

Announcement

Seminar on Deformation Quantization and Geometry

23. October 2026 at 14:00 s.t.

Seminarroom SE 31

TOM FOLGMANN (JMU WÜRZBURG)

Jets: An Introduction

Jets on manifolds are a canonical construction in differential geometry that generalizes the notion of higher order derivatives of sections. While the concept applies to smooth fiber bundles in general, we will focus on the case of smooth vector bundles $\pi_E: E \rightarrow M$ over a smooth manifold M . There, the construction yields collection of canonically attached vector bundles $\pi_{J^k E}: J^k E \rightarrow M$ for each $k \in \mathbb{N}$, called the k -th jet bundle of E . Its elements are equivalence classes of sections of E that agree up to order k at a point in M . After defining the finite jet bundles, several different consequences arise naturally: differential equations on manifolds become a geometric object, the jet prolongation and evaluation maps constitute a diagram called the jet tower, differential operators become naturally connected to the jet bundles, and a global symbol calculus for differential operators on manifolds can be expressed in their language. Every topic itself turns out to be a rich area of research, such that this talk will only sketch their respective first steps.

Time permitting, I can give a short overview of my current approach to AI agents with respect to research in mathematics.

Invited by Stefan Waldmann