

EMMANUEL ANIOS FILS MOMPREMIER

Munich, Germany · (+33) 766331796 · eaniosfils21@gmail.com · [LinkedIn](#) · [GitHub](#) · [Portfolio](#)

EDUCATION

KTH Royal Institute of Technology, Stockholm, Sweden

Graduation date: [Aug 2023](#)

Université de Lorraine, Nancy, France

Degree: Joint Master in Decentralized Smart Energy Systems

GPA: 4.0 / 4.0

Achievements & Awards: Erasmus Mundus Scholarship (2021 - 2023)

Relevant Coursework: AI for Energy Systems, Optimization, Co-Simulation, Smart Grids, Networking & IoT, Systems Engineering

National Taiwan University, Taipei, Taiwan

[July 2021](#)

Degree: Bachelor of Science in Mechanical Engineering

GPA: 3.85 / 4.3

Achievements & Awards: MOFA Taiwan Scholarship (2017 - 2021), Academic Achievement Award (top 5% of class, 2021)

Relevant Coursework: Computer Programming, Object-Oriented Programming, Automatic Control, Machine Design

SKILLS

Programming:	Python (NumPy, Pandas, Pyomo, Tkinter, Streamlit, scikit-learn, Keras, TensorFlow, Matplotlib), MATLAB/Simulink, OpenModelica
Software Tools:	Git, Bitbucket/Github, Jupyter Notebook, Atlassian Suite (Confluence, Jira), Excel, Power BI
Other Skills:	Software Development, Algorithm Development, Mathematical Optimization, Data Analysis, OPC UA Data Models, Machine Learning (Regression, Classification, Clustering), Neural Networks, Deep Learning, Technical Writing, Public Speaking
Certifications:	Deep Learning Specialization (Coursera), Student Leadership in Renewable Energy (IRENA), Entrepreneurship & Design Thinking (ESADE)
Languages:	Haitian-Creole (native), French (native), English (fluent), Mandarin (advanced), Spanish (advanced), German (basic)

WORK EXPERIENCE

BMW Group, Munich, Germany

[January 2023 - Present](#)

Internet-of-Things and Data Analytics Intern (TE-231)

- Collaborating with IT & process engineers using digital twin tech and edge devices to commission battery cell manufacturing equipment and optimize data transfer efficiency
- Building machine-to-cloud data pipelines with OPC UA, Kafka and cloud services to store large timeseries data
- Designing real-time dashboards using Grafana and Power BI for monitoring battery cell production performance
- Creating thorough project documentation using JIRA & Confluence to facilitate the onboarding of new team members

Advanced Skills: Data Engineering, Data Modelling, Cloud Computing, OPC-UA, Grafana, JSON, Python, JIRA, Confluence

Laboratoire Lorrain de Recherche en Informatique et ses Applications (LORIA), Nancy, France

[July 2022 – Aug 2022](#)

Co-Simulation Summer Intern - [GitHub](#)

- Updated the model of an EV powered by fuel cells and supercapacitors, adding rigorous physical constraints and increasing the model's accuracy by 20%
- Wrote 500+ lines of code to integrate trajectory, physics of the engine and driver behavior into the EV simulation, resulting in an improvement in simulation speed
- Co-simulated the subsystems developed in Modelica using Python/FMUs to determine the time variation of the SCs' SOC

Advanced Skills: Software Engineering, Python, Modelica, Algorithms, FMI/FMU, Modeling of Electric Vehicle, Research

First Code Academy, Taipei, Taiwan

[June 2021 – Aug 2021](#)

STEM and Coding Instructor

- Led 30+ students aged 7-15 in online coding bootcamps, boosting their coding interest & achieving 95% satisfaction rate
- Guided students to create personal projects and provided their parents with prompt feedback on the learning progress
- Covered programming topics included Python, HTML, CSS, Roblox Studio (Lua), MIT App Inventor and Scratch

Advanced Skills: Programming, Teaching, Communication, Teamwork, Time Management, Adaptability

Industrial Technology Research Institute (ITRI), Hsinchu, Taiwan

[July 2019 – Aug 2019](#)

International Marketing & Communication Intern

- Collaborated with technical experts to edit and review ITRI's annual report and research project updates
- Conducted user market research and wrote publications to improve international outreach and company recognition

Advanced Skills: Technical Writing & Presenting, Expert Interviews, Research, Team Collaboration

PROJECTS

EV Charging Station Controller (Skills: Python, Pyomo, Mathematical Optimization, MILP) - [Portfolio](#)

- Developed a MILP optimization model with Python, Pyomo and CBC solver for efficient charging of an EV pool
- Implemented a controller with SOC and power flow constraints achieving 98.48% accuracy in charging predictions
- Used Python to design dashboards allowing to monitor the station performance

Energy+ (Skills: Python, Tkinter, NumPy, Pandas, Matplotlib, Data Analysis) - [Portfolio](#)

- Programmed an energy management app reducing residential energy consumption by 30% via behavior-based design
- Utilized Python, Tkinter, OpenWeatherMap APIs and third-party structured data to create the app
- Conducted data analysis using NumPy, Pandas and Matplotlib to evaluate energy savings

Propeller-Driven Autonomous Robot Car (Skills: Programming, Automatic Control, CAD Design)

- Managed team of 5 to build a propeller-driven car with autonomous abilities for line tracing and obstacle avoidance
- Designed and implemented sensor-integrated control system using Arduino (C Programming) with a budget under €100
- Achieved target speeds and reduced robot car body weight by 10% lower than average during final relay

Point & Quantile PV Generation Forecasts (Skills: Machine Learning, Data Modeling, Python, scikit-learn) - [Portfolio](#)

- Developed ML models to forecast PV generation from irradiance and temp. data, achieving test set errors <10%
- Fine-tuned hyperparameters of scikit-learn models (MLR, MLP, GBR) to optimize MAE, RMSE, and CRPS metrics
- Generated both point and quantile forecasts for accurate prediction of PV generation for the solar plant

Demand Management for Off-Grid Industrial Applications (Skills: Data Analysis, Load Shedding, Python, MATLAB)

- Devised a load shedding strategy to minimize power outages and delays, resulting in preventing downtime up to 30 mn
- Engineered a MATLAB/Simulink-based controller that balances power demand and generation within 10 milliseconds
- Validated the controller's effectiveness by testing on datasets from a real industrial grid and measuring key performance indicators (KPIs) such as frequency deviation, voltage stability and active power delivered
- Implemented dashboards using Python & Streamlit to visualize controller's performance on the KPIs

Optimal Sizing of Microgrids (Skills: Genetic Algorithm, Optimization, Renewable Energy Systems) - [Portfolio](#)

- Developed a microgrid system with PV and BESS for a football stadium to sell excess electricity to the main grid
- Optimized the size of the PV panels and battery cells using genetic algorithm resulting in 181 panels and 2589 cells with an initial SOC of 62%
- Achieved a total cost of €1.82 million, yearly revenue of €1.15 million, and payback period of approximately 19 months with the optimized system

VOLUNTEERING & EXTRACURRICULAR ACTIVITIES

National Taiwan University (NTU) – Office of International Affairs, Taipei, Taiwan

2019 – 2021

Student Ambassador

- Coordinated student-led events and welcomed foreign delegations, demonstrating effective communication and collaboration skills
- Led a team of 3 to create NTU's first International Freshmen Student Handbook, benefiting 1000+ students and improving their orientation week experience

Advanced Skills: Team Leadership, Project Management, Diversity

International Companion for Learning (ICL), Taipei, Taiwan

2017 – 2021

Instructor

- Hosted weekly Skype sessions to instruct primary and middle school Taiwanese students in intercultural exchanges, showcasing effective teaching and communication skills
- Devoted 55 service hours per semester to teaching, training, school visits, and assessment, demonstrating strong work ethic and dedication to the success of the students

Advanced Skills: Global Mindset, Communication, Collaboration, Digital Work Environment