

GLEAM - an Evolutionary Algorithm for Planning and Control Based on Evolution Strategy

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Abstract. An evolutionary algorithm based on Evolution Strategy (ES) is presented, which includes time-related command execution and the generation of process control elements. Its concept is enlarged by problem-oriented type definitions for parameters, this has allowed a flexible implementation for different applications. The GLEAM algorithm includes new features which distinguish it from ES and GAs, among them especially a new and flexible kind of coding allowing a natural problem representation. The different kind of code interpretation is tailored, but not limited to finding solutions for time-dependent processes like the control of (industrial) robots or autonomous vehicles.