To the best of our knowledge, HaiQ is the only existing approach that supports combined synthesis of complex structural designs with probabilistic model checking capabilities that enables streamlined analysis of structural and quantitative/probabilistic guarantees across software design spaces.

Related approaches to HaiQ can be categorized into:

*Relational Modeling and Structural Verification (RMSV)* like Z, VDM, OCL, Electrum, DynAlloy, or Event-B. These have a strong focus on reasoning about structures, but are not equipped to capture or reason about probabilistic aspects of system behaviors.

*Quantitative/probabilistic analysis and verification (Q/PV)* like probabilistic model checkers (PRISM, STORM) are not equipped for reasoning about structures and collections of system variants. Although other product line reliability analysis approaches based on probabilistic model checking can analyze collections of system designs encoded in a feature model, these are not able to synthesize design alternatives that satisfy complex structural constraints, nor include specialized temporal logics that streamline analysis across collections of alternative designs.

*Structural quantitative analysis and optimization (SQA)* combine structural synthesis with simulation and dynamic analysis to provide estimates of quantitative properties of design variants, but are not compatible with formal verification, and hence are not equipped to provide quantitative guarantees.