Thomas Ferri

Doctoral student/worker in Soft Matter Physics

PhD student in Soft Matter Physics specializing in simulations and data analysis. Motivated, curious, and open to collaborations in research and innovation. Member of the CLIMB Marie Curie project.

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Projects and articles on my Onedrive :
https://1drv.ms/f/c/449afb1433676327/IgASO25gaXQAQZefmeDroCLQAejbR9OKVct64NzRvkMedls?e=XbOdPj

Core business

PHASE 2 **Skill development**

During my academic path and PhD, I regularly assess my skills and define learning goals. I actively seek feedback from supervisors and colleagues, adapt my methods, and expand my expertise through courses, self-study, and research practice. I progressively moved from purely technical tasks to planning projects, mentoring students, and coordinating small collaborations. This helped me develop autonomy, strategic thinking, and the ability to align my skills with evolving research needs. I also contribute to others' development by sharing tools, code, and methods, fostering a collaborative and growth-oriented environment.

Takes a critical look at his skills and experience and regularly fine-tunes his career goals.
Knows how to develop new skills to keep step with changing knowledge and needs.
Relies on advice from competent professionals (coaching) or experienced staff and takes their opinions into account; uses his networks to manage his career.
Is able to evolve gradually from technical expertise to managerial expertise.
Helps his staff develop their skills and networks and assists them in achieving career development goals.

PHASE 1 **Evaluation**

Through research and coursework, I learned to critically assess scientific literature by comparing methods, assumptions, and results. I regularly evaluate my own work using quantitative criteria and peer feedback. Presenting results in seminars, journal clubs and exams trained me to defend ideas before critical audiences and integrate external evaluations. I also review the work of peers in group meetings and student projects, providing constructive and realistic feedback. This continuous practice strengthened my analytical rigor, objectivity, and ability to judge quality and added value in complex technical contexts.

Evaluates the value of various documents concerning his field of expertise.
Is able to judge his own results in terms of both quality and added value.
Is willing to expose ideas to a critical audience; takes others' opinions of his work into account.
Is willing to evaluate the work of other contributors and provides reasoned, realistic judgments of others' work.

PHASE 1 **Information management**

During my Master's and PhD, I regularly build "state of the art" summaries by reviewing and organizing scientific literature using databases such as Nature, ResearchGate, and arXiv. I critically assess sources by comparing methods, reproducibility, and impact. I structure references with dedicated tools (LaTeX) and maintain organized data repositories for simulations

and results. I design file hierarchies and scripts to ensure traceability and sustainability of data. I follow good practices for data security and backup, and I consult supervisors and IT staff when needed to optimize information management workflows.

Knows how to review the state of the art (SOTA) in a scientific topic.
Makes efficient use of information-gathering methods, identifies pertinent resources, particularly bibliographic resources.
Masters web-based research (e.g., bibliographic databases, patent databases)
Knows how to judge the pertinence of information, critique sources and check source reliability.
Designs and implements information-gathering and management systems using suitable technology.
Addresses issues relating to the security and life cycle of data.
Seeks out support from experts in information and data management.

PHASE 2 Expertise and methods

My research requires constant monitoring of advances in soft-matter physics, simulation methods, and data analysis. I regularly integrate new tools (Python libraries, numerical methods, ML approaches) into my workflow. I collaborate with physicists, chemists, and computer scientists, learning to adapt language and methods across disciplines. I frame complex problems into tractable models, define hypotheses, and design numerical experiments. Writing project proposals and presenting ideas in seminars trained me to build clear arguments and adapt them to different audiences. I also support junior students by sharing workflows, code practices, and methodological guidance, improving collective efficiency and quality.

Is familiar with recent progress in fields related to his own.
Is able to engage in dialogue and collaboration with experts in other disciplines or fields of activity.
Takes ownership of new research methods and techniques.
Is able to document and evaluate his activities using statistical methods where applicable.
Can formulate complex problems that correspond to new challenges.
Is able to develop arguments in support of new projects.
Knows how to adapt his arguments to his audience.
Advises and assists his staff in making appropriate use of investigative methods, improving their performance and enhancing their skills.

Personal and relational qualities

PHASE 1 Communication

I developed strong communication skills through presentations, teaching, and collaborations. I like to present my work in seminars, adapting content and language to scientific or non-specialist audiences. Working in multilingual environments strengthened my ability to communicate in English and Italian at proficient levels. I use diverse format, slides, reports, code documentation, and emails, to convey ideas clearly. I mentor students and share methods, fostering knowledge transfer with a pedagogical approach. I also manage my digital presence through professional profiles and repositories, ensuring clarity and consistency in how my work is presented and accessed.

Knows how to put together a persuasive presentation and communicate about his project or his activity.
Understands, interprets and communicates appropriately in a register suited to his aims and his audience.
Masters a range of communication tools.
Masters his online identity.
Contributes to the dissemination of knowledge within the company, and demonstrates effective teaching skills.
Is proficient in at least English and one other world language.

PHASE 1 Analysis, synthesis and critical thinking

Research trained me to continuously analyze results, question assumptions, and compare my findings with those of collaborators and the literature. I regularly synthesize large amounts of

information into clear models, figures, and summaries, focusing on what is essential for a given objective. Designing experiments and simulations taught me to prioritize variables and test hypotheses rigorously. Discussions with supervisors and peers help me challenge my own viewpoints and revise interpretations when evidence requires it. This practice developed intellectual rigor, openness to alternative perspectives, and the ability to think critically beyond fixed frameworks or dogma.

Analyzes his own findings and those of his peers.
Is able to synthesize; expresses key ideas clearly.
Can sort and rank information according to the goal.
Pursues his reasoning and hypotheses free of dogmatism or ideological bias.
Has the objectivity to consider various schools of thought; is able to modify his point of view.
Demonstrates intellectual rigor.

PHASE 1 Open-mindedness and creativity

Working at the interface of physics, computation, and data science taught me to remain flexible and curious. I regularly learn new concepts and tools outside my initial training, from machine learning to materials science. Research encourages constructive doubt: I question models, explore alternatives, and test new ideas through simulations and experiments. I actively seek interdisciplinary collaborations and adapt to different scientific cultures in international environments. Moving between countries and teams strengthened my openness and cultural awareness. This context trained me to seize opportunities, innovate, and transform uncertainty into creative solutions.

Demonstrates an ability to acquire knowledge; shows flexibility and open-mindedness. Engages in interdisciplinary activities.
Possesses a constructive style of questioning and scientific doubt.
Develops, takes ownership of and tests new ideas; is clever; seizes opportunities.
Interacts with and seeks the collaboration of professionals of different cultures; knows how to accommodate cultural differences.

PHASE 1 Commitment

My academic path taught me to identify what truly motivates me: curiosity, problem-solving, and the desire to contribute meaningful knowledge. Research naturally involves setbacks, failed simulations, negative results, or long debugging phases, which trained me to persist and adapt. I organize my work to handle routine tasks efficiently while keeping long-term goals in focus. Each difficulty becomes an opportunity to improve methods and understanding. I actively seek feedback from peers and supervisors, using their support to overcome obstacles. This environment strengthened my resilience, tenacity, and commitment to continuous progress and excellence.

Recognizes and can clearly identify his sources of motivation.
Is able to sustain his commitment and motivation in the face of setbacks and adversity.
Deals efficiently with the routine aspects of his job.
Strives for excellence; shows determination.
Learns from his mistakes and bounces back from failures.
Relies on the support and assistance of his peers.

PHASE 1 Integrity

My training as a researcher is grounded in strong ethical standards. I followed a dedicated course on research integrity and work environment, which clarified best practices in data handling, authorship, intellectual property, and conflict of interest; I also possess an attestation about it. In my daily work, I ensure transparency, reproducibility, and proper citation of others' contributions. I respect institutional rules, confidentiality, and collaborative agreements. I document methods and results rigorously and communicate them honestly, including limitations. By aligning my actions with these principles, I build trust with collaborators and supervisors and contribute to a responsible and reliable research environment.

Respects the standards and practices of his entity.

Demonstrates integrity in the processing and dissemination of data.
Demonstrates integrity with respect to his partners' or competitors' contributions in accordance with intellectual property rules.
Upholds the confidentiality and anonymity of subjects taking part in studies and research.
Honors his commitments and ensures the congruence between actions and words.
Declares any conflict of interest.

PHASE 2 **Balance**

Balancing demanding research with personal life taught me to manage pressure and remain effective under stress. I learned to prioritize tasks, set realistic goals, and accept constructive opposition as a way to improve. Moving abroad and adapting to new academic cultures strengthened my ability to build on my strengths while addressing weaknesses. I separate work challenges from personal life by maintaining routines, physical activity, and clear boundaries. This helps me stay focused, resilient, and mentally available, even during intense periods, ensuring sustainable performance and well-being over time. I also followed a stress management course to better understand my limits and overcome difficulties.

Knows how to deal with strong opposition.
Draws on his strengths and transcends his weaknesses.
Knows how to cope with pressure generated by his career or his personal life.
Is able to keep his work and home environments separate.

PHASE 2 **Listening and empathy**

Working in international and collaborative research environments taught me the importance of attentive listening and empathy. In group meetings and mentoring contexts, I make a conscious effort to understand others' perspectives, constraints, and expectations before responding. I adapt my communication to different backgrounds and levels of experience, ensuring everyone feels heard and respected. Supporting peers during challenging phases of research helped me recognize signs of stress and offer constructive help. I regularly express gratitude for feedback and collaboration, fostering trust and positive working relationships. These experiences strengthened my ability to build supportive, respectful, and effective professional interactions.

Knows how to engage in active listening in various situations.
Is careful to take his contacts' needs and frame of reference into account.
Expresses gratitude regularly.
Takes the needs of his staff into consideration, is sensitive to signs of stress and able to provide support and advice when needed.

PHASE 1 **Negotiation**

In research projects, I frequently negotiate priorities, deadlines, and resource use with supervisors, collaborators, and peers. I learned to identify underlying needs behind requests, scientific goals, time constraints, or technical limits, by listening carefully and asking clarifying questions. Preparing meetings and gathering relevant information allows me to propose realistic options and trade-offs. Whether coordinating shared code, data access, or project directions, I aim to balance individual and collective objectives to reach constructive agreements. These experiences developed my ability to build consensus while respecting constraints and maintaining collaborative relationships.

Is able to detect people's unstated needs based on the requests they formulate.
Knows how to reconcile the drivers, requirements and constraints of his contacts to reach a consensus, and is able to gather all the information needed to do so.

Business management and value creation

PHASE 1 **Managing change**

Research projects evolve continuously as new results, constraints, or opportunities emerge. I learned to adapt objectives, methods, and timelines in response to unexpected outcomes,

technical limits, or new ideas. When simulations fail or hypotheses change, I reorganize priorities and consult supervisors and colleagues to redefine strategies. Moving between institutions and research topics also required rapid adjustment to new environments, tools, and expectations. These experiences trained me to remain flexible, anticipate impacts of change, and mobilize advice and resources to keep projects coherent and productive despite uncertainty.

Can adapt his approach and the project organization according to imperatives.
Adapts to changes and opportunities; knows how and where to find advice.

PHASE 1 **Managing risks**

Although my work is mainly based on numerical simulations, I operate within an institute that hosts experimental laboratories with chemical, physical, and technical hazards. I completed specific training courses on risk prevention, safety procedures, and work environment. These courses taught me to identify potential risks, understand emergency protocols, and adopt responsible behavior in shared spaces. In my projects, I assess technical risks such as data loss, computational failures, and reproducibility issues, and I mitigate them through backups, version control, and validation checks. This context developed my awareness of safety, responsibility, and risk anticipation in a research environment.

Can determine the risks related to his project and the means for controlling them.
Is aware that technological and financial risks increase during the innovation process.
Understands the concept of corporate social responsibility.

PHASE 2 **Decision-making**

During my Master's thesis, I worked largely independently, which required constant decision-making on methods, priorities, and problem-solving strategies. I learned that no solution is perfect: each choice involves trade-offs between accuracy, time, and available resources. I took responsibility for these choices, monitored their outcomes, and revised them when results or constraints changed. Facing technical difficulties and dead ends taught me to reassess assumptions, seek advice when needed, and adjust direction without losing momentum. This experience developed my autonomy, judgment, and ability to make reasoned decisions while accepting their consequences.

Realizes that no one solution is perfect; can reconcile the imperatives of the market with the quest for technical optimization.
Is able to make choices and assume the consequences of his decisions; has the ability to reconsider decisions when needed.

Strategy and Leadership

PHASE 1 **Leadership**

Throughout my studies, I supervised several students in academic projects, helping them structure their work, define objectives, and overcome technical difficulties. This role taught me how to guide without hierarchy, motivate others, and adapt my support to different profiles. In my current position, I am preparing to supervise two Master's internships in machine learning for chemistry-engineering students, coordinating objectives, timelines, and methods. I regularly build trust through availability, clear communication, and constructive feedback. These experiences developed my ability to mobilize skills, build alliances, and lead projects based on collaboration and mutual confidence rather than formal authority.

Exercises leadership in connection with a project of which he is in charge.
Knows how to be persuasive and enlist support for a project
.Mobilizes skills for a project of which he is not in charge; manages human resources even when people do not officially report to him.
Builds alliances.
Establishes relationships based on trust.