# Formal Verification of SOA-based Automotive Software Systems

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Many future Driver-Assistance-Systems (DAS) will use components not permanently mounted to the vehicle. Such systems include car-to-X-communication and systems distributed over a truck-trailer-combination. Unlike state-of-the-art DAS with static configurations, the system and software architecture changes at runtime. To handle configuration changes, Service Oriented Architecture (SOA) is a promising approach. Using SOA, small and independent software modules (services) can be orchestrated automatically to build the overall functionality. Whenever systems are set up automatically, they have to be validated. This talk presents an approach based on formal methods. The component models annotated with Quality-of-Service parameters are transformed automatically to Hybrid Automata. These component automata are then composed to an overall system model. Finally, model checking is used to check safety properties. The complete transformation-orchestration-validation process is executed without user interaction and thus can be performed at runtime.