (PRIN 2022) call of the Italian ministry of university and research. - Contributed to the writing of the project "GREENSENSE - Green and circular sensors for sustainable precision viticulture", **submitted in February 2022** for UniBZ RC internal fundings. - Contributed to the writing of the European project "FLEXIBLE ELECTRONICS FOR SUSTAINABLE PRECISION VITICULTURE (FLEX4VITIs)", **submitted in October 2021** in the "Digital and emerging technologies for competitiveness and fit for the green deal (HORIZON-CL4-2021-DIGITAL-EMERGING-01)" call of the "HORIZON-RIA HORIZON Research and Innovation Actions". - Contributed to the writing of the European project "SUPER: SUstainable enhancement of bio-Photosynthetic systems with Engineered nanopaRticles", **submitted in October 2021** in the "EIC Pathfinder Challenges 2021 (HORIZON-EIC-2021-PATHFINDERCHALLENGES-01)" call of the "HORIZON-EIC HORIZON EIC Grants". - Contributed to the writing of the accepted Unibz Interdisciplinary Project "BIOFRUIT: New Directions in Statistical Methods for Bio-impedance Analysis of Fruit Ripeness", funded by Unibz Interdisciplinary Project (ID Call 2020). - Contributed to the writing of the accepted 37th cycle PhD project scholarship "Fruit waste reduction and recycle through post-harvest early disease detection using 3D imaging methods and fruit waste-based bioprinting technologies", funded by FSE REACT-EU - PON "Ricerca e Innovazione" programme.
Other academic responibilities	**<u>Event organization</u>** - Organization and setup of the Free University of Bozen-Bolzano/Istituto Italiano di Tecnologia (IIT) stand and participation to AquaFarm/NovelFarm 2020 exhibition, Fiera di Pordenone, Pordenone, Italy, 19th – 20th February 2020. - Organization of the activities and laboratory guided tours of the Sensing Technologies Lab during the "Lunga Notte della Ricerca – LUNA 2019" Free University of Bozen-Bolzano, 27th of September 2019. - Organization and setup of the University of Tuscia - Department for innovation in biological, agro-food and forest systems stand and participation to Maker Faire 2016 exhibition, Fiera di Roma, Roma, Italy, 14th – 16th October 2016.
Memberships	- **Member** of the Institute of Electrical and Electronics Engineering (IEEE) since 2018 (member nr. 95111723) - **Member** of the IEEE Young Professionals (YP) since 2018 - **Member** of the IEEE Circuits and Systems Society since 2021 - **Member** of the IEEE Electron Device Society (EDS) since 2022 - **Member** of the Italian Electronic Society (SIE) since 2022

Grants	Winner of **Erasmus+ for Traineeship** Program 2016/2017 Grant. Winner of **Erasmus+ for Study** Program 2015/2016 Grant.
Publications	**Journal articles in refereed academic journals** 1) ***P. Ibba***, A. Falco, B.D. Abera, G. Cantarella, L. Petti and P. Lugli. "Bio-impedance and circuit parameters: An analysis for tracking fruit ripening." Postharvest Biology and Technology. 159, 2020. doi: https://doi.org/10.1016/j.postharvbio.2019.110978 2) ***P. Ibba***, M. Crepaldi, G. Cantarella, G. Zini, A. Barcellona, M. Rivola, M. Petrelli, L. Petti and P. Lugli. Design and Validation of a Portable AD5933–Based Impedance Analyzer for Smart Agriculture. IEEE Access, vol. 9, pp. 63656-63675, 2021. doi: 10.1109/ACCESS.2021.3074269 3) ***P. Ibba***, C. Tronstad, R. Moscetti, T. Mimmo, G. Cantarella, L. Petti, Ø. G. Martinsen, S. Cesco and P. Lugli. Supervised Binary Classification Methods for Strawberry Ripeness Discrimination from Bioimpedance Data. Scientific Reports11,11202, 2021. doi: https://doi.org/10.1038/s41598-021-90471-5 4) B.D. Abera, A. Falco, ***P. Ibba***, G. Cantarella, L. Petti, P. Lugli. "Development of Flexible Dispense-Printed Electrochemical Immunosensor for Aflatoxin M1 Detection in Milk". Sensors 2019, 19, 3912. doi: https://doi.org/10.3390/s19183912 5) Douaki, B.D. Abera, G. Cantarella, B. Shkodra, A. Mushtaq, ***P. Ibba***, A.S. Inam, L. Petti and P. Lugli. "Flexible Screen Printed Aptasensor for Rapid Detection of Furaneol: A Comparison of CNTs and AgNPs Effect on Aptasensor Performance". Nanomaterials 2020, 10, 1167. doi: https://doi.org/10.3390/nano10061167 **Conference papers** 1) ***P. Ibba***, A. Falco, A. Rivadeneyra and P. Lugli. "Low-Cost Bio-Impedance Analysis System for the Evaluation of Fruit Ripeness". 2018 IEEE SENSORS, New Delhi, 2018, pp. 1-4. doi: 10.1109/ICSENS.2018.8589541 2) ***P. Ibba***, G. Cantarella, B.D. Abera, L. Petti, A. Falco and P. Lugli. "Selection of Cole Model Bio-Impedance Parameters for the Estimation of the Ageing Evolution of Apples." 17th International Conference on Electrical Bioimpedance. ICEBI 2019. IFMBE Proceedings, vol 72. Springer, Singapore. doi: https://doi.org/10.1007/978-981-13-3498-6_4 3) ***P. Ibba***, M. Crepaldi, G. Cantarella, G. Zini, A. Barcellona, M. Petrelli, B.D. Abera, B. Shkodra, L. Petti and P. Lugli. "FruitMeter: An AD5933-Based Portable Impedance Analyzer for Fruit Quality Characterization". 2020 IEEE International Symposium on Circuits and Systems (ISCAS), Sevilla, 2020, pp. 1-5. doi: 10.1109/ISCAS45731.2020.9181287

	4) M. Rivola, ***P. Ibba***, P. Lugli and L. Petti. Bioimpedance data statistical modelling for food quality classification and prediction. 2021 IEEE International Symposium on Circuits and Systems (ISCAS), Daegu (South Korea), 2021. doi: 10.1109/ISCAS51556.2021.9401712 5) S. Hamed, ***P. Ibba***, M. Petrelli, M. Ciocca, P. Lugli and L. Petti. "Transistor-based plant sensors for agriculture 4.0 measurements". Oral presentation at the 2021 IEEE International workshop on metrology for agriculture and forestry, Trento - Bolzano (Italy), 3rd-5th Nov. 2021. doi: 10.1109/MetroAgriFor52389.2021.9628560 6) M. A. Costa Angeli, M. Madagalam, M. Petrelli, S. Pogliaghi, A. Scarton, ***P. Ibba***, E. Avancini, F. Gori, R.Biasi, L. Petti and P. Lugli, "Assessing the role of textiles in the performance of wearable screen-printed strain sensors for respiratory rate monitoring", oral presentation to the IEEE Sensors 2021 Conference, 01st-04th Nov 2021. doi: 10.1109/SENSORS47087.2021.9639701 7) M. Ahmad, G. Cantarella, M. A. Costa Angeli, M. Madagalam, C. Ebner, M. Ciocca, R. Riaz, ***P. Ibba***, M. Petrelli, I. Merino, N. Cohen, P. Lugli, and L. Petti, 2.4 GHz Microstrip Patch Antenna Fabricated by Means of Laser Induced Graphitization of a Cellulose-based Paper Substrate, IEEE International Flexible Electronics Conference 2021, Ottawa (Canada), 8th-11th Aug. 2021. doi: 10.1109/IFETC49530.2021.9580510 8) B.D. Abera, A. Falco, ***P. Ibba***, G. Cantarella, L. Petti and P. Lugli. "Flexible Dispense-Printed Electrochemical Biosensor for Aflatoxin M1 Detection Employing NaOH and Oxygen Plasma Electrode Pre-treatment". 2019 IEEE International Conference on Flexible and Printable Sensors and Systems (FLEPS), Glasgow, United Kingdom, 2019, pp. 1-3. doi: 10.1109/FLEPS.2019.8792320 9) B.D. Abera, B. Shkodra, A. Douaki, ***P. Ibba***, G. Cantarella, L. Petti and P. Lugli. "Single-Walled Carbon Nanotube-Coated Flexible and Soft Screen-Printed Electrochemical Biosensor for Ochratoxin a Detection". 2020 IEEE International Symposium on Circuits and Systems (ISCAS), Sevilla, 2020, pp. 1-5. doi: 10.1109/ISCAS45731.2020.9181295 10) B. Shkodra, A. Douaki, B.D. Abera, ***P. Ibba***, E. Avancini, G. Cantarella, L. Petti and P. Lugli. "A PEDOT:PSS/SWCNT-Coated Screen Printed Immunosensor for Histamine Detection in Food Samples". 2020 IEEE International Symposium on Circuits and Systems (ISCAS), Sevilla, 2020, pp. 1-4. doi: 10.1109/ISCAS45731.2020.9181296
Publications about the applicant	**Newspaper publications:** - Article on the online newspaper dedicated to the fruit and vegetable sector "Fresh Plaza" on the portable impedance analyzer "FruitMeter", developed and presented together with the IIT (Istituto Italiano di Tecnologia, Genova, Italy) at NOVELFARM 2020. NOVELFARM 2020 is an international conference & trade show for new growing systems,

	soilless and vertical farming held in Pordenone (Italy) in February 2020. Link: https://www.freshplaza.com/article/9196919/an-experimental-fruit-meter-to-measure-quality/ - Article on the online newspaper "Academia" on the portable impedance analyzer "FruitMeter", developed together with the IIT and on the future research directions related to the instrument. Link: https://www.academia.bz.it/articles/lebensmittelqualitaet-mit-strom-messen-reifetest-fuer-neue-analysemethode **TV Services:** - L. Petti, P. Lugli, **P. Ibba**, M. A. Costa Angeli, "Das neue Senslab an der Freien Universität Bozen", in ORF Südtirol heute, 28th April 2021. - L. Petti, P. Lugli, **P. Ibba**, "Al Senslab di Bolzano di studiano i sensori per la società dei big data", in RAI TG Alto Adige, 29th December 2020. Presentation of the work on the portable impedance analyzer "FruitMeter" by Prof. Luisa Petti. - L. Petti, P. Lugli, **P. Ibba**, "Al Senslab di Bolzano di studiano i sensori per la società dei big data", in RAI TG Leonardo, 1st December 2020. Presentation of the work on the portable impedance analyzer "FruitMeter" by Prof. Luisa Petti.
Further data	**Poster Presentation at the following conferences:** - IEEE Sensors 2018 , New Delhi (India), 28-31 October 2018. Poster title: "Low-cost bio-impedance analysis system for the evaluation of fruit ripeness" - 23rd Workshop on the Developments in the Italian PhD Research on Food Science, Technology & Biotechnology, Oristano (Italy), 19-21 September 2018. Poster title: "Development of Printed Electrical Impedance Spectroscopy Based Biosensors for Fruit Characterization". - 3rd UK Bioinformatics Student Symposium, Aberystwyth (Wales), 11 August 2017. Poster title: "UAVs based Hyperspectral imaging for the detection of drought stress in *Arundo donax L.* bioenergy crops". **Speaker at the following conferences:** - "XVII International Conference on Electrical Bioimpedance, ICEBI 2019", Joinville (Brasil), 9-13 June 2019. Presentation title: "Selection of Cole model Bio-impedance Parameters for the Estimation of the Ageing Evolution of Apples" - "International Symposium on Circuits and Systems, ISCAS 2020", Sevilla (Spain), 10-21 October 2020. Presentation title: "FruitMeter: an AD5933-based portable impedance analyzer for fruit quality characterization"

	Reviewer for: - Journal of food engineering (Elsevier) - Biosystem engineering (Elsevier) - IEEE Journal on Emerging and Selected Topics in Circuits and Systems (JETCAS) - IEEE Sensors conference 2021 - IEEE Electron Device Technology Manufacturing (EDTM) Conference, 2021.
Research collaborations with industry and public administrations	- **MICROTEC (Bressanone (BZ), Italy)** – Collaboration in the context of the PhD thesis of Fahimeh Masoumi for the comparison and development of electrical impedance spectroscopy techniques for fruit quality characterization. - **Cooperativa Sant'orsola (Pergine Valsugana (TN), Italy)** – Development of machine learning methods for the on-plant strawberry ripeness classification using electrical impedance spectroscopy. - **Pizzoli (Budrio (BO), Italy) –** Potato varieties water and sugar content characterization and discrimination using electrical impedance spectroscopy. - **Istituto Italiano di Tecnologia (Genova (GE), Italy) –** Co-funding of the PhD thesis and collaboration with the Electronic Design Laboratory (Dr. Marco Crepaldi) and Smart materials group (Dr. Athanassia Athanassiou) for the development of the "FruitMeter" portable impedance analyzer and textile electrodes, respectively. - **Cantina Cooperativa Vignaioli del Morellino di Scansano (Saragiolo (GR), Italy) -** Collaboration in the context of the master thesis (carried out at Tuscia university): "SOS WINE - Precision Viticulture Through the Use of Internet of Things (IOT) and Near-Infrared Spectroscopy (NIR)".
Language competences	Italian: Native English: Advanced – Diploma IELTS C1 (see attached certificate) Spanish: Upper Intermediate – Diploma DELE B2 (see attached certificate) German: Intermediate 1 – B1.1 (Language center of the Free University of Bozen-Bolzano, Bolzano, December 2021, self-declaration attached).
Driving license	B
	Date: Bolzano, 21/04/2022 **Signature** 

IELTS

Test Report Form

ACADEMIC

NOTE *Admission to undergraduate and post graduate courses should be based on the ACADEMIC Reading and Writing Modules. GENERAL TRAINING Reading and Writing Modules are not designed to test the full range of language skills required for academic purposes. It is recommended that the candidate's language ability as indicated in this Test Report Form be re-assessed after two years from the date of the test.*

Centre Number	IT264	Date	19/NOV/2016	Candidate Number	003775

Candidate Details

Family Name	IBBA
First Name	PIETRO
Candidate ID	AT0456760

Date of Birth	06/05/1988	Sex (M/F)	M	Scheme Code	Private Candidate
Country or Region of Origin					
Country of Nationality	ITALY				
First Language	ITALIAN				

Test Results

Listening	Reading	Writing	Speaking	Overall Band Score	CEFR Level
8.5	8.0	6.5	6.5	7.5	C1

Administrator Comments

Centre stamp

British Council
Rome

Validation stamp

IELTS

Administrator's Signature

Date 10/12/2016

Test Report Form Number 16IT003775IBBP264A

BRITISH COUNCIL

idp IELTS AUSTRALIA

CAMBRIDGE ENGLISH Language Assessment
Part of the University of Cambridge

The validity of this IELTS Test Report Form can be verified online by recognising organisations at http://ielts.ucles.org.uk

El Ministro de Educación, Cultura y Deporte y, en su nombre, el Director del Instituto Cervantes,
considerando que, conforme a la legislación vigente,

Don PIETRO IBBA

que nació el 6 de mayo de 1958 en CAGLIARI (ITALIA), ha superado las pruebas celebradas en mayo de 2016 en VITERBO (ITALIA), según lo previsto en el Real Decreto 1137/2002, de 31 de octubre (BOE de 8 de noviembre), modificado por el Real Decreto 264/2008, de 22 de febrero (BOE de 12 de marzo) y el Real Decreto 1004/2015, de 6 de noviembre (BOE de 7 de noviembre), expide el presente

DIPLOMA DE ESPAÑOL COMO LENGUA EXTRANJERA NIVEL B2

Dado en Madrid, a 3 de agosto de 2016.

El interesado,

El Director del Instituto Cervantes,

Víctor García de la Concha

El Director Académico,

Richard Bueno Hudson

Nº de inscripción: [illegible]

Nº de diploma: [illegible]

Dichiarazione sostitutiva di certificazione

(art. 46 D.P.R.28 dicembre 2000 n. 445)

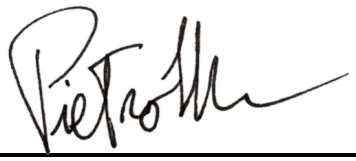
Il Sottoscritto Pietro Ibba, c.f. BBIPTR88E06B354J, nato a Cagliari (CA) il 06/05/1988 e residente a Bolzano (BZ) in Via dei grappoli 9B.

Consapevole che chiunque rilascia dichiarazioni mendaci è punito ai sensi del codice penale e delle leggi speciali in materia, ai sensi e per gli effetti dell'art. 46 D.P.R. n. 445/2000

DICHIARA

Di aver partecipato al corso di lingua tedesca B1.1 presso il centro di lingua della Libera Università di Bolzano dal 16.03.2021 al 29.05.2021 e di aver superato l'esame finale con un punteggio di 86/100.

Bolzano, 21/04/2022



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Firma del dichiarante
(per esteso e leggibile)

Ai sensi dell'art. 10 della legge 675/1996 e successive modificazioni, le informazioni indicate nella presente dchiarazione verranno utilizzate unicamente per le finalità per le quali sono state acquisite.