CURRICULUM VITAE
EUROPASS

PERSONAL INFORMATION

Name: **MAINARDIS MATIA**

Address: **VIA ROMA 53/B, 33020 AMARO (UDINE)**

Nationality: Italian

WORK EXPERIENCE

• Date (from-to): **MARCH 2019- ACTUAL**

• Name and address of the employer: University of Udine, Department Polytechnic of Engineering and Architecture, Via delle Scienze 208, 33100 Udine (IT)

• Sector: University

• Position: Post-doctoral researcher

• Main tasks and responsibilities:

- Energy recovery from solid and liquid substrates through anaerobic digestion process
- Biochar utilization in the anaerobic digestion process
- Physicochemical laboratory characterization of liquid and solid matrices
- Bio-methanization tests with batch AMPTS equipment
- Evaluation of wastewater treatment plant (WWTP) sludge properties for agricultural reutilization
- Advanced oxidation processes (research project on ozonation of pulp and paper industrial wastewater)
- Energy and process modelling for economic and environmental WWTP optimization
- Treated wastewater reuse for agricultural purposes
- Evaluation of alternative techniques to pesticides for weed control in vineyards
- Co-relator for master's degree thesis in "Engineering for Energy and Environment" and "Engineering for Territory and Environment"
- Research group "Environmental Pollution and Remediation", supervisor prof. Daniele Goi
- Scientific sectors: ICAR/03 (Environmental Sanitary Engineering), AGR/09 (Agricultural Engineering)

• Date (from-to): **JULY 2019- AUGUST 2019**

• Name and address of the employer: University of Udine, Department Polytechnic of Engineering and Architecture, Via delle Scienze 208, 33100 Udine (IT)

• Sector: University

• Position: External collaborator

• Main tasks and responsibilities	• Project "Research support activity for data updating and simulation of management systems aimed at recovering Waste Electrical and Electronic Equipment (WEEE)" • Multi-objective engineering modelling with Matlab and modeFRONTIER software's • Scientific supervisor: prof. Patrizia Simeoni
• Date (from-to)	**1 JANUARY 2017- 15 FEBRUARY 2019**
• Name and address of the employer	CAFC S.p.A., Viale Palmanova 192, 33100 Udine (IT)
• Sector	Integrated Water Service (IWS) management
• Type of contract	High education and research apprenticeship
• Main tasks and responsibilities	• Laboratory physicochemical characterization of organic substrates • Execution of anaerobic batch digestion tests (in mono and co-digestion mode) with AMPTS equipment • UASB pilot plant project and running • Participation to local, national and international conferences, seminaries and congresses • Technical employee in Wastewater Treatment and Engineering Divisions • Project Manager (Wastewater Treatment) • Responsible for Investments Plan 2018-2019 revision • Data collection and analysis for Technical Quality of Water Service (Deliberation 917/2017 ARERA) • Responsible for partnership with research institutes for Horizon and Life European projects
• Date (from-to)	**1 NOVEMBER 2015- 31 DECEMBER 2016**
• Name and address of the employer	Carniacque S.p.A., Via Aita 2/H, 33028 Tolmezzo (IT)
• Sector	Integrated Water Service (IWS) management
• Type of contract	High education and research apprenticeship
• Main tasks and responsibilities	• Literature study of organic substrates amenable to be anaerobically treated • Laboratory physicochemical characterization of organic substrates • Execution of anaerobic batch digestion tests (in mono and co-digestion mode) with AMPTS equipment • UASB pilot-plant project and management • Participation to local, national and international conferences, seminaries and congresses • Technical employee in wastewater treatment and engineering divisions
• Date (from-to)	**13 JULY 2015-31 OCTOBER 2015**
• Name and address of the employer	Carniacque S.p.A., Via Aita 2/H, 33028 Tolmezzo (IT)
• Sector	Integrated Water Service (IWS) management
• Type of contract	Post-lauream stage
• Main tasks and responsibilities	• Employee in technical office, working on municipal WWTPs • Literature study of organic substrates amenable to be anaerobically treated (Regional-funded research project on UASB anaerobic treatment)
• Date (from-to)	**DECEMBER 2014- MARCH 2015**
• Name and address of the employer	Carniacque S.p.A., Via Aita 2/H, 33028 Tolmezzo (IT)
• Sector	Integrated Water Service (IWS) management
• Type of contract	Educational traineeship
• Main tasks and responsibilities	Employee in technical office, working on municipal WWTPs
• Date (from-to)	**4 JULY 2011- 29 JULY 2011**

• Name and address of the employer	Municipality of Amaro (UD), Via Roma 33, 33020 Amaro (IT)
• Sector	Public administration
• Type of contract	Work experience grant for young people (<25 y.o.)
• Main tasks and responsibilities	General employee

EDUCATION AND TRAINING

• Date (from-to)	**1 NOVEMBER 2015- 13 FEBRUARY 2019**
•Academic title	Ph.D. in "Environmental and Energy Engineering Science"
• Name and address of the institution	University of Udine, Department Polytechnic of Engineering and Architecture, Via delle Scienze 208, 33100 Udine (IT)
• Main topics/professional skills of the study	• Water pollution and treatment, with particular focus on material and energy recovery from high-loaded organic substrates • Physicochemical characterization and treatment of complex liquid substrates • Optimization of high-velocity UASB anaerobic processes • Optimization of WWTP processes, focusing on plant modelling, energy efficiency, pollution reduction, research and innovation • Participation to local, national and international conferences
• Scientific supervisor	Prof. Daniele Goi

• Date (from-to)	**1 OCTOBER 2012- 10 APRIL 2015**
• Name and address of the institution	University of Udine, Department Polytechnic of Engineering and Architecture, Via delle Scienze 208, 33100 Udine (IT)
• Main topics	• Study of air and water pollution phenomena, with development of provisional models and treatment unit dimensioning • Knowledge of industrial plant design, linked to energy production (in particular, from renewable sources) • Knowledge of physicochemical principles of transport and diffusion of polluting agents in the environment
• Thesis title	UASB anaerobic treatment and OFMSW re-utilization: Tolmezzo case potentiality
• Supervisor	Prof. Daniele Goi
• Academic title	Master's degree in "Engineering for environment and energy", final mark: 110 cum laude /110

• Date (from-to)	**1 OCTOBER 2008- 16 JULY 2012**
• Name and address of the institution	University of Udine, Department Polytechnic of Engineering and Architecture, Via delle Scienze 208, 33100 Udine (IT)
• Main topics	• Engineering knowledge of mathematical and physical principles • Principles of Environmental chemical engineering • Environmental sanitary engineering • Chemical plants • Fluid mechanics • Environmental remediation • Fundamentals of industrial chemistry.
• Thesis title	Polluting emissions in fossil fuel power plants
• Supervisor	Prof. Piero Pinamonti
• Academic title	Bachelor's Degree in "Environmental and resources Engineering"- Industrial Curriculum, final mark: 101/110

PERSONAL SKILLS

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MOTHER TONGUE	**ITALIAN, FRIULIAN**
OTHER LANGUAGES	
	ENGLISH
Listening	C1
Reading	C2
Spoken production	C1
	FRENCH
Listening	A1
Reading	A2
Spoken production	A1
	SPANISH
Listening	A1
Reading	A2
Spoken production	A1

RELATIONAL SKILLS

- Good aptitude at working in group and collaborating in complex contexts, acquired both during University studies and in the successive apprenticeship, as well as during Ph.D. research
- Strong interest in collaborating with colleagues to continuously improve personal skills and mutual knowledge
- Good oral presentation skills, acquired during participation to national and international reputable conferences in wastewater treatment and biogas sectors
- Good communication skills, obtained in the Ph.D studies
- Friendly personality
- Capability of communicating specialized know-how to different people
- Ability to synthetize and communicate complex scientific and research concepts
- Experience of initiating new partnerships, acquired in company and academic experience, in particular in the proposal of European Horizon and Life projects

TECHNICAL SKILLS

- Good knowledge of common equipment's used for wastewater physicochemical analysis and characterization (spectro-photometers, ovens, centrifuges, filtration apparatus)
- Experience on advanced oxidation processes (ultrasound, ozone)
- Experience on building and conducting laboratory and pilot reactors (batch and continuous mode of operations), mainly working on anaerobic digestion and advanced oxidation processes

ORGANIZATIONAL SKILLS

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- Capability of adjustment to the context, acquired during the traineeship experience and Ph.D. studies
- Capability of organizing group working, acquired during university studies and company experience
- Leadership and orientation at R&D, acquired during high education and research apprenticeship, in particular in research project management
- Ability to efficiently manage own time and work to deadlines
- Good planning skills, acquired in CAFC company experience
- Experience in EU-funded projects management and experimental activity (as project partner)

IT SKILLS

- Very good knowledge of Windows OS and familiarity with Microsoft Office main software's (Word, Excel, PowerPoint, Outlook)
- High familiarity with the main browsers (Google Chrome, Internet Explorer)
- Basic knowledge of C programming language (University studies)
- Basic knowledge of AutoCAD technical drawing software
- Basic knowledge of GPSX and WEST (WWTP modelling) software's;
- Basic knowledge of EPA-SWMM (sewer modelling) software
- Academic knowledge of Polymath software
- Good ability to interpret technical drawings
- Basic knowledge of ImageJ software
- Basic knowledge of modeFRONTIER (multi-objective engineering optimization) software
- Basic knowledge of R (statistical analysis) and Python (mathematical modelling) software's

DRIVING LICENSES

Class B driving license, obtained on 16/04/2008

SCIENTIFIC PUBLICATIONS

- A. Moretti, **M. Mainardis**, D. Cecconet, A. Capodaglio, D. Goi, "Wastewater recovery for agricultural reuse in the "fit for purpose" perspective: current regulation, technologies and perspectives", *in progress*.
- P.E. Campana, **M. Mainardis**, M. Cottes, A. Moretti, "100% renewable wastewater systems: technical evaluation using a modelling approach", *under review*.
- **M. Mainardis**, R. Gubiani, "Energy use and management in the winery", *under review*.
- S. Hussain, E. Aneggi, **M. Mainardis**, A. Khakbaz, D. Goi, "Treatment of Landfill Leachate through heterogeneous fenton like oxidation using Zr_5Cu", *in progress*.
- M. Cottes, **M. Mainardis**, P. Simeoni, "Evaluation of WEEE plant installation feasibility in Friuli-Venezia Giulia Region using a multi-decisional modelling approach", *in progress*.
- F. Da Borso, A. Chiumenti, G. Fait, **M. Mainardis**, D. Goi, "Biomethane potential of sludges from a brackish water fish hatchery: a case-study", *Applied Sciences,* 11, 552, 2021. https://doi.org/10.3390/app11020552.
- G. Misson, **M. Mainardis**, F. Marroni, D. Goi, A. Peressotti. Environmental methane emissions from seagrass wrack and evaluation of salinity effect on microbial community composition using biochemical methane potential assays, *Journal of Cleaner Production,* 285C, 125426, 2021. https://doi.org/10.1016/j.jclepro.2020.125426.
- M. Cottes, **M. Mainardis**, D. Goi, P. Simeoni, "Demand-response application in wastewater treatment plants using compressed air storage system: A modelling approach", *Energies,* 13(18), 4780, 2020. https://doi.org/10.3390/en13184780.
- G. Rossi, **M. Mainardis**, E. Aneggi, L.K. Weavers, D. Goi. "Combined ultrasound-ozone treatment for reutilization of primary effluent—a preliminary study", *Environmental Science and Pollution Research,* 2020 (accepted manuscript). https://doi.org/10.1007/s11356-020-10467-y.
- **M. Mainardis**, F. Boscutti, M. Rubio, G. Pergher, "Innovative versus traditional weed control strategies in the vineyard: flaming affects species composition and abundance but not plant diversity", *PlosOne,* 15(8), e0238396, 2020. https://doi.org/doi.org/10.1371/journal.pone.0238396.
- **M. Mainardis**, M. Buttazzoni, D. Goi, "Up-flow Anaerobic Sludge Blanket (UASB) technology for energy recovery: A review on recent technological advances", *Bioengineering*, 7(2), 43, 2020. https://doi.org/10.3390/bioengineering7020043.
- A. Khakbaz, M. De Nobili, **M. Mainardis**, M. Contin, E. Aneggi, M. Mattiussi, I. Cabras, M. Busut, D. Goi. "Monitoring of heavy metals, EOX and LAS in sewage sludge for agricultural use: A case study"*, Detritus*, 12, 160-168, 2020. https://doi.org/10.31025/2611-4135/2020.13993.

- **M. Mainardis**, M. Buttazzoni, N. De Bortoli, M. Mion, D. Goi, "Evaluation of ozonation applicability to pulp and paper streams for a sustainable wastewater treatment", *Journal of Cleaner Production*, 258, 120781, 2020. https://doi.org/10.1016/j.jclepro.2020.120781.
- G. Pergher, R. Gubiani, **M. Mainardis**, "A biomass-fuelled flamer for in-row weed control in vineyards: an economic evaluation", *Lecture Notes in Civil Engineering, Innovative Biosystems Engineering for Sustainable Agriculture, Forestry and Food Production*, 381-388, 2020. https://doi.org/10.1007/978-3-030-39299-4_43.
- G. Misson, **M. Mainardis**, G. Incerti, D. Goi, A. Peressotti. "Preliminary evaluation of potential methane production from anaerobic digestion of beach-cast seagrass wrack: the case study of high-Adriatic coast", *Journal of Cleaner Production,* 254C, 120131, 2020. https://doi.org/10.1016/j.jclepro.2020.120131.
- R. Gubiani, **M. Mainardis**, G. Pergher, "The winery in a perspective of sustainability: the parameters to be measured and their reliability", In 2019 IEEE International Workshop on Metrology for Agriculture and Forestry (MetroAgriFor) - ISBN:978-1-7281-3611-0, 328-332. https://doi.org/10.1109/metroagrifor.2019.8909221.
- G. Pergher, R. Gubiani, **M. Mainardis, "**Field Testing of a Biomass-Fueled Flamer for In-Row Weed Control in the Vineyard", *Agriculture*, 9(10), 210, 2019. https://doi.org/10.3390/agriculture9100210.
- **M. Mainardis**, D. Goi, "Pilot-UASB tests for anaerobic valorisation of high-loaded liquid substrates in Friulian mountain area", *Journal of Environmental Chemical Engineering*, 7(5), 103348, 2019. https://doi.org/10.1016/j.jece.2019.103348.
- **M. Mainardis**, S. Flaibani, M. Trigatti, D. Goi. "Techno-economic feasibility of Cheese Whey Anaerobic Digestion in small Italian dairies and effect of Ultra-Sound pre-treatment on BMP yield", *Journal of Environmental Management*, 246, 557-563, 2019. https://doi.org/10.1016/j.jenvman.2019.06.014.
- **M**. **Mainardis**, S. Flaibani, F. Mazzolini, A. Peressotti, D. Goi. "Techno-economic analysis of anaerobic digestion implementation in small Italian breweries and evaluation of biochar and granular activated carbon addition effect on methane yield", *Journal of Environmental Chemical Engineering*, 7(3), 103184, 2019. https://doi.org/10.1016/j.jece.2019.103184.
- **M. Mainardis**, N. De Bortoli, M. Mion, V. Cabbai, D. Goi. "Thermo-economic evaluation of combined heat and power generation in wastewater treatment plant to optimize sludge drying", Book of abstracts, Sludge Management In Circular Economy (SMICE) Conference 2018, Rome, 23-25/05/2018.
- **M. Mainardis**, M. Mion, G. Zannier, D. Goi. "A territory-oriented approach to improve high-loaded liquid waste management: the case study of Tolmezzo (Ud)", 10th European Young Water Professionals Conference, Book of Abstracts, Zagreb (Croatia), 2018.
- **M. Mainardis**, V. Cabbai, G. Zannier, D. Visintini, D. Goi, "Characterization and BMP tests of liquid substrates for high-rate anaerobic digestion", *Chemical and Biochemical Engineering Quarterly*, 31(4), 2017. https://doi.org/10.15255/CABEQ.2017.1083.
- **M. Mainardis,** G. Zannier, M. Mion, D. Goi, "UASB anaerobic treatment of liquid substrates: A case study in Friuli- Venezia Giulia region", 9th European Young Water Professionals Conference, Book of Abstracts, ISBN 978-963-313-256-2, 24-27/05/2017, Budapest (Hungary).
- **M. Mainardis**, G. Zannier, M. Mion, D. Goi, "Energetic valorization of Cheese Whey using UASB Technology: a case study", Advances and Trends in Biogas and Biorefineries, *Communications in Agricultural and Applied Biological Sciences*, Ghent University, 82(4), 2017.
- **M. Mainardis**, G. Rossi, V. Cabbai, D. Goi, "Characterization of high-loaded organic substrates and suitability as a potential feed for high-velocity anaerobic UASB reactors", in M.R. Boni, P. Sirini, A. Chiavola, A. Polettini, R. Pomi, P. Viotti, A. Rossi, Book of abstracts (2016), SIDISA 2016, Rome, 19-23/06/2016, ISBN: 978-88-496-391-1
- **M. Mainardis**, V. Cabbai, D. Goi, "UASB anaerobic treatment and OFMSW reutilization: Tolmezzo case potentiality", Friulian Journal of Science 20, 2015.

SCHOOLS, CONFERENCES AND SEMINARIES ATTENDANCE

- Conferences “Coastal biogas”, online events, 30/09/2020 and 09/12/2020
- Seminary “Waste to energy and more”, Ghent (Belgium) (Online event), 11/09/2020
- Seminary “Process modelling for WWTP optimization”, Milan, 18/10/2019
- Conference “Young Water Professionals (YWP) 2019”, Prague (Czech Republic), 2-4/10/2019
- Conference “IWA Resource Recovery 2019”, Venice, 08-12/09/2019
- Conference “SMICE (Sludge Management In Circular Economy)”, Rome, 23-25/05/2018
- Conference “Young Water Professionals (YWP) 2018”, Zagreb (Croatia), 7-12/05/2018
- Conference “European Biogas Association (EBA) Conference 2018”, Antwerp (Belgium), 24-26/01/2018
- Cycle of seminaries “Integrated water cycle lessons”, IRES Fvg, Udine, 11/2017-01/2018
- Seminar “Integrated Water System: Water Safety Plan- Cooperation between authorities”, CAFC- Udine, 07/12/2017
- Conference “16th Annual Conference of Friulian Scientific and Technologic Society”, Capriva del Friuli (Gorizia), 18/11/2017
- Conference “WWTP control, from smart metering to iRTC (Intelligent Real Time Controller) systems”, Seam Engineering, Lomazzo (Como), 27/10/2017
- Conference “Integrated Water System: WWT sludge: Reality roadmap”, Lonigo (Vicenza), 23/09/2017
- Summer school “Energetic and material recovery issues in modern urban metabolism: strategies and technologies for a sustainable future”, Lake Como School of Advanced Studies, 21-25/08/2017
- Conference “Young Water Professionals (YWP) 2017”, Budapest (Hungary), 24-27/05/2017
- Seminaries “Integrated water cycle lessons”, IRES Fvg, Udine, February 2017-March 2017
- Fair “Ecomondo”, Rimini, 10/11/2016
- Course “WEST, Management and simulation of WWTPs”, DHI Italia, Genova, 7-8/11/2016
- Summer school “Advances in biogas technology”, comprehensive of “European Biogas Association (EBA) Conference 2016”, Gent (Belgium), 26-30/09/2016
- Conference “Sidisa-Sibesa (Italo-Brasilian Symposium of Environmental Sanitary Engineering) 2016”, Rome, 20-23/06/2016
- Summer School SWEC (Sustainable Water-Energy Centric Communities) School, Lake Como School of Advanced Studies, 9-13/05/2016

TEACHING ACTIVITIES

- Lecturer for the course “Waste pollution and management”, Bachelor’s Degree in “Prevention techniques in the environment and in the working field”, University of Udine, A.Y. 2019/2020, and University of Trieste, A.Y. 2020/2021, 2 CFU (20 h)
- Co-relator for the following master’s degree dissertations:
  - “Ozone treatment of pulp and paper wastewater: Tolmezzo (Ud) case study”, Eng. Marco Buttazzoni, Master’s Degree in Engineering for Territory and Environment
  - "Energetic recovery from Cheese Whey using Anaerobic Digestion: A case study in Friuli-Venezia Giulia plain", Eng. Simone Flaibani, Master’s Degree in Engineering for Energy and Environment
  - “Energy recovery from brewery waste through anaerobic digestion in the mountain area of Friuli-Venezia Giulia region”, Eng. Fabio Mazzolini, Master’s Degree in Engineering for Energy and Environment
  - “Technical evaluation of anaerobic digester recovery and possibility to co-digestion upgrading: the case-study of Staranzano”, Eng. Sara

Prapotnich, Master's Degree in Engineering for Territory and Environment

- Seminar lecture (as teacher) "Anaerobic technology and integrated water service" (4 h), Master's Degree in Engineering for Territory and Environment, University of Udine, A.Y. 2019/2020
- Oral presentation (as lecturer) "Perspectives and innovation in the integrated water cycle in Friuli region: CAFC S.p.A. and Poiana S.p.A. case studies- Energy and material recovery", World Water Day 2018, Udine, 22/03/2018
- Seminar lecture "Sustainability & Innovation in the IWS: a territory-oriented approach", Tolmezzo (Udine), 06/02/2018
- Oral presentation "UASB anaerobic treatment of liquid wastes: Tolmezzo case study", 16th Annual Conference of Friulian Scientific and Technologic Society, Capriva del Friuli (Gorizia), 18/11/2017
- Lesson (as teacher) "Integrated Water Service management in Friuli-Venezia Giulia region", Ohio State University (OSU) Study Abroad, Udine, 01/07/2017
- Lesson "Integrated water cycle: from freshwater withdrawal to wastewater treatment", Event "Knowledge in Party", Udine University, 30/06/2017
- Academic tutor for high-school students of ISIS Solari (Tolmezzo), Years 2016-2018 (40 hours per year)
- Lesson (as teacher) "Anaerobic digestion: principles and applications", Master's Degree students in "Engineering for Environment and Energy" (25/05/2016) and "Engineering for Environment and Territory" (14/06/2016), 4 h

OTHER INFORMATION

- Reviewer for the following scientific journals: Water Research, Chemical Engineering Journal, Journal of Cleaner Production, Journal of Environmental Management, Science of the Total Environment, Chemical Engineering Research and Design, Journal of Environmental Chemical Engineering, Environmental Science and Pollution Research, Biomass Conversion and Biorefinery, Bioprocess and Biosystems Engineering, Sustainability, International Journal of Environmental Research and Public Health, Water, Energies, Water Science and Technology, Applied Sciences, BioResources (total 66 verified reviews)
- Proposer of an international collaboration with Malardalen University (Vasteras, Sweden)- Research group in "Renewable Energy"
- Proposer of an international collaboration with Ghent University (Ghent, Belgium)- Faculty of "Bioscience Engineering"
- Proposer of an international collaboration with HAWK University (Gottingen, Germany)- Faculty of "Resource Management"
- Proposer of an international collaboration with University College of Dublin (Ireland)- School of Biosystems Engineering
- Proposer of a national collaboration with University of Salerno- Department of Industrial Engineering
- Proposer of a national collaboration with University of Pavia- Department of Civil Engineering and Architecture
- Member of Reviewers' Board of Sustainability journal
- Co-chair at IWA Resource Recovery (RR) Conference 2019
- Registered to Engineers' Order of Udine, Section A- Industrial Sector, position n° 3577 (since 12/07/2017)
- Member of Young Engineers Commission of Engineers Order of Udine
- Winner of the Best Poster Prize for 2nd year Ph.D. students in "Environmental and Energy Engineering Sciences", received during Doctoral Week of Udine University, 24/10/2017
- Qualification to Engineer profession practice, obtained after passing State exam (Section A- Industrial Sector); Final mark 183/200; 10/09/2015
- University Tutor for bachelor's degree in "Industrial Engineering for Environmental Sustainability", A.Y. 2020/2021
- University Tutor for master's degree students in "Engineering for Environment and Energy", A.Y. 2015/2016
- Certificate of Best graduated student of Master's Degree "Engineering for Environment and Energy", Dies Academicus of Udine University, A.Y. 2013/2014, 03/07/2015
- Member of International Water Association (IWA)

ATTACHED -----

I allow the use and processing of my personal data according to the D. Lgs. 196/2003 concerning the handling of personal data.

The declarer

Amaro (Ud), 09/01/2021