

Audible Evolutionary Convergence - Melody extension optimization based on interval and scale evaluation

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Evolutionary optimization techniques iteratively create and modify populations to calculate optimal solutions of a given optimization problem. Evolution-inspired crossover and mutation operators offer a wide range of possibilities for artistic expression, once an appropriate genotype representation has been identified for quantifying the underlying piece of art. In this chapter, a multi-criteria optimization procedure, consisting of a combination of interval- and scale-based evaluation will be applied to the extension of melodies. While some optimal solution could be obtained more straightforward by applying other heuristics, e.g. local search techniques, the application of evolutionary optimization produces more artistic results, when intermediate steps of the optimization process are combined to a musical piece. Examples from the field of automatic Jazz solo generation will substantiate the applicability of the proposed technique.

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