



Mark McCormick

Environmental Engineer

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Nationality : Swiss and United States
DOB: May 4th, 1965, 2 children

English
French (DALF C2 certification)

Knowledge and Skills

Project Execution and Lifecycle Management

- Certified Project Management Professional (PMP/PMI)

IT and Data Analysis

- SCADA & Data Integrity
- Python for Data Analysis (Pandas, Scikit-learn, Keras, ETL, data cleaning, visualization, machine learning)
- Certified Associate in Python Programming (PCAP)
- LaTeX, WordPress, HTML
- ISTQB-CTFL Certified Software Tester
- MS Office suite
- Linux, LibreOffice suite

Applied Research

- Drafting research proposals
- Laboratory techniques
- AutoCAD, Aspen Plus, ArcGIS, STAN, EPANET, RetScreen
- Conducting pilot tests
- Risk Assessment (FMEA, HACCP)
- Team coordination
- Analysis, synthesis, and communication of results

Environmental Technologies

- Water and wastewater
- Municipal solid waste
- Solar energy
- Wood energy
- Biogas
- Bioremediation
- Advanced water treatment technologies

Multidisciplinary scientist and engineer with more than 15 years of experience in the environmental, pharmaceutical, renewable energy sectors and in complex data analysis. Experience working in engineering firms, laboratories, and as an independent consultant.

Work experience

Consultant in the environmental sector, Lausanne region
since September 2023

Project development and technical assistance in the fields of water, wastewater, municipal solid waste, pyrolysis, and solar energy.

Intern, BNF EPFL project, Laboratory of Environmental Biotechnology, Lausanne
February–August 2023

Analysis of data from bioreactor experiments using machine learning methods, synthesis, and communication of results.

Ph.D. Student, University of Lausanne, Department of Information Systems, Lausanne
2017–2022

Research Associate

Jan–Mar 2019, Jan–May 2020, Jan–Apr 2021, Jul–Aug 2022

Analysis and interpretation of digital data acquired during pilot tests of an anaerobic digester, a biomass torrefaction facility, and a fixed-bed bioreactor for urban wastewater treatment. Analysis of SCADA data from an urban wastewater treatment plant. Design and techno-economic evaluation of a new process for the transformation and recovery of whey and liquid residues from cheese dairies.

Engineer, Project Manager, Energy PyroSwiss SA, Cossonay
March 2019 to January 2022

Development of preliminary designs and feasibility studies in the fields of energy recovery from household waste via pyrolysis, wastewater treatment, and solar energy harvesting.

Website Manager, SCCER BIOSWEET, c/o Paul Scherrer Institute (PSI), Villigen
April–December 2018

Website maintenance. Content creation for an electronic newsletter.

Research Associate and HES Assistant, HEIG-VD, Yverdon-les-Bains
June 2011 to March 2018

Collaboration, management, and initiation of applied research projects in the fields of renewable energy and the environment. Management of laboratory and field studies, including pilot facilities. Project design and supervision of students and interns during their practical work.

Technical Assistant, Ozone.ch Sàrl, Boudry
February–April 2011

Providing advice and assistance with product selection, bid preparation, order tracking, installation, calibration, and repairs to support the sale of water treatment equipment.

Bio & Process Engineer, Niton Engineering Suisse SA, Bernex
December 2009 to February 2010

Collaborated on the development of projects in the field of fuel ethanol production. Feasibility study, technical audit, maintaining relationships with partners in Europe and the United States.

Environmental Engineer, Hydro-Concept Sàrl, Yverdon-les-Bains
September 2007 to November 2009

Development of preliminary and final designs. Support for coordination and implementation during the execution phase of projects in the fields of urban hydraulics and renewable energy (wood, geothermal, mini-hydraulic, district heating).

Pharmaceutical and Environmental Bioprocessing

- DSP
- Quality Control
- Formulation
- CAPA & Deviation Management
- SOP & Protocol Development
- Bioreactor Process Engineering
- Bioremediation
- GMP & GxP Compliance
- Validation & Qualification (IQ/OQ/PQ)
- Process Analytical Technology (PAT)

Laboratory Techniques

- Aseptic technique
- Centrifugation
- pH measurement and buffer preparation
- Ultrafiltration, diafiltration
- Autoclaving
- Pipetting and dilution calculations
- Use of biological safety cabinets
- Hybridoma technology
- Bioreactor culture
- Plating and isolation on agar
- ELISA, enzyme activity assays
- SDS-PAGE, PCR, HPLC
- Spectrophotometry (visible absorbance, UV, flame atomic absorption, FT-IR)
- Titrimetry, calorimetry
- Encapsulation
- Preparative chromatography
- Proximate and ultimate analysis

Education

- Doctor of Science in Information Systems, University of Lausanne, 2022
- Master of Science (M.Sc.) in Environmental Engineering, Pennsylvania State University, United States, 1997
- Bachelor of Science in Biochemistry, University of California, Davis, United States, 1992

Interests

- hiking, history, nutrition, town council, vegetable gardening, salsa

References available upon request

Technical Assistant, Ozone.ch Sàrl, Boudry

April–August 2007

Provided advice and assistance with product selection, bid preparation, order tracking, and installation and repair to support the sale of water treatment equipment.

Research Associate, MADEP S.A., Bevaix

August 2004 – December 2006

Conducted operational qualification tests on the Terrafors® bioreactor prototype used in environmental studies. Contributed to technical improvements, the development of application methods, and the preparation of marketing and technical support documents. Collaborated on the design, preparation of proposals, installation of bioreactors (1 m³), and their monitoring during the remediation of aquifers and soil using bioremediation processes.

Technical Assistant, Ozone.ch Sàrl, Boudry

July 2004

Provided advice and assistance with product selection, preparing quotes, order tracking, and installation and repair to support the sale of water treatment equipment.

Pharmaceutical Formulation Consultant, Ipsen Pharma, St Feliu de Llobregat, Spain

April–June 2004

Design and manufacture of active ingredient formulations for preclinical evaluation.

Assistant, *Debio Recherche Pharmaceutique S.A.*, Martigny

October 2000–November 2003

Design and manufacture of controlled-release formulations of active pharmaceutical ingredients for preclinical evaluation. Review of intellectual property and scientific literature. Contributed to the improvement of preclinical evaluation methods and the acquisition of laboratory equipment.

Water and Environment Consultant, University of Namibia, Windhoek, Namibia

August 1999 – May 2000

Contributed to the drafting of a national strategy for water demand management. Contributed to the drafting of a report for the Ministry of Mines and Energy of the Republic of Namibia to develop a national strategy for biomass energy use. Contributed to the preparation of a guide on water pollution funded by the Namibian government.

Project Assistant (*Fulbright Scholarship from the U.S. government*), Windhoek

Municipality, Department of Infrastructure, Water, and Technical Services, Windhoek, Namibia

July 1998 to August 1999

Contributed to a feasibility study on the treatment and recovery of solid and liquid waste from the Windhoek industrial zone. Conversion of a “plug-flow” digester to a “UASB” digester.

Engineer-in-Training, Schlumberger Ltd., Bossier City, Louisiana, United States

January–July 1998

Training in technical service delivery management in the oil and gas extraction industry.

Technician, Analytical Test Development, Cell Genesys, Foster City, Calif., United States

Jan. to July 1995

Collaborated on the development of quality control assays for therapeutic proteins manufactured in accordance with GMP standards and on the regulatory approval of new therapeutic proteins.

Research Associate, Biotechnology Group—Purification Department, Baxter Healthcare Corporation, Hyland Biotechnology, Hayward, California, United States

July 1992–November 1993

Optimization and validation of industrial GMP methods for the purification and formulation of recombinant therapeutic proteins.

Intern, Genentech, Inc., South San Francisco, California, United States

June–August 1991

Worked in the Department of Protein Chemistry on the isolation and characterization of an endogenous ligand for an intestinal cell membrane receptor.

Intern, School of Medicine, University of California, Davis, United States

December 1990–May 1991 and December 1991–March 1992

Worked in the Division of Rheumatology, Allergy, and Immunology. Prepared monoclonal antibodies against rheumatoid factors (RA-RF) to better understand rheumatoid arthritis.