Arn Marklund

researcher in astrophysics

arn.marklund@astro.unistra.fr

Core business

PHASE 1 **Skill development**

For example, by reading articles I get a good sense of what methods to use, and I took a autumn school which taught the foundations of artificial intelligence which enabled me to apply the skills and knowledge for my PhD project.

Sets his professional goals to be ambitious yet realistic.
Identifies and develops means to enhance his employability throughout his career; manages his professional development.
Broadens and upgrades his skillset, personal qualities and achievements.
Uses his networks to expand his scope of competence.
Knows how to transfer his expertise to other fields of activity.
Realizes the necessarily international dimension of his career path.
Accepts input from a mentor or coach to benefit his professional development.

PHASE 1 **Evaluation**

I have actively participated in collaborative meetings and summer schools, enhancing my skills and understanding. I regularly meet with my supervisor to discuss progress and challenges. Engaging in scientific discussions has further sharpened my critical thinking and analytical abilities.

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**

Developed through literature reviews for thesis work, use of databases like ADS and arXiv, organizing sources with Zotero, and managing simulation data storage securely during research projects.

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 1

Expertise and methods

Through my academic path in astrophysics—from bachelor's to PhD—I've built a strong foundation in the theoretical and historical background of the field. I stay current with advancements by following key journals, attending international conferences, and engaging with global collaborations. During my research, I apply relevant statistical tools and numerical methods, justifying their use depending on the dataset and objective. Formulating hypotheses is part of my everyday research process, and I regularly defend my work in meetings, seminars and collaborations, using structured presentations supported by rigorous data analysis.

Masters the basic knowledge and key concepts of his field and knows their history and their significance.
Is familiar with recent progress in his field.
Can view his research activities within an international context.
Is familiar with the investigative methods and techniques of his field (including mathematics and statistics) and can explain why they are appropriate for a given purpose.
Is able to consider alternative methods and techniques.
Is able to formulate problems and hypotheses according to needs.
Defends his research findings in a constructive manner; provides evidence to support his ideas and proposals.
Organizes his presentations in a clear, informative and concise manner.

Personal and relational qualities

PHASE 1

Communication

Presented at meetings, taught undergrads, wrote/writing papers, used LaTeX and slides, shared research online, and communicated in English and Swedish across academic settings.

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

Collaboration

Collaborated on multi-institution projects, attended/attending conferences, workshops, summer schools, meetings to build networks, discussed joint goals in research partnerships.

Develops and maintains cooperative networks.
Knows how to build a professional network for his own and the company's benefit.
Is considered an authority in his field of expertise.
Is able to envisage his work in a partnership framework; evaluates the benefits and limitations of a partnership and identifies shared and conflicting interests.

PHASE 1

Analysis, synthesis and critical thinking

Learned through peer review, journal clubs, and research discussions; practiced summarizing results, comparing theories, adjusting views based on data, and maintaining critical objectivity.

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

Worked with international teams, explored methods from other fields like machine learning, stayed curious, tested new models, and adapted to diverse research environments and perspectives.

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

Motivated by curiosity and discovery; stayed focused through setbacks like failed experiments; learned from errors, handled routine tasks, and leaned on peers for support and perspective.

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

Followed data ethics in all research, cited sources properly, respected IP and confidentiality rules, honored deadlines, and disclosed potential conflicts during collaborations or publications.

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 1 Balance

I recognize my strengths and limits, seek feedback from mentors, communicate clearly, manage work-life balance, and use stress-relief methods like exercise, peer support, social interactions with peers outside of work.

Is aware of his aptitudes, knows how to take advantage of them and demonstrate them.
Expresses himself relevantly, confidently and didactically.
Recognizes the limits of his knowledge, skills and expertise, and knows where to find support when needed.
Is able to consider his practices and experience as part of the bigger picture.
Develops his strengths and knows how to correct his weaknesses by seeking the opinion of others.
Is aware of the need to reconcile career and personal life.
Develops mechanisms to cope with pressure and seeks support when needed.

PHASE 1 Listening and empathy

Developed by working in diverse teams, actively listening in meetings, adapting communication to different expertise levels, respecting cultural differences in collaborations, social interactions etc.

Has the ability to listen in various situations.
Understands the needs and way of thinking of the people he deals with, including those with a different field of expertise, occupation and/or culture.

PHASE 1 **Negotiation**

Learned through social interactions, collaborative projects, listening closely to colleagues' concerns, balancing goals and constraints, and facilitating consensus in group decisions during research and teamwork.

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 **Project management**

Managed research projects by setting clear goals, timelines, and quality standards; wrote project plans; adapted to issues; and regularly reviewed progress with supervisors.

Plans projects to meet goals in accordance with strategy and priorities, and taking quality, deadline and budget constraints into account.
Knows how to write specifications.
Is accountable for resources used and for meeting the deadlines and quality requirements of the deliverable.
Reacts efficiently and appropriately to change and unforeseen events.
Conducts his project within a framework of auditing and evaluation, deploying the appropriate systems.

PHASE 1 **Managing change**

Adapted project plans when new data or tools emerged, listening/paying attention to how other peers deal with similar issues and how I can learn from their decisions (mistakes or not), sought advice from supervisors, and embraced new methods to improve outcomes.

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 **Decision-making**

Made data-driven choices during the project, prioritized tasks based on impact and importance, consulted advisors for major decisions, and reported progress to supervisors to guide project direction.

Knows how to make appropriate decisions for each phase of his project.
Assists his line management in making major decisions (e.g., reporting, scenarios)

PHASE 1 **Obtaining and managing funding**

Applied to and received travel grants and funding for conferences, reducing / combining with other means of funding (e.g. from supervisors)

Manages his own funding and is comfortable in discussions with budget, financial and economic decision-makers.
Understands the funding process and knows how to determine the profitability of an activity.
Knows how to answer a request for proposals and/or write a grant application.

PHASE 1 **Producing results**

Turned research questions into experiments, quickly tested hypotheses, incorporated feedback from collaborators, published findings following institutional guidelines

Knows how to transform ideas into innovations.
Quickly deploys prototype and test phases; involves internal and external customers in these phases.
Learns the lessons of the initial tests.
Understands the policies and processes involved in publishing and exploiting research outcomes in his entity.
Is able to determine the most appropriate means of exploiting his results (e.g., patent, publication).

PHASE 1 **Intellectual and industrial property**

Learned through research seminars and institutional training on IP and copyright, research integrity, discussions with professors, supervisors, peers, and followed data-sharing rules in collaborations.

Has basic knowledge of the rules of intellectual/industrial property and copyright as they apply to his own activities.
Understands the advantages and drawbacks of filing a patent.
Is aware of the importance of controlling the release of information.

Strategy and Leadership

PHASE 1 **Strategy**

Is aware of how his project fits into the organization's strategy and the strategic directions of the sector or field of activity.
Understands relationships between entities and individuals (the role and drivers of each).
Is able to identify influent people that support his projects and understand what they stand to gain from it.