Margaux **Filippi**

margauxfilippi @ margauxf@alum.mit.edu Patents Scholar github.com/margauxf

Machine Learning (ML) engineer with a background in Applied Ocean Sciences & Engineering. High-level generalist with a track record of building Computer Vision (CV) pipelines from concept to deployment and leading cross-functional innovation in fast-paced startup environments.

Experience

2024/02 - present **Computer Vision Engineer**, Aqua Satellite, *Mountain View, CA*
- Built from scratch and deployed perception systems for low-cost Autonomous Underwater Vehicles, including hardware selection, data pipelines and real-time ML models.
- Designed 2-D/3-D perception systems for obstacle avoidance and underwater object detection.
- Led data product development and mentored an intern, leading to their hire as a full-time engineer..

2022/07 - 2023/11 **Senior Principal Engineer**, Our Next Energy (ONE), *Fremont, CA*
- Developed ML-based solutions for battery manufacturing R&D, including 6% accuracy increases for predictive models.
- Automated cell testing software, increasing throughput by orders of magnitude.

2022/02 – 2022/06 **Ocean Program Manager & Technical Lead**, Open Earth Foundation, *Remote / Los Angeles, CA*
- Set up and managed the Ocean Program to leverage AI for marine conservation.

2021/11 – 2022/01 **Computer Vision Engineer**, Numina, *Remote / Brooklyn, NY*
- Upgraded ML pipelines, leading to a 13% average accuracy improvement in 3 months.

2021/01 – 2021/11 **Director of Ocean Science**, Running Tide Technologies, Inc., *Remote / Portland, ME*
2020/03 – 2021/01 Data Scientist / Oceanographer
- Built from scratch CV/ML models and machine vision systems for aquaculture.
- Directed ocean science research for macroalgae-based carbon capture, including field experiments and geospatial analyses.

2019/09 – 2021/11 **Affiliate Researcher**, Environmental Dynamics Lab (ENDLab), MIT, *Cambridge, MA*
2013/06 – 2019/05 Graduate Research Assistant
Sc.D. advisors : I. Rypina, WHOI department of Physical Oceanography & T. Peacock, ENDLab
M.S. advisors : T. Peacock, ENDLab & J.-L. Thiffeault, UWisc. - Madison department of Mathematics
- Developed unsupervised ML methods to reduce sensitivity to user biases, with applications to oceanic flows.
- Designed and conducted laboratory and field experiments, using CV analyses for dye plumes, fluid flows and object tracking.
- Senior mentor & student-executive in a machine shop; teaching assistant for multiple academic and professional courses.

2019/07 – 2019/09 **R&D Contractor**, ARPA-E MARINER program, U.S. Department of Energy, *Remote / Washington, D.C.*
- Conducted satellite-based geospatial R&D and oceanographic simulations for a macroalgae-based carbon capture project.

2012/06 – 2013/05 **Junior Oceanographer**, Sea Engineering, Inc., *Waimanalo, HI*
2011/02 – 2012/05 Ocean Engineering Intern (part-time)
- Field scientist and engineering assistant for various projects, aiding with field work, drafting and flow simulations.

Skills

Technical	**Applied Machine Learning (ML)**, including Deep Learning and clustering, **Computer Vision (CV)**, Data Science
Frameworks	PyTorch, TensorFlow, XGBoost, YOLO, Python, Julia, ROS2, MATLAB, Bash, VCS, AWS, GCE
Languages	French : Native; English : Bilingual proficiency; German : Elementary; Spanish : Elementary

Education

2019 **Sc.D. Massachusetts Institute of Technology (MIT) & Woods Hole Oceanographic Institution (WHOI)**
Doctor of Science in Mechanical and Oceanographic Engineering

2016 **M.S. Massachusetts Institute of Technology**
Master of Science in Mechanical Engineering

2012 **B.S. Hawai'i Pacific University**
Bachelor of Science *magna cum laude* in Oceanography & Pure Mathematics

References

Multiple references available upon request.