2025.10.29 From: admin@activeinference.institute

[RESEARCH FELLOWS] Andrius Kulikauskas's application

Thank you again for your application to be a Research Fellow at the Active Inference Institute.

A panel consisting of 11 members of the Scientific Advisory Board has reviewed your application.

We regret to inform you that your application was not accepted at this time.

We are able to provide you with feedback from some of the reviewers who opted to have their reviews anonymously shared or shared with attribution.

If you would like, you are welcome to revise and resubmit your application in light of these comments. Your re-submitted application would be processed for consideration in a future review cycle.

We appreciate your interest and engagement with the Institute.

Officers

Reviewer comments:

Reviewer 1

Reviewer 2

Reviewer 3

Reviewer 4

- I am potentially unqualified to review this application, and am undecided between “revise and resubmit” or “reject”. I will provide detailed comments on where I was confused when reading the application, and will let other members of the SAB who may be better qualified in geometry (or who at least understand why it is relevant to active inference) and feel strongly that this project is worth pursuing after a revision.
- From the abstract:
- It isn’t clear to me what the difference is between passive inference and perception in general, and what the value of “willful inference” is over active inference (which explicitly formulates perception and action together, and does not preclude agents which can choose what they attend to.)

- It is entirely unclear to me what the relevance of triangles is to active inference, and indeed what value the "encyclopedia of triangle centers" has at all
- "...hypothesis is that for us humans, all systems are basically the same, subject to our ability or inability to interact with them, as when we love our neighbors as ourselves" - This is not a testable hypothesis, nor is it a theoretical framework through which hypotheses could be generated.
- "I expect that understanding our interactions with a model organism - the arbitrary triangle - will yield a vocabulary of basic actions" - I do not understand either why an organism is an arbitrary triangle, nor why this would give rise to a vocabulary of basic actions
- It is also confusing to my as to how this would then translate to better understanding of "chess, music, poetry, moods, humor, irony, prayers, social norms, natural languages, DNA, proteins, neurotransmitters, biofilms, ant colonies, brains, meaningful experiences, life choices and all else"

None of these points of confusion I had after reading the extract were made clear after finishing reading the rest of the application, including the supplementary notes linked in Math 4 Wisdom.

The only aspect of the application I could realistically engage with is the aim at implementing heiararchical models attention in ActiveInference.jl. Unfortunately this section had the least amount of detail in it, although I do commend the applicant for being honest about their current levels of understanding of the mathematics and thermodynamics of the FEP.

There is no detail on how any models would be evaluated, nor on how success or failure of this project would be determined. It is also impossible for me to judge how long it would take to analyse triangle centres, and how this would be useful for the creation of Active Inference agents.

If the overall decision of the SAB is to resubmit, I suggest we create additional style guides for applicants. This application is not written in a serious scientific style, and that does signficantly detract from any concepts which *may* have value. I would also hope that the applicant can make it clear on a resubmission *why* this extra geometry provides value.

Reviewer 5

- Kulikauskas' proposed project does not evidence familiarity with Active Inference beyond ambiguous or incorrect use of a few key terms. Other introduced terms central to Kulikauskas' thesis remain elusive, e.g., "Perceptual Inference" and "Willful Inference", the juxtaposition of

which with “Active” Inference evidences potential ignorance as to what Active Inference entails, the necessary realization of which portends struggles to pursue the proposed project, these shouldn’t be viewed as mutually exclusive forms of inference. There is no clear body of literature clarifying Kulikauskas’ ambiguously-defined use of “Mind” and why there must be three. The provided References do not evidence nor clarify Kulikauskas’ particular claims nor which field(s) of research Kulikauskas intends to support. Several provided URLs are non-functonal or misleading. The project more generally reads as part interpretive, hermeneutical, taxonomic, or exegetic practice (also lacking any particular justification or framework from those areas); a proposal for a computational project by an author lacking experience with the necessary tools or preliminary model design; lacking in reference to biological correlates for the systems/processes described (excepting references such as “Neurologically, our options for interacting with a concept or being are perhaps encapsulated in every cortical column” which—regardless of what defines an “option”—is overwhelmingly unevidenced in contemporary neuroscience, within and without the Active Inference framework).

- While wishing to be respectful towards Kulikauskas’ personal views, the reviewer also does not find references to the particular religious/historical figures to be appropriate in this context, neither for supporting the proposed project’s claims relative to those in other literature nor for justifying establishing Kulikauskas’ research as an Institute- or Ecosystem-supported project.

Reviewer 6

Reviewer 7

- I recommend acceptance of this application because it is highly original, intellectually ambitious, and directly aligned with the mission of the Active Inference Institute. The proposal introduces the novel concept of Willful Inference alongside Passive and Active Inference, offering a potential extension of the Free Energy Principle to higher levels of cognition. The applicant has demonstrated persistence, creativity, and a long record of independent scholarship, as confirmed by strong letters from senior colleagues in physics, mathematics, and biophysics. While the methods are unconventional, the project promises to broaden the scope and accessibility of Active Inference, and with mentorship and clear deliverables, it can make a valuable contribution to the community.

- My overall recommendation for this application is **conditional support**. The proposal demonstrates originality and intellectual ambition, bringing together philosophy, mathematics, neuroscience, and Active Inference. The applicant, Andrius Kulikauskas, has a long record of independent scholarship and shows a clear passion for connecting Active Inference with models of human subjectivity. At the same time, the methodology is unconventional, and its feasibility depends heavily on sustained collaboration, close mentorship, and a carefully managed set of deliverables. A fellowship could nurture this exploratory line of research, but expectations should be modest and milestones carefully monitored.
- The proposal is highly creative, seeking to model subjective human experience as an interplay of three levels of awareness: Passive Inference, Active Inference, and Willful Inference. The applicant frames this work through the study of triangle geometry, drawing on the Encyclopedia of Triangle Centers as a model corpus. This effort to reformulate the Free Energy Principle to include deliberation and willfulness is conceptually innovative and addresses a recognized gap in the Active Inference literature. However, the proposal risks becoming too abstract unless grounded in rigorous mathematical demonstration and applied validation.
- From an epistemic standpoint, the project's central value lies in the introduction of "Willful Inference" as a third dimension alongside Passive and Active Inference. It attempts to link epistemology, geometry, and neuroscience in a unified framework. If successful, this could contribute to conceptual clarity in the Active Inference community and provide insight into how the Free Energy Principle may scale up to higher levels of cognition.
- Pragmatically, the proposal's value comes from its potential to broaden the accessibility of Active Inference through a novel teaching analogy—triangle geometry as a model organism—and to provide systematized methods for framing subjective experience and pattern discovery. The main risk is that the abstractions do not translate into usable computational or empirical tools.
- The proposal is directly related to Active Inference. Its stated aim is to reformulate the Free Energy Principle in terms of Passive, Active, and Willful Inference and to illustrate these dynamics in computational form using ActiveInference.jl. It also intends to place these insights within the broader Active Inference ecosystem, thereby situating the research firmly within the Institute's scope.

- The applicant seeks to determine whether subjective human experience can be understood as an interplay of three levels of inference, whether triangle geometry can serve as a model organism for these processes, and whether the Free Energy Principle can be reformulated to account for willful choice. Specific objectives include the study of fifty triangle centers, the identification of basic actions, the construction of computational models, and the application of the framework to other domains such as chess, music, and humor.
- The significance and impact of this work could be considerable. If successful, it would extend the Free Energy Principle to encompass deliberation and will, a major step forward in the theoretical scope of Active Inference. It also aspires to articulate a universal language of interaction grounded in respect and harmony. While this aspiration is framed in philosophical rather than empirical terms, the ambition to connect inference models to ethical and practical engagement is noteworthy. The challenge lies in converting this vision into outcomes that are measurable and reproducible.
- The approach and methods build on the applicant's longstanding practice of philosophical investigation, introspection, and systematization. The use of triangle geometry as a corpus provides an unusual but well-defined dataset. Plans include coding in ActiveInference.jl and convening collaborations through the Math4Wisdom community and the Active Inference Institute. However, the heavy reliance on introspection and analogy, without clearly articulated empirical validation, remains a methodological weakness.
- The proposal aligns well with the mission of the Institute. In terms of accessibility, it seeks to make Active Inference intelligible through geometry and broad public engagement. With respect to rigor, it aims to contribute to the ontology of Active Inference by connecting Passive, Active, and Willful Inference mathematically. In terms of applicability, it positions Active Inference as a lingua franca across neuroscience, philosophy, artificial intelligence, and psychiatry, explicitly naming Theory Translator and potential collaborations with figures such as Michael Levin and Iain McGilchrist.
- The anticipated outcomes and deliverables include a systematic description of fifty triangle centers, the distillation of proofs, a classification of statements in terms of reasoning methods, and a metaphysical interpretation of actions and rules. The applicant also intends to produce one or more computer models in ActiveInference.jl, publish findings academically, present through the Institute's livestreams, and extend the framework to other domains.

- The timeline is paced in six-month increments over two years: analysis of triangle centers, interpretation in terms of three levels of awareness, construction of computational models, and extension to other domains.
- The applicant has already assembled a modest but active network of collaborators. He leads the Math4Wisdom community, meeting weekly with Daniel Friedman, Marcus Petz, Bill Pahl, and Ryan Buchanan, and is in dialogue with John Harland and Thomas Gajdosik. He has 1,200 YouTube subscribers engaged with his work. He also collaborates with Jere Northrop in Econet and remains active within the Active Inference Institute's Discord and Theoretical Neurobiology meetings.
- Dependencies for progress are acknowledged: without fellowship support, the applicant may be forced to take full-time employment or assume caregiving duties for elderly parents, which would limit research productivity.
- The references demonstrate familiarity with core Active Inference literature but lean heavily on the applicant's own prior writings.
- The applicant's motivation for fellowship is to formalize decades of philosophical investigation into a computational framework for subjective human experience and to integrate Willful Inference into the Active Inference research agenda.
- His past engagement with the Institute includes participation in textbook cohorts, active presence in discussions, and a prior Templeton submission coordinated through the Institute.
- He also has a consistent record of open science practices, including the Math4Wisdom platform, Theory Translator, and extensive YouTube outreach.
- His planned future engagement includes leading an investigatory group on Modeling Subjective Human Experience, contributing to tutorials and repositories, and building shared knowledge bases.
- The external reviews confirm both the promise and the challenges of this applicant. Dr. Thomas Gajdosik, Associate Professor of Physics at Vilnius University, testifies that Andrius is uncompromising in his pursuit of absolute truth—sometimes making collaboration demanding but also ensuring perseverance and follow-through. He emphasizes that Andrius's training as a mathematician, complemented by his life experience, equips him to use mathematics as a modeling tool for philosophy and cognition, making him particularly suited to explore Active Inference. Dr. John Harland, Professor of Mathematics at Palomar College, has worked with Andrius weekly for over three years. He credits Andrius with significantly shaping his own development as

an investigator, praising his ability to consistently bring fresh perspectives and broad knowledge of mathematics, computation, and science. Harland describes Andrius's philosophy as "deep, powerful, and highly original," and affirms that his intellectual ambition makes him an asset to any project on cognition and consciousness. Dr. Jere Northrop, a biophysicist and Managing Member of TimberFish Technologies, highlights Andrius's lifelong commitment to foundational learning and his determination to apply abstract knowledge to real problems of human conduct and ecological survival. Northrop praises him for choosing difficult but important paths, such as community organizing and conflict resolution, and affirms that his ongoing collaborations integrate directly into real-world innovation efforts. All three reviewers independently affirm his suitability and potential as a Research Fellow.

Ana Magdalena Hurtado

Reviewer 8

Reviewer 9

Reviewer 10

- Overall comments — Andrius clearly has the academic and personal knowledge base and enthusiasm to make his project work. He has presented a well thought out and reasoned proposal and been realistic about the requirements and possible obstacles for his proposal to succeed.
- Overall Epistemic value(s) of the proposal — The project presents a novel approach utilising active inference to enhance elements of a proposed theory. The project plan is well considered and the time line reasonable, as long as the necessary work is uninterrupted. The work offers a unique and potentially valuable additional knowledge area to the broad church of Active inference
- Overall Pragmatic value(s) of the proposal — I feel that if there is any concern than this is the area that the project is most vulnerable in, the parsimmonous tenet of active inference is swamped by the element of complexity within the thinking triangle hypothesis. The researcher and colleagues clearly have the intellect to examine the proposed theoretical framework but there is a small question over the deeper understanding and application of this core tenet of active inference.

- How is this related to Active Inference? — The proposal intends to use Active inference modelling as a core component of the work and so there is a direct and implicit realationship with Active inference.
- Research Questions & Objectives — Both the research questions and objectives are clearly stated and appropriate to the overall project.
- Significance & Impact — There is the potential for a significant contribution here. The impact of this work has very Perhaps it is my own bias but i feel it is at odds with the overall principle of active inference to reduce understanding to concepts such as "Neurologically, the options we introspect may reflect the design of the cortical column. This may give clues on the purpose of the six layers of the cortical columns." Do columns reach out and enact with the wider world? ; are are options really dependent on columnar arrangements ? I appreciate I am being hard on one element of the response offered but I am not convinced that this type of thinking ultimately will have the wider impact proposed.
- Approach & Research Methods — This is fundamentally sound. I would challenge the three-way dualism of three minds -Active inference is a monistic framework, there is no affordance for the separation of inference mechanisms as detailed in the application in my opinion and this needs a more coherent argument to overcome the potential/apparent contradiction.
- Alignment with Institute Mission — I think the overall aims and objective are consistent with the Active Inference Institute's fundamental ecology. It is unclear whether the applicant has contacted the collaborators they propose.
- Outcomes & Deliverables — Bullet pointing/brevity here does not allow the reviewer to understand the 'apparent power' of 50 triangle centres nor why 100 statements are sufficient.
- Timeline, Milestones, and Reporting — The project is ambitious but not overally so.
- People and Institutions Involved — Many of the key collaborations are in place but it unclear to what extent the candidate has reached out to other potential collaborators, the exact institution that the candidate proposes to undertake the work in is unclear but this is not a major issue.
- Dependencies for Progress — Concern here is that the candidate may have to postpone or not start the proposed project based on logistics.

- Cited References — Overall cited references are relevant to other constructs and elements of the project but perhaps there is a paucity of Active Inference based publications.
- Motivation for Fellowship — on a personal level this is not explicit beyond the desire to undertake the work and the desired outputs.
- Past Engagement with Institute — The candidate clearly demonstrate direct and ongoing involvement with the Institute and in particular with members of the founding faculty/director.
- Past Engagement with Open Source/Science — Long history of open source and open science/maths engagement.
- Future Engagement with Institute — Whilst not explicitly stated it is obvious that candidate would continue their involvement with the institute.

Reviewer 11

- It is an ambitious, and original proposal that investigates awareness by modelling it as passive (past), active (future) and willful (present) inference.
- The proposal has a concrete testbed (triangle geometry) and a plan to implement models in julia library, the deliverables and timeline are clearly provided. To strengthen it, tighten the research question into a few testable hypotheses, define operational metrics (what counts as success for the "three minds" mapping) and specify validation steps (for eg synthetic tests or expert adjudication) beyond conceptual synVery thesis.
- Overall Epistemic value(s) of the proposal — Very high given the novel conceptual synthesis sharpened into implementable models, with potential to clarify inference frameworks and generate testable hypotheses
- Overall Pragmatic value(s) of the proposal — Moderate given the concrete tooling (julia implementation), testbed demos, and clear deliverables with potential real world applicability.
- How is this related to Active Inference? — It explicitly frames passive/active/willful inference within the Active Inference formalism (generative models, precision, policy selection)
- Research Questions & Objectives — Very well developed
- Significance & Impact — Clarifies distinct inference modes within a unified framework delivering testable theory and open-source tools that

could shape cognitive modeling, decision making and experimental neuroscience

- Alignment with Institute Mission — Highly aligned — Conceptual largely by providing testable hypothesis but also julia implementation
- Past Engagement with Open Source/Science — Math4 Wisdom is open source platform, applicant is very active in open source frameworks