

Carlotta Barone-MacDonald

+33 6 51 21 55 79 | carbmac@mit.edu | [LinkedIn](#)

EDUCATION

Massachusetts Institute of Technology —MS, Technology and Policy	CAMBRIDGE, 2024—2026
• Relevant Coursework: Applied Quantum and Statistical Physics, Science, Technology and Public Policy, Technology Road-mapping and Development • Leadership positions: MIT Policy Hackathon Challenge Lead (2024)	
École Polytechnique —BS, Mathematics and Physics Double Major	PALAISEAU, 2021—2024
• Relevant Coursework: Thermodynamics and Statistical Physics, Intro to Quantum Mechanics, Wave Optics and Radiation, Electrodynamics, Fluid Mechanics, Intro to Probability & Statistics, Numerical Optimization • Awards: Honors student, Outstanding Student Distinction, Fawco Foundation—Women in STEM Education Award • Leadership positions: Music Association Board Member (2022–2023), Debate Committee Board Member (2022–2023)	
King’s College London —Visiting Student	LONDON, 2023
• Relevant Coursework: Advanced Quantum Mechanics, Ethics, Mathematical Aspects of Statistical Mechanics	

EXPERIENCE

Massachusetts Institute of Technology	CAMBRIDGE, 2024
Advisors: Dr. Florian Metzler and Prof. Peter Hagelstein	
Research Assistant	2024—Present
• Developing experimental platform to test claims of nuclear anomalies in gas-loaded metal-hydrogen systems, to examine prominent claims of low energy nuclear reactions (LENR) • Conducting experiments in vacuum chambers, optimizing systems and integrating diagnostics like neutron detectors. • Designing protocols for instrumentation calibration and collaborating with multidisciplinary team on experimental setups, troubleshooting, and data interpretation.	
Undergraduate Researcher, Bachelor Thesis	2024
• Explored the role of delocalized quantum states in quantum annealing and exciton diffusion in light-harvesting systems, drawing parallels between energy and information transport. • Developed and simulated models for exciton diffusion using Heisenberg Hamiltonians and quantum random walks, and compared them with classical random walks. • Investigated quantum annealing as a method for solving optimization problems, including implementing the shortest path problem using QuTiP in Python.	
Imperial College London, Controlled Quantum Dynamics Group	LONDON, 2023
Undergraduate Researcher under Prof. Myunshik Kim and Soovin Lee	
• Studied various methods of determining stabilizer entropies for quantum computers. • Conducted bibliographical study & Implemented QFT and Grover Search in Qutip, tracking nonstabilizerness.	
SES-Imagotag, Environmental, Social, and Governance team	PARIS, 2023
Summer Mission Intern under Pascale Dubreuil	
• Worked with Carbone4 consultants to model the carbon emissions avoided by the uses of SES-imagotag products. • Re-computed carbon footprint and responded to the Carbon Disclosure Project.	

PROJECTS

Ultrasound Technology Road-map in collaboration with MIT Broad Institute	2024
Designing technology road-map for ultrasound technology in periodontics.	
Co-author, Science Policy Review (SPR) article	2024
Collaborating with MIT students on a science policy review of climate mitigation technologies, slated for 2025 SPR publication	
Policy Brief on Soft Skills in the EU Tech Industry	2023
Co-authored an award-winning policy brief on soft skills in the EU tech workforce, recognized by Huawei’s <i>Dream Team Award</i> .	

SKILLS & SELECTED AWARDS

COMPUTATIONAL	Python (Qutip, Numpy, Matplotlib, Jupyter), R, L ^A T _E X
TRANSVERSAL	Data Analysis, Experimentation, Leadership, Public Speaking & Critical Thinking
LANGUAGES	French (Native), English (Native), Spanish (Fluent), Italian (A2)
SELECTED AWARDS	French Female Mathematics Olympiads—1 st place (2021); American Legion—Gold Award Scout of the Year (2022)