TABLE I
MULTITASK ALGORITHMS INCLUDED IN MTO-PLATFORM (CURRENT VERSION).

Algorithm	Year	Publication	Task	Framework	Objective	Constraint	Description
MFEA [1]	2016	TEVC	Multi	Multifactorial	Single	Yes	Multifactorial evolution-based GA for multitask optimization
LDA-MFEA [2]	2017	CEC	Multi	Multifactorial	Single		Linearized domain adaptation in MFEA
MFDE&MFPSO [3]	2017	CEC	Multi	Multifactorial	Single	Yes	Multifactorial evolution-based DE and PSO
IMEA [4]	2018	GECCO	Multi	Multi-population	Single	Yes	Multi-population framework for multitask optimization through island model
G-MFEA [5]	2019	TEVC	Multi	Multifactorial	Single		Generalized MFEA with decision variable translation and shuffling
EMEA [6]	2019	TCYB	Multi	Multi-population	Single	Yes	Explicit knowledge transfer for multitask optimization via autoencoding
MFEA-GHS [7]	2019	ESWA	Multi	Multifactorial	Single	Yes	Genetic Transform and hyper-rectangle search in MFEA
MFEA-DV [8]	2019	CEC	Multi	Multifactorial	Single	Yes	Enhanced MFEA with cross-task search direction
SBO [9]	2019	AAAI	Many	Multi-population	Single/Multi	Yes	Symbiosis in biocoenosis framework for many-task optimization
MFEA-II [10]	2020	TEVC	Multi	Multifactorial	Single	Yes	MFEA with online transfer parameter estimation
SREMTO [11]	2020	TEVC	Multi	Multifactorial	Single	Yes	Self-regulated multitask framework for varying relatedness among tasks
MFMP [12]	2020	INS	Multi	Multi-population	Single	Yes	Multi-population-based adaptive DE for multitask optimization
TLTLA [13]	2020	FNS	Multi	Multifactorial	Single	Yes	MFEA with two-level inter- and intra-task transfer learning
MaTDE [14]	2020	TETCI	Many	Multi-population	Single/Multi	Yes	Many-task DE with adaptive archive-based knowledge transfer
MFEA-AKT [15]	2021	TCYB	Multi	Multifactorial	Single		MFEA with adaptive knowledge transfer via multiple crossover operator
MTEA-AD [16]	2022	TEVC	Multi	Multi-population	Single	Yes	MTEA with adaptive knowledge transfer via anomaly detection
DEORA [17]	2022	TEVC	Multi	Multi-population	Single		Adaptive task selection for competitive multitask optimization
AT-MFEA [18]	2022	TCYB	Multi	Multifactorial	Single	Yes	Affine transformation-enhanced domain adaptation for MFEA
MFEA-DGD [19]	2022	TCYB	Multi	Multifactorial	Single		MFEA based on diffusion gradient descent
MTES [20]	2022	TCYB	Multi	Multi-population	Single	Yes	Multitask OpenAI-ES via gradient-free evolution multitasking
BoKT [21]	2022	TEVC	Many	Multi-population	Single		Bi-objective knowledge transfer framework for many-task optimization
EMaTO-MKT [22]	2022	TEVC	Many	Multi-population	Single/Multi		Multi-source knowledge transfer via local distribution estimation
BLKT-DE [23]	2023	TCYB	Multi	Multi-population	Single	Yes	Multitask DE with block-level knowledge transfer
MTEA-SaO [24]	2023	INS	Multi	Multi-population	Single/Multi	Yes	Adaptive solver multitask framework with implicit knowledge transfer
MTSRA [25]	2023	ESWA	Multi	Multi-population	Single		Improved adaptive DE with competitive task selection
MO-MFEA [26]	2017	TCYB	Multi	Multifactorial	Multi	Yes	Multiobjective MFEA with non-dominanted sort and crowding distance
MM-DE [27]	2018	CEC	Multi	Multi-population	Multi	Yes	Fast memetic DE for multiobjective multitask optimization
AMT-NSGA-II [28]	2019	TCYB	Multi	Multi-population	Multi	Yes	Curbing negative influences online for seamless transfer
MO-MFEA-II [29]	2021	TCYB	Multi	Multifactorial	Multi	Yes	Cognizant Multitasking for parameter estimation in MO-MFEA
EMT-ET [30]	2021	TCYB	Multi	Multi-population	Multi	Yes	Effective knowledge transfer approach via non-dominated sort
EMT-PD [31]	2021	TSMC	Multi	Multifactorial	Multi	Yes	Two-stage adaptive knowledge transfer based on population distribution
MOMFEA-SADE [32]	2022	TCYB	Multi	Multi-population	Multi	Yes	Subspace alignment and adaptive Differential Evolution
EMT-GS [33]	2023	TEVC	Multi	Multifactorial	Multi	Yes	Generative adversarial networks for knowledge transfer
MTEA-D-DN [34]	2023	TEVC	Multi	Multi-population	Multi		Neighborhood as a bridge for decomposition-based knowledge transfer

TABLE II
SINGLE-TASK ALGORITHMS FOR MULTITASK OPTIMIZATION INCLUDED IN MTO-PLATFORM (CURRENT VERSION).

Algorithms	Year	Publication	Category	Objective	Constraint	Description
GA	/	/	Genetic Algorithm	Single	Yes	Genetic algorithm with SBX crossover and polynomial mutation
DE	/	/	Differential Evolution	Single	Yes	Differential evolution algorithm with DE/rand/1/bin operator
PSO [35]	1995	ICNN	Swarm Intelligence	Single	Yes	Particle swarm optimization with global and particle best update
CMA-ES [36]	2001	ECJ	Evolution Strategy	Single	Yes	Evolution strategy with derandomized covariance matrix adaptation
jDE [37]	2006	TEVC	Differential Evolution	Single	Yes	Self-adapting control parameters in DE
MTV-DE [38]	2007	EngOpt	Constraint Handling	Single	Yes	Multiple trial vectors in DE for handling constraints
JADE [39]	2009	TEVC	Differential Evolution	Single	Yes	Adaptive DE with fast convergence performance
ECHT [40]	2010	TEVC	Constraint Handling	Single	Yes	Ensemble of constraint handling techniques
rank-DE [41]	2013	TCYB	Differential Evolution	Single	Yes	Ranking-based mutation operators for DE
SHADE [42]	2013	CEC	Differential Evolution	Single	Yes	Success-history based parameter adaptation for DE
xNES [43]	2014	JMLR	Evolution Strategy	Single	Yes	ES with adaptive natural gradients to update distribution
L-SHADE [44]	2014	CEC	Differential Evolution	Single	Yes	Linear population size reduction for SHADE
CSO [45]	2015	TCYB	Swarm Intelligence	Single	Yes	Competitive swarm optimizer for large-scale optimization
FROFI [46]	2016	TCYB	Constraint Handling	Single	Yes	Incorporating objective function information into the feasibility rule
jSO [47]	2017	CEC	Differential Evolution	Single	Yes	Champion of CEC 2017 numerical optimization competition via improved DE
LSHADE44 [48]	2017	CEC	Differential Evolution	Single	Yes	L-SHADE with competing strategies applied to constrained optimization
CAL-SHADE [49]	2017	CEC	Differential Evolution	Single	Yes	Adaptive constraint handling technique for L-SHADE
OpenAI-ES [50]	2017	ArXiv	Evolution Strategy	Single	Yes	Parallelized ES with standard normal distribution gradients
C2oDE [51]	2019	TSMC	Constraint Handling	Single	Yes	Composite DE for constrained optimization
DES [52]	2020	TEVC	Evolution Strategy	Single	Yes	Matrix-free covariance matrix adaptation ES
CORCO [53]	2020	TEVC	Constraint Handling	Single	Yes	Utilizing the correlation between constraints and objective function
MPA [54]	2020	ESWA	Swarm Intelligence	Single	Yes	Marine predators algorithm for numerical optimization
EO [55]	2020	KBS	Swarm Intelligence	Single	Yes	Equilibrium optimizer for numerical optimization
NL-SHADE-RSP [56]	2021	CEC	Differential Evolution	Single		Champion of CEC 2021 numerical optimization competition via improved DE
AO [57]	2021	CIE	Swarm Intelligence	Single	Yes	Aquila optimizer for numerical optimization
DeCODE [58]	2021	TSMC	Constraint Handling	Single	Yes	Decomposition-based multiobjective approach for constrained optimization
VMCH [59]	2022	TEVC	Constraint Handling	Single	Yes	Voting-mechanism-based ensemble of constraint handling techniques
CEDE-DRL [60]	2023	SWEVO	Constraint Handling	Single	Yes	Deep reinforcement learning assisted co-evolutionary DE
SPEA2 [61]	2001	EUROGEN	Non-dominated Sort	Multi	Yes	Improving the strength Pareto approach for multiobjective optimization
NSGA-II [62]	2002	TEVC	Non-dominated Sort	Multi	Yes	Multiobjective GA with non-dominated sort and crowding distance
MO-CMA-ES [63]	2007	ECJ	Evolution Strategy	Multi		Covariance matrix adaptation for multiobjective optimization
MOEA/D [64]	2007	TEVC	Decomposition	Multi		Decomposition-based multiobjective evolutionary algorithm
MOEA/D-DE [65]	2009	TEVC	Decomposition	Multi		MOEA/D for complicated Pareto sets in multiobjective optimization
NSGA-III [66]	2014	TEVC	Non-dominated Sort	Multi	Yes	Reference-point-based nondominated sorting for multiobjective optimization
LMOCSO [67]	2020	TCYB	Swarm Intelligence	Multi	Yes	Efficient large-scale multiobjective optimization based on CSO
CCMO [68]	2021	TEVC	Constraint Handling	Multi	Yes	Coevolutionary framework for constrained multiobjective optimization
CMOCSO [69]	2022	TEVC	Swarm Intelligence	Multi	Yes	Competitive and cooperative swarm optimizer for multiobjective optimization

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