



Max-Planck-Institute for Astrophysics (MPA) in Garching (near Munich), Germany invites applications for

THREE POSTDOCTORAL POSITIONS ON MODEL-BASED MACHINE LEARNING starting as soon as positions are filled

to research and implement new Bayesian machine learning methods for high-dimensional inference problems. The goal is to advance current density estimation methods beyond the current state-of-the-art such as mixture models to enable automated detection of structure within data, including data classification, while keeping the full capabilities of the calculus of conditional probabilities. The project is part of an interdisciplinary collaboration between the MPA and two industrial companies located in Bavaria. The project seeks to develop a self-learning and self-organizing feedback control system which can be applied to different projects in astrophysics and industry.

The successful candidates will work closely as a team and should have a PhD in computational/scientific computing, applied mathematics, artificial intelligence or within the big data domain. **Within the team** several skill-sets and purposes need to be covered:

- Expert level experience with Bayesian inference, classification or machine learning
- Hands-on experience with computational algorithms and optimization methods
- Strong programming skills in statistical languages/packages, such as Python, R, C++ with a focus on numerical efficiency
- Solid software development experience in object-oriented programming
- Experience in big data computing/parallelization
- Excellent oral and written communication skills in German
- Interest in project coordination within the team and with the industrial partners

Good English language skills are required for all team members.

Although you contribute to fundamental research, you have the possibility to apply the new framework not only to astrophysical datasets, but within industrial contexts as well. This interdisciplinary project is funded by the Bavarian government.

Find more information on the academic setting of the project at <http://www.mpa-garching.mpg.de/109183/Information-Field-Theory>. Please send your inquiries to ensslin@mpa-garching.mpg.de.

The appointments will be for a fixed term of up to three years. The salary is based on the German federal public service scale. Please send your application, including a brief description of your past projects, copies of University degrees/records and your curriculum vitae, and the names of references by July 31st 2017 in electronic form (pdf) to ensslin@mpa-garching.mpg.de. Later applications will be accepted until the positions are filled.

MPA is an equal opportunity employer and particularly welcomes applications from women and minorities.