

Intellectual Merit Criterion

Overall Assessment of Intellectual Merit

Excellent

Explanation to Applicant

The applicant is interested in developing and disseminating Bayesian statistical tools that may help researchers to reduce bias in the reporting of scientific conclusions. The applicant is knowledgeable about Bayesian statistics, and its utility. The plan is to implement a Bayesian model in the free statistical software R, and to test the model with results reported in top psychology journals. Appropriate experience for implementing the model is demonstrated: The applicant has programming experience, has served as a Lab. Manager, has research presentations, and a fourth authorship (out of 4 authors) publication. Reference letters are very strong--the applicant is described as a rising star, and the application suggests just this. Of minor concern given the quantitative nature of the project (and the applicant's long-term goals), are the average grades in statistics, and psychology research methods courses. All other indicators suggest that the applicant is worthy support to accomplish the long-term goal.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Very Good

Explanation to Applicant

The applicant plans to create a comprehensive online resource for psychologists to learn about Bayesian statistics and how it can be applied. The applicant has a popular internet teaching tool that does some of this at the moment. This tool has received positive reviews from university professors. Tools of the sort planned by the applicant may benefit many varieties of STEM researchers.

Summary Comments

The applicant makes a very strong case for support. The paradox in the application (i.e. Impressive quantitative productivity, contrasted by average grades in Psychology Research Methods and Statistics courses) do not seem to be a hinderance to long-term productivity of the applicant.

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Explanation to Applicant

There is clear intellectual merit in the proposal, which is supported by his reference letters. The applicant seems to be self-motivated and bright.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Very Good

Explanation to Applicant

The applicant has already had an impact on the field through his statistics blog and has plans to continue this in the future. Impacts outside of psychology are not articulate.

Summary Comments

Very high intellectual merit, but I would have liked to see a discussion of impacts outside of his field.

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Explanation to Applicant

The applicant has a great deal of experience with research in several different subfields of psychology and has recently pursued with vigor an interest in quantitative psychology and Bayesian methods. His academic performance is very good, and he has been very productive, with a first author paper under review and an invited manuscript in preparation, one co-authored paper published, and several presentations. His letters are extremely strong, with the referees all mentioning how his level of expertise is much beyond that of an undergraduate and praising his excellent scientific communication skills and leadership potential. The proposed project would help to implement an accessible version of software that estimates the potential publication bias affecting effect sizes and use it to test how subfields and designs might be differentially affected by bias. Such an effort is much needed in the field, although details about the proposed research based on the existing literature (e.g., how studies will be selected) are somewhat lacking.

Broader Impacts Criterion

Overall Assessment of Broader Impacts

Excellent

Explanation to Applicant

The candidate has a strong track record of educating the broader community about quantitative and statistical methods. He writes a highly regarded and heavily utilized blog that is being used by professors across the world to teach Bayesian concepts. The project he proposes is mostly focused on having broad impacts on the field of psychology by helping learners and researchers have easier access to statistical tools and concepts and also by contributing to information about publication bias, which has great implications for the field. Some additional details about how the results of the project will be disseminated for the good of the field would strengthen the impact of the work.

Summary Comments

The applicant is experienced and passionate about quantitative methods and about making them available to students and researchers. His academic record is strong and his letters are superlative. His blog has already made an impact on the field and the scientific community, and the proposed project will continue this emphasis on greater access to quantitative techniques for scientists and more awareness of crucial issues such as publication bias.