

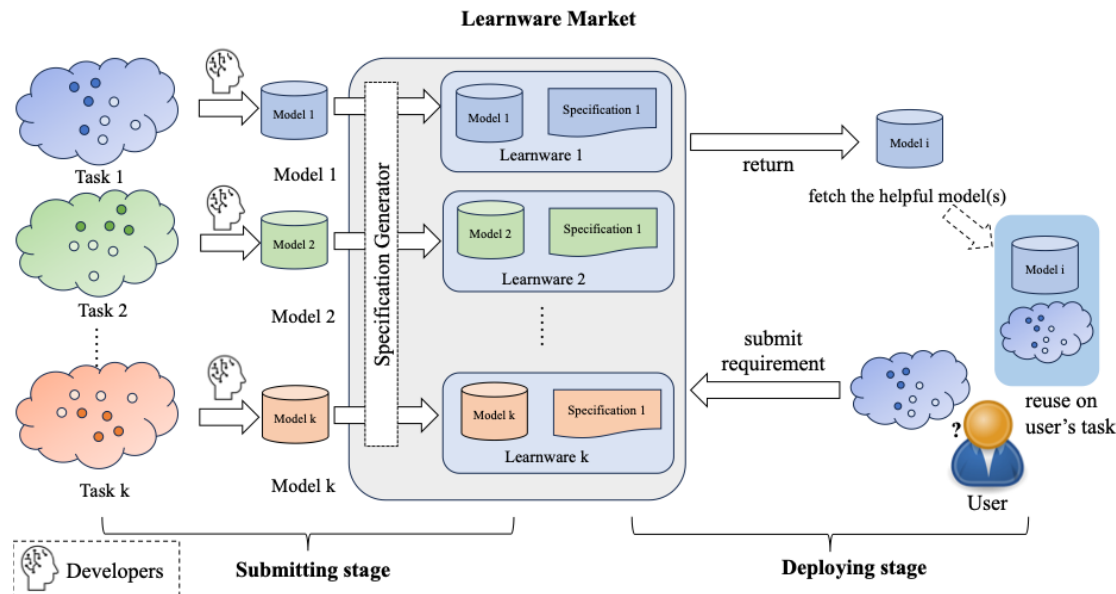
Identifying Useful Learnwares via Learnable Specification

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Problems & Ideas

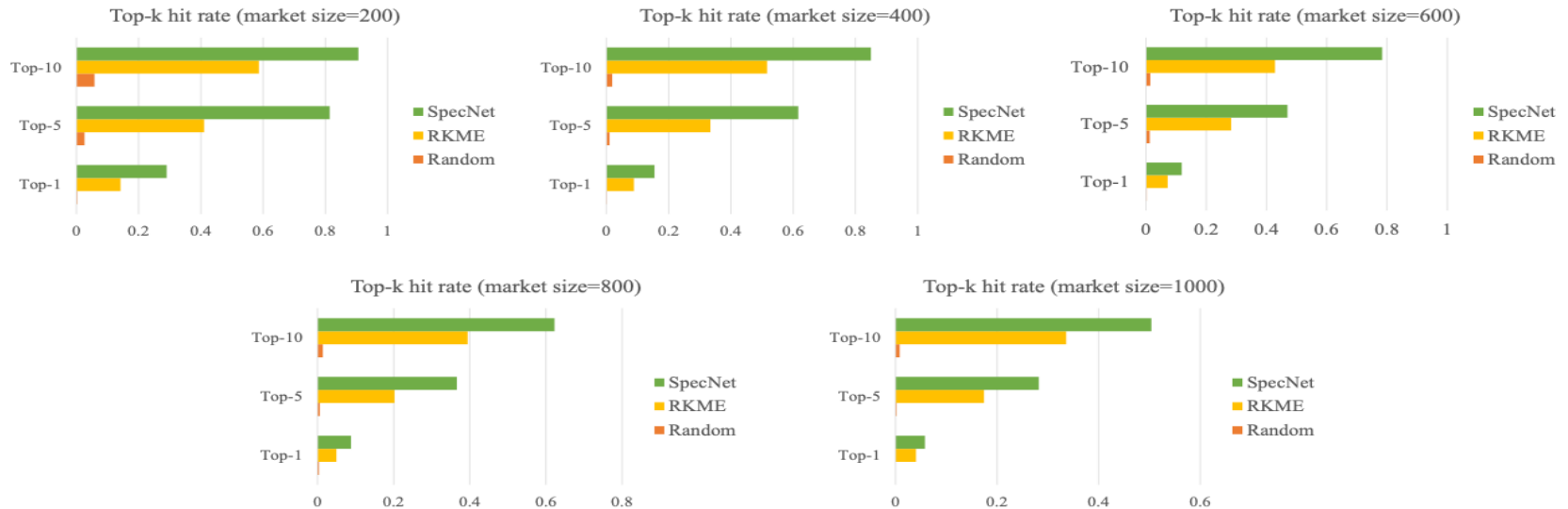
- Problems of identifying useful learnwares in learnware paradigm:
 - In learnware paradigm, learnwares are identified by specifications.
 - Existing specification design are often limited by the choice of fixed kernel functions, restricting their ability to adapt to the needs of various tasks.
- Ideas: Learning the task-specific specification space directly from tasks, rather than relying on pre-designed kernel functions.



The learnware market functions as a model-sharing platform where developers submit trained models with specifications that describe their applicability. Users, in turn, submit specifications based on their tasks, and the market matches these with the most suitable models, promoting efficient reuse and preserving data privacy.

Main Contributions

- Contributions:
 - The first to propose learning specifications, which makes the specification matching more flexible and adjustable in the learnware paradigm;
 - A novel neural network SpecNet with a well-defined objective for acquiring the specification distance metric between distinct task distributions;
 - A more flexible and efficient alternative to the traditional kernel-based specification design.



The top-k hit rate results demonstrate that SpecNet significantly outperforms baseline methods, maintaining high retrieval accuracy across various market sizes and consistently achieving the highest hit rates for top-k best model matches.