

Probabilistic Computability and Randomness in the Weihrauch Lattice

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We give a survey on classifications in the Weihrauch lattice that are related to probabilistic computations and randomness and demonstrate how the Weihrauch lattice can be used to:

1. characterize notions of probabilistic computability, such as Las Vegas computability,
2. characterize the uniform computational content of measure theoretic theorems such as Vitali's Covering Theorem,
3. characterize the uniform computational content of randomness notions such as Martin-Löf randomness,
4. express uniform versions of theorems regarding randomness, such as the Theorem of Kurtz.

This talk is based on several joint projects with Guido Gherardi, Matthew Hendtlass, Rupert Hölzl, Alexander Kreuzer and Arno Pauly. If time permits I will also address recent results by other authors.