

Some approaches to deriving rough real functions

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In the mid 1990s Z. Pawlak relying on the rough set theory [4] initiated the study of rough calculus in his many papers, e.g., [5]. He invented the investigation of its different subfields such as rough continuity–discontinuity, rough derivatives–integrals, rough differential equations, etc.

The paper [2] systematically investigates the rough continuity–discontinuity of rough real functions in Pawlak’s sense. The next reasonable step would be to define the derivative of rough functions. However, it does not seem clear how it could be carried through this step. In the paper, some possible approaches will be surveyed. First of all, Pawlak’s proposal will be stated. After then, some additional approaches for formalization of rough derivative will be investigated, for instance, applying rough granular approach [6], using squashing functions [3], and treating rough functions as multifunctions [1].

References

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