europass

Joel Jambalos

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EDUCATION AND TRAINING

01/09/2022 – 31/01/2025 Amiens, France

ERASMUS MUNDUS MASTER IN MATERIALS FOR ENERGY STORAGE AND CONVERSION (MESC+)

Université de Picardie Jules Verne

Mobility Study Programme

- Warsaw University of Technology in Warsaw, Poland
- Université Toulouse III - Paul Sabatier in Toulouse, France
- Université de Picardie Jules Verne in Amiens, France

Website https://mesc-plus.eu/

01/08/2015 – 04/06/2019 Manila, Philippines

BACHELOR OF SCIENCE IN APPLIED PHYSICS MAJOR IN INSTRUMENTATION University of Santo Tomas

Website https://www.ust.edu.ph/

WORK EXPERIENCE

UPWORK – MANILA (REMOTE), PHILIPPINES

BATTERY MODELING ENGINEER (FREELANCE) – 10/02/2025 – 10/04/2025

- Provided consultation related to battery modeling that is catered to the client's needs and based on design specifications.

SAFT BATTERIES - TOTAL ENERGIES – BORDEAUX, FRANCE

BATTERY MODELLING RESEARCH INTERN - MASTER'S THESIS – 12/02/2024 – 12/08/2024

Master's Thesis Project: Safety Modelling of Thermal Runaway in Li-ion Batteries under Overcharge Abuse Conditions

- Conducted extensive bibliographic research on **thermal runaway of lithium-ion batteries** and analyzed **the impact of overcharge abuse on battery safety,** developing a strong foundation in thermodynamics and multi-physics modeling.
- Created and improved diffusion models like **electrochemical-thermal coupled model** using **Pseudo-2D (P2D) Newman Electrochemical Model and 0D Thermal Model** to simulate the onset of thermal runaway of Li-ion battery, and also studied the **failure mechanisms** such as **lithium deposition, electrolyte oxidation,** and **transition metal dissolution**.
- Performed **parametric studies** and **validation tests** using the **Finite Element Method (FEM)** via **COMSOL Multiphysics** for experimental-model alignment and to ensure the robustness and accuracy of the model, essential for digital twins.

NATIONAL INSTITUTE OF CHEMISTRY (KEMIJSKI INŠTITUT) – LJUBLJANA, SLOVENIA

BATTERY DEVELOPMENT RESEARCH INTERN – 01/08/2023 – 08/09/2023

- Assembled and synthesized lithium rich NMC layered oxide cathode material, and developed lithium solid state batteries using lithium rich cathode material, PEO, PPC, PVP, PANI, CNT, and LiTFSI.
- Utilized different physical and electrochemical characterizations such as UV-VIS, Raman Spectroscopy, NMR Spectroscopy, SEM, STEM, TEM, CV, EIS, GCD, and Cycling Stability Test for battery studies.
- Learned basic density functional theory functions using VASP for atomic-scale materials modeling

SAPIENZA UNIVERSITA DI ROMA – ROME, ITALY

BATTERY DEVELOPMENT RESEARCH INTERN – 01/07/2023 – 31/07/2023

- Synthesized sodium layered oxide cathode materials via the sol-gel method and heated at high temperatures using muffle furnace calcination
- Analyzed the effects of calcination temperatures on material structures via X-ray Diffraction (XRD) for phase analysis.
- Performed electrode fabrication for sodium-ion cathode materials, relevant on battery manufacturing and cell assembly.

BIARRI NETWORKS – MELBOURNE, AUSTRALIA

JUNIOR QUALITY ASSURANCE OFFICER – 14/10/2019 – 31/07/2022

- Led QA activities across the Software Development Life Cycle (SDLC) of fibre optic network designs, integrated CI/CD pipelines via Bitbucket, collaborated with the team through Jira for issue tracking, and drove UAT and test cases to ensure quality designs met client architecture; collaborated with the team for continuous delivery and quality improvements.
- Automated geospatial data validation workflows using Python, QGIS, and AutoCAD by implementing geospatial topological rules, for automatic checks and consistency in design outputs in reproducibility of fiber optic network designs.
- Managed and trained four QA teams, elevating team capabilities in scripting, technical analysis, and communication while standardizing QA practices across multiple project design teams.

NANOMATERIALS AND ELECTROCHEMISTRY LABORATORY - UNIVERSITY OF SANTO TOMAS GRADUATE SCHOOL – MANILA, PHILIPPINES

UNIVERSITY STUDENT RESEARCHER - BACHELOR'S THESIS – 01/08/2018 – 31/05/2019

Bachelor's Thesis Project: Fabrication and Characterization of Banana Cotton Fabric with Polypyrrole and Multi-walled Carbon Nanotubes as supercapacitor electrode materials *(Funded by the Department of Science & Technology – Philippine Textile Research Institute)*

- Fabricated Supercapacitor Electrodes using Banana Cotton Fabric, Polypyrrole, and Multi-walled Carbon Nanotubes using dip-and-dry coating process and in-situ chemical polymerization method
- Executed physical characterization tests using SEM, FTIR, and TGA, and electrochemical characterization techniques using Conductivity Test, CV, EIS, GCD Test, and Cycling Stability Test on the fabricated supercapacitor electrodes
- Built a full-cell flexible supercapacitor using the fabricated supercapacitor electrodes

E-GIZMO MECHATRONIX CENTRAL – MANILA, PHILIPPINES

HARDWARE ENGINEERING INTERN – 01/06/2018 – 31/08/2018

- Developed and prototyped sensor-based electronics systems—including gas sensors, accelerometers, and piezoelectric devices — relevant to physics-based systems modeling and digital twins.
- Programmed Gizduino microcontrollers using Arduino for real-time data acquisition.
- Emphasized reproducibility and traceability by maintaining comprehensive technical documentation.

LANGUAGE SKILLS

Mother tongue(s): **FILIPINO** | **ENGLISH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
SPANISH	A2	A2	A2	A2	A2
FRENCH	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

CERTIFICATIONS

Mathworks, 06/10/2025

Battery State Estimation

Mode of learning: Online

Mathworks, 04/08/2025
Classification Methods with Machine Learning

Mode of learning: Online

Mathworks, 24/07/2025
Machine Learning Onramp

Mode of learning: Online

Mathworks, 22/06/2025
Battery Pack Modeling

Mode of learning: Online

Mathworks, 22/06/2025
Simscape Battery Onramp

Mode of learning: Online

Mathworks, 19/06/2025
Matlab Onramp

Mode of learning: Online

CONFERENCES AND SEMINARS

21/07/2025 – 23/07/2025 California, USA
NREL Energy Storage Industry Engagement Series by National Renewable Energy Laboratory

11/10/2023 – 07/12/2023 A.J. Drexel Nanomaterials Institute, Philadelphia, U.S.A.
MXenes for MESC+ - Seminar Series

18/06/2023 – 24/06/2023 Institute of Physical Chemistry - Polish Academy of Sciences, Warsaw, Poland
eSPARK: International Summer School on Experimental Electrochemistry

08/08/2022 California, USA
50th SLAC Summer Institute (SSI 2022) by Stanford Linear Accelerator Centre

23/05/2022 – 27/05/2022 The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy
Professional and Communications Training for Scientists

05/05/2022 – 26/05/2022 The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy
Workshop on Electrochemical Energy Storage: Theory, Experiments, and Applications

02/12/2021 – 03/12/2021
International Symposium on Nanoscience and its Applications (ISNA) - Samahang Pisika ng Visayas at Mindanao (SPVM) and e-Asia Joint Research Program