

NSGAIIStudy

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Table 1: EP. Mean and Standard Deviation

	NSGAIIa	NSGAIIb	NSGAIIc	NSGAII d
ZDT1	$1.31e-02_{2.1e-03}$	$1.41e-02_{3.1e-03}$	$1.32e-02_{2.3e-03}$	$4.79e-02_{6.1e-02}$
ZDT2	$1.42e-02_{3.7e-03}$	$1.30e-02_{2.2e-03}$	$2.77e-01_{2.5e-01}$	$6.37e-01_{4.1e-01}$
ZDT3	$8.14e-03_{1.4e-03}$	$7.92e-03_{1.5e-03}$	$3.69e-02_{6.7e-02}$	$5.03e-02_{7.6e-02}$
ZDT4	$1.48e-02_{3.0e-03}$	$2.18e-02_{2.6e-02}$	$2.27e-01_{8.1e-02}$	$6.11e-01_{2.2e-01}$
ZDT6	$1.97e-02_{2.0e-03}$	$1.78e-02_{1.7e-03}$	$1.76e-02_{1.7e-03}$	$1.77e-02_{1.5e-03}$

Table 2: EP. Median and Interquartile Range

	NSGAIHa	NSGAIHb	NSGAIHc	NSGAIHd
ZDT1	$1.30e-02_{3.0e-03}$	$1.38e-02_{3.1e-03}$	$1.25e-02_{3.4e-03}$	$1.55e-02_{5.3e-02}$
ZDT2	$1.30e-02_{3.7e-03}$	$1.33e-02_{3.5e-03}$	$3.25e-01_{5.5e-01}$	$9.13e-01_{8.5e-01}$
ZDT3	$8.17e-03_{2.1e-03}$	$7.54e-03_{1.7e-03}$	$8.24e-03_{3.1e-03}$	$9.13e-03_{8.8e-02}$
ZDT4	$1.44e-02_{5.0e-03}$	$1.50e-02_{5.1e-03}$	$2.22e-01_{1.3e-01}$	$5.77e-01_{2.5e-01}$
ZDT6	$1.90e-02_{2.8e-03}$	$1.79e-02_{2.5e-03}$	$1.68e-02_{3.1e-03}$	$1.77e-02_{2.0e-03}$

Table 3: SPREAD. Mean and Standard Deviation

	NSGAIHa	NSGAIHb	NSGAIHc	NSGAIHd
ZDT1	$3.25e-01_{2.8e-02}$	$3.62e-01_{3.4e-02}$	$3.54e-01_{3.1e-02}$	$4.22e-01_{6.3e-02}$
ZDT2	$3.53e-01_{3.1e-02}$	$3.58e-01_{2.4e-02}$	$5.12e-01_{1.4e-01}$	$7.86e-01_{1.9e-01}$
ZDT3	$7.39e-01_{1.0e-02}$	$7.44e-01_{1.4e-02}$	$7.51e-01_{1.6e-02}$	$7.63e-01_{2.1e-02}$
ZDT4	$4.10e-01_{1.4e-01}$	$3.60e-01_{3.3e-02}$	$5.65e-01_{7.8e-02}$	$8.84e-01_{1.4e-01}$
ZDT6	$3.26e-01_{1.8e-02}$	$3.31e-01_{2.8e-02}$	$3.48e-01_{2.4e-02}$	$3.62e-01_{2.8e-02}$

Table 4: SPREAD. Median and Interquartile Range

	NSGAIHa	NSGAIHb	NSGAIHc	NSGAIHd
ZDT1	$3.23e-01_{3.4e-02}$	$3.57e-01_{4.6e-02}$	$3.51e-01_{4.9e-02}$	$3.99e-01_{7.0e-02}$
ZDT2	$3.47e-01_{4.9e-02}$	$3.58e-01_{3.8e-02}$	$5.10e-01_{2.9e-01}$	$8.96e-01_{3.5e-01}$
ZDT3	$7.41e-01_{1.9e-02}$	$7.46e-01_{1.9e-02}$	$7.47e-01_{2.4e-02}$	$7.59e-01_{2.9e-02}$
ZDT4	$3.31e-01_{1.9e-01}$	$3.58e-01_{3.1e-02}$	$5.62e-01_{1.2e-01}$	$8.69e-01_{2.1e-01}$
ZDT6	$3.25e-01_{3.0e-02}$	$3.27e-01_{3.9e-02}$	$3.52e-01_{2.9e-02}$	$3.61e-01_{3.8e-02}$

Table 5: GD. Mean and Standard Deviation

	NSGAIHa	NSGAIHb	NSGAIHc	NSGAIHd
ZDT1	$2.10e-04_{7.7e-05}$	$2.41e-04_{1.1e-04}$	$2.34e-04_{4.0e-05}$	$2.50e-04_{3.1e-05}$
ZDT2	$1.54e-04_{3.8e-05}$	$1.71e-04_{3.7e-05}$	$1.48e-04_{6.0e-05}$	$1.16e-04_{1.0e-04}$
ZDT3	$1.30e-04_{1.3e-05}$	$1.23e-04_{1.0e-05}$	$8.62e-04_{1.7e-03}$	$5.32e-04_{1.3e-03}$
ZDT4	$1.69e-03_{1.8e-03}$	$4.05e-04_{1.6e-04}$	$2.76e-04_{1.2e-04}$	$2.25e-02_{3.2e-02}$
ZDT6	$1.05e-03_{1.1e-04}$	$7.96e-04_{9.3e-05}$	$7.62e-04_{1.2e-04}$	$8.19e-04_{1.6e-04}$

Table 6: GD. Median and Interquartile Range

	NSGAIHa	NSGAIHb	NSGAIHc	NSGAIHd
ZDT1	$2.01e-04_{4.1e-05}$	$2.23e-04_{4.8e-05}$	$2.18e-04_{6.5e-05}$	$2.53e-04_{3.8e-05}$
ZDT2	$1.41e-04_{4.7e-05}$	$1.71e-04_{4.4e-05}$	$1.35e-04_{9.1e-05}$	$5.16e-05_{1.8e-04}$
ZDT3	$1.30e-04_{1.6e-05}$	$1.23e-04_{1.4e-05}$	$1.40e-04_{2.9e-05}$	$1.55e-04_{3.9e-05}$
ZDT4	$8.63e-04_{2.8e-03}$	$3.45e-04_{2.3e-04}$	$2.36e-04_{1.2e-04}$	$1.26e-02_{3.2e-02}$
ZDT6	$1.08e-03_{1.3e-04}$	$7.76e-04_{1.3e-04}$	$7.68e-04_{1.6e-04}$	$7.96e-04_{2.3e-04}$

Table 7: HV. Mean and Standard Deviation

	NSGAIHa	NSGAIHb	NSGAIHc	NSGAIHd
ZDT1	$6.60e-01_{2.6e-04}$	$6.59e-01_{3.8e-04}$	$6.59e-01_{3.7e-04}$	$6.54e-01_{9.6e-03}$
ZDT2	$3.26e-01_{3.7e-04}$	$3.26e-01_{3.6e-04}$	$2.90e-01_{4.1e-02}$	$1.46e-01_{1.3e-01}$
ZDT3	$5.14e-01_{1.9e-04}$	$5.15e-01_{1.4e-04}$	$5.08e-01_{1.5e-02}$	$5.10e-01_{1.2e-02}$
ZDT4	$6.55e-01_{4.2e-03}$	$6.55e-01_{3.7e-03}$	$6.09e-01_{3.1e-02}$	$3.27e-01_{1.4e-01}$
ZDT6	$3.86e-01_{1.5e-03}$	$3.90e-01_{1.3e-03}$	$3.90e-01_{1.6e-03}$	$3.89e-01_{2.2e-03}$

Table 8: HV. Median and Interquartile Range

	NSGAIHa	NSGAIHb	NSGAIHc	NSGAIHd
ZDT1	$6.60e-01_{3.5e-04}$	$6.59e-01_{3.9e-04}$	$6.59e-01_{5.5e-04}$	$6.58e-01_{3.6e-03}$
ZDT2	$3.26e-01_{5.9e-04}$	$3.26e-01_{3.6e-04}$	$3.02e-01_{8.4e-02}$	$6.98e-02_{2.7e-01}$
ZDT3	$5.14e-01_{2.7e-04}$	$5.15e-01_{1.8e-04}$	$5.15e-01_{3.5e-04}$	$5.13e-01_{2.4e-03}$
ZDT4	$6.55e-01_{6.6e-03}$	$6.56e-01_{3.7e-03}$	$6.17e-01_{4.9e-02}$	$3.54e-01_{2.0e-01}$
ZDT6	$3.86e-01_{2.1e-03}$	$3.90e-01_{1.7e-03}$	$3.90e-01_{2.3e-03}$	$3.90e-01_{2.9e-03}$

Table 9: IGD. Mean and Standard Deviation

	NSGAIIa	NSGAIIb	NSGAIIc	NSGAIIId
ZDT1	$1.80e - 04_{1.1e-05}$	$1.90e - 04_{1.4e-05}$	$1.87e - 04_{8.7e-06}$	$8.91e - 04_{1.3e-03}$
ZDT2	$1.90e - 04_{1.1e-05}$	$1.88e - 04_{6.9e-06}$	$3.13e - 03_{3.1e-03}$	$1.18e - 02_{7.9e-03}$
ZDT3	$1.31e - 04_{5.1e-06}$	$1.32e - 04_{7.0e-06}$	$4.74e - 04_{8.0e-04}$	$7.55e - 04_{1.1e-03}$
ZDT4	$2.41e - 04_{6.9e-05}$	$3.42e - 04_{5.1e-04}$	$5.44e - 03_{2.5e-03}$	$1.63e - 02_{6.0e-03}$
ZDT6	$3.68e - 04_{3.0e-05}$	$3.01e - 04_{2.4e-05}$	$2.95e - 04_{2.9e-05}$	$3.09e - 04_{4.2e-05}$

Table 10: IGD. Median and Interquartile Range

	NSGAIIa	NSGAIIb	NSGAIIc	NSGAIIId
ZDT1	$1.81e - 04_{1.4e-05}$	$1.88e - 04_{1.6e-05}$	$1.86e - 04_{1.0e-05}$	$2.01e - 04_{7.7e-04}$
ZDT2	$1.88e - 04_{1.8e-05}$	$1.88e - 04_{7.0e-06}$	$2.82e - 03_{6.6e-03}$	$1.63e - 02_{1.6e-02}$
ZDT3	$1.30e - 04_{7.1e-06}$	$1.30e - 04_{9.9e-06}$	$1.34e - 04_{9.1e-06}$	$1.41e - 04_{1.1e-03}$
ZDT4	$2.17e - 04_{1.0e-04}$	$2.18e - 04_{5.5e-05}$	$5.19e - 03_{4.1e-03}$	$1.55e - 02_{6.1e-03}$
ZDT6	$3.71e - 04_{3.7e-05}$	$2.94e - 04_{3.4e-05}$	$2.96e - 04_{4.6e-05}$	$2.98e - 04_{5.3e-05}$

Table 11: IGD+. Mean and Standard Deviation

	NSGAIIa	NSGAIIb	NSGAIIc	NSGAIIId
ZDT1	$3.74e - 03_{1.4e-04}$	$3.84e - 03_{2.3e-04}$	$3.98e - 03_{2.0e-04}$	$9.32e - 03_{1.0e-02}$
ZDT2	$3.57e - 03_{1.9e-04}$	$3.47e - 03_{1.8e-04}$	$4.13e - 02_{4.2e-02}$	$1.86e - 01_{1.3e-01}$
ZDT3	$2.17e - 03_{1.4e-04}$	$2.09e - 03_{1.1e-04}$	$4.44e - 03_{5.3e-03}$	$6.38e - 03_{8.5e-03}$
ZDT4	$6.56e - 03_{2.6e-03}$	$6.72e - 03_{3.6e-03}$	$5.51e - 02_{3.2e-02}$	$3.34e - 01_{1.9e-01}$
ZDT6	$1.15e - 02_{9.8e-04}$	$9.22e - 03_{8.1e-04}$	$8.97e - 03_{1.0e-03}$	$9.48e - 03_{1.4e-03}$

Table 12: IGD+. Median and Interquartile Range

	NSGAIIa	NSGAIIb	NSGAIIc	NSGAIIId
ZDT1	$3.73e - 03_{2.2e-04}$	$3.81e - 03_{2.7e-04}$	$3.98e - 03_{3.3e-04}$	$4.44e - 03_{3.9e-03}$
ZDT2	$3.55e - 03_{2.4e-04}$	$3.41e - 03_{2.1e-04}$	$3.01e - 02_{8.8e-02}$	$2.64e - 01_{2.8e-01}$
ZDT3	$2.21e - 03_{1.7e-04}$	$2.07e - 03_{1.4e-04}$	$2.20e - 03_{1.6e-04}$	$2.67e - 03_{5.9e-03}$
ZDT4	$6.05e - 03_{4.0e-03}$	$5.85e - 03_{1.9e-03}$	$4.78e - 02_{4.9e-02}$	$2.78e - 01_{1.9e-01}$
ZDT6	$1.16e - 02_{1.2e-03}$	$9.02e - 03_{1.1e-03}$	$8.97e - 03_{1.5e-03}$	$9.15e - 03_{1.8e-03}$