Letter of Motivation

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MY MOTIVATION TO BECOME AN ASSOCIATE MEMBER

Dear members of the selection committee,

In 2005 John Ioannidis proclaimed "Why Most Published Research Findings Are False". Meanwhile, luminaries like Brian Nosek suggest that one driving force towards improving science could be a profound statistical (re-)education. SMiP fosters this transformation. The program stands right in the middle, providing (a) a coherent research network, (b) a cognitively stimulating environment, and, most importantly, (c) the proficient staff to guide the next generation of research aspirants. I want to be part of it. Why? Because I enjoy developing at my own best. A structured Ph.D. program will help me to do so. For example, SMiP's *foundations* will aid in developing essential soft and hard skills for my scientific career, like proficiency in scientific writing and in-depth know-how on quantitative methods. The *extensions* will put the final touch on my methodological training. However, they will also allow me to sharpen my profile, which I'll explain next.

Metascience · Quantitative Methods · Computer Science

Metascience Thinking outside the box has always been prior for me. So despite the main scope of my schedule, like social psychology (emphasis: stereotypes, racism & discrimination) and empirical research methods (emphasis: multivariate analysis methods), I attended additional courses in philosophy (emphasis: logic & philosophy of science). The cross-disciplinary toolkit now intertwines with my doctoral studies on metascience. In October 2021, Prof. Dr. Eunike Wetzel recruited me for her team in the DFG Priority Program META-REP[1]. I do meta-research at her lab on the role of measurement in the replicability of empirical findings. Next summer, for example, we will conduct a cross-disciplinary, multisample replication project. Incorporating an experiment on the influence of measurement on replicability and the heterogeneity of effect sizes abstracts one of our three projects. My team member, Caroline Boehm, told me that Prof. Dr. Beatrice G. Kuhlmann is also a vibrant meta scientist. Her advice throughout the program would be perfect guidance.

[1] https://www.psy.lmu.de/soz/meta-rep/index.html

Quantitative Methods As an undergraduate student, I became passionate about quantitative methods. Besides introductory courses on data collection, descriptive statistics, and multivariate analysis, I acquired advanced skills in self-studies. For example, I trained myself in Bayesian Data Analysis and started lately with probabilistic machine learning. My methodological skill set did pay off in 2020 during my research internship at the Center for Educational Research (ZEPF). Dr. Inga Wagner invited me to join her team, elucidating mode effects in comparative studies (VERA). Our efforts finally led to an article we could publish in the European Journal of Psychology of Education in 2021. All offered SMiP courses will support me going forward with my modeling. But as a committed Bayesian, I am curious about working with Prof. Dr. Jeffrey N. Rouder.

Computer Science Developing computer skills have ever played an essential role in my life. Going fully open-source – switching to (fedora) Linux as an undergraduate – is a good example. Acquiring coding skills is another. As a master's student, I started R programming. It became the kickoff for developing *elisr*. "Exploratory Likert Scaling" is an R package for exploratory dimensionality analysis in the social sciences, recently published on CRAN. But starting my PhD, I wanted to go further. To gain flexibility in statistical modeling, I have lately put my hands on the probabilistic programming language *Stan*. The goal is to employ it as the go-to analysis tool throughout my PhD. As far as I know, SMiP does not yet offer programming courses in Stan. But this could be a superb chance for contribution. Feeding first-hand information into the network, preparing a Stan webinar, for example, might be a place for me to start. Besides, I am fascinated with Git. Having back-and-forths about version control at SMiP can foster open-science/code/source practices and might be a sound argument for having me.

Thank you for considering my application.

Sincerely yours,

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Steven Marcel Bißantz

The LaTeX code to reproduce the motivation letter is available at: `https://github.com/sbissantz/smip_application`.