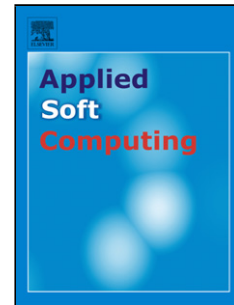


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Title: Towards an integrated evolutionary strategy and artificial neural network computational tool for designing photonic coupler devices

Author: Adriano da Silva Ferreira Carlos Henrique da Silva Santos Marcos Sergio Gonçalves Hugo Enrique Hernández Figueroa



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***Highlights (for review)**

- An artificial neural network based (ANN) method for calculating the power coupling efficiency of photonic coupler devices is proposed.
- The original photonic coupler design, optimized by an integrated Evolutionary Strategy and Finite Element Method (FEM) routine, is addressed.
- The routine designed efficient photonic couplers, but with high computational cost due to the FEM's power coupling efficiency calculations.
- A Multilayer Perceptron (MLP) ANN is modeled by the routine generated data and assessed by an extensive and comparative test regarding FEM.
- Results show MLP is capable of satisfactorily computing the power coupling efficiency of photonic couplers in a real-time fashion.

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