Stephen Drake **Phil Hus**

2.1 Allele Bounds

A set of a˜˜e˜e bounds deter nes t e enera˜ d rect on n t e searc space w c an nd v dua˜ ta es by def n n t e ran e n w c t e bounds ene ay f nd a prof tab˜e po nt Mo

3 Experiments

3.1 Functions Used

In order to assess t e perfor ance of n re at on to standard one po nt crossover var ous opt zat on prob e s were used as represented by t e fo ow n funct ons

e f rst t ree to be n zed are t e ast n a su te of f ve funct ons or na y constructed by De Jon and w c were ntended to represent co on d ff cu t es a on opt zat on prob e s n an so ated anner

F De Jon s F as a s n e opt a va ue of and s def ned by

$$\sum \text{nte er } x_i$$

for $\leq x_i \leq$

F De Jon s F s no sy rando Gauss an no se s added to ts va ue every t e t s eva uated and s def ned by

$$\sum_{i=} ix_i^{\ } + \text{Gauss}$$

for $\leq x_i \leq$

F De Jon s F as a oba n u of a t ou t ere are any subo

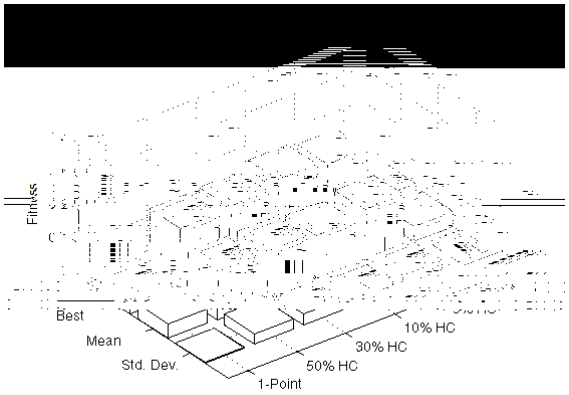
F o s uate a ut pea probe t e fo ow n constra ned funct on was def ned by Keane

$$\frac{\left|\sum_{i=}^{n}\cos^{} x_i \; - \; \prod_{i=}^{n}\cos \;\; x_i\right|}{\sqrt{\sum_{i=}^{n} i x_i}} \quad \text{for} \quad < x \; < \quad i = \quad n$$

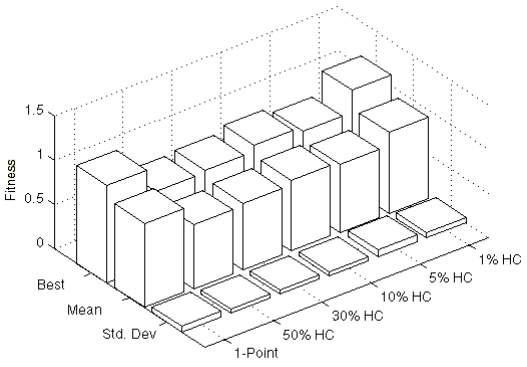
for $< x_i <$ i n

sub ect to $\prod_{i=}^{n} x_i >$

and ——



a F



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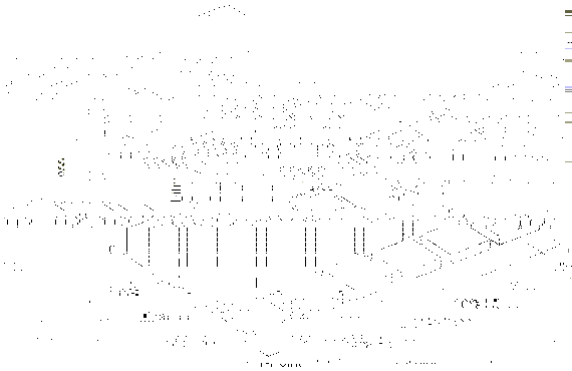

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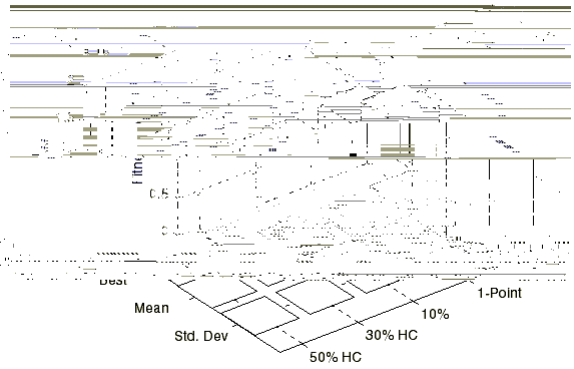
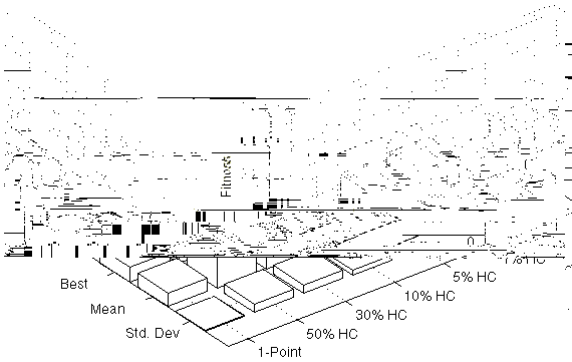


d F

F ure resu ts for runs us n utat on et od



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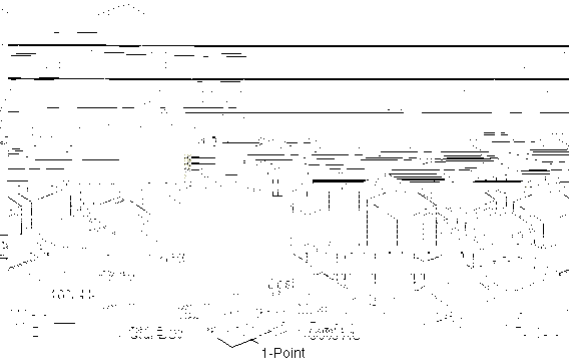

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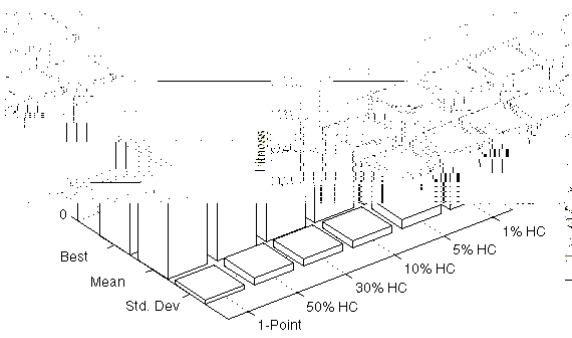
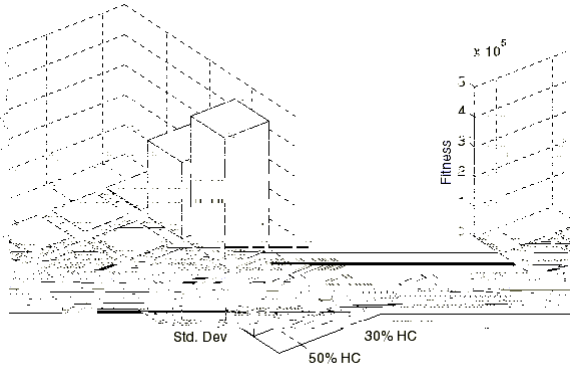
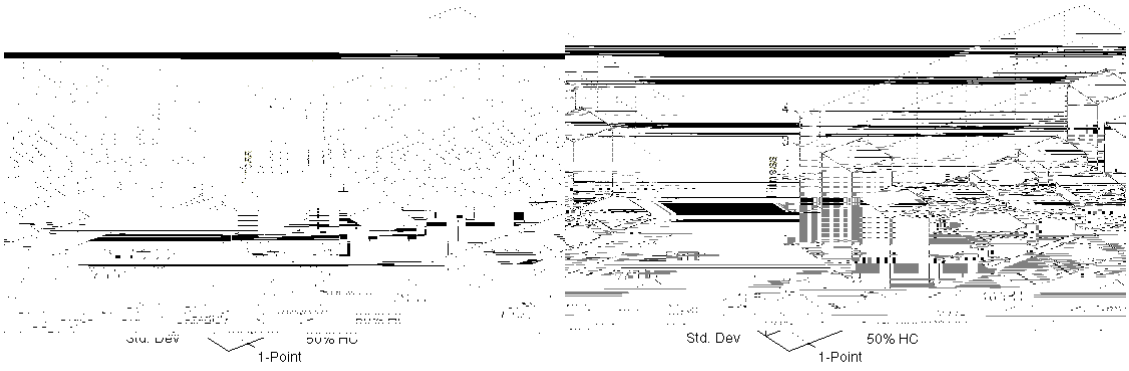


c F

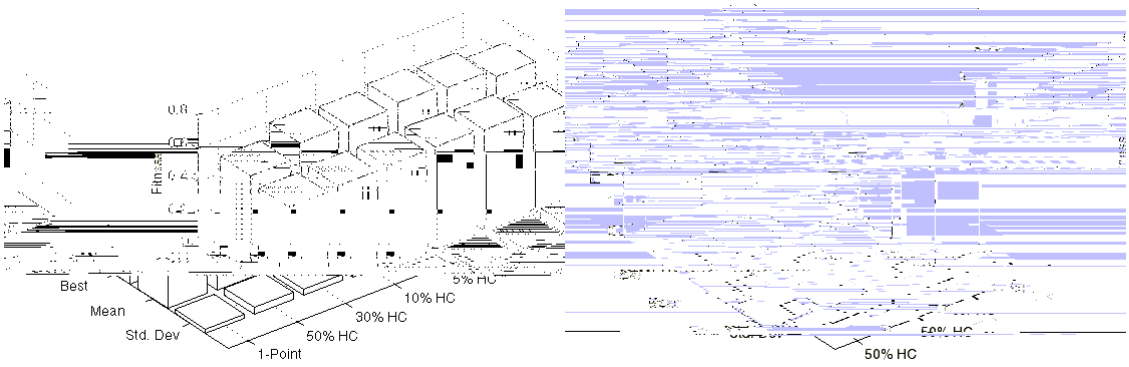


d F

F ure resu ts for runs us n utat on et od



a F b F



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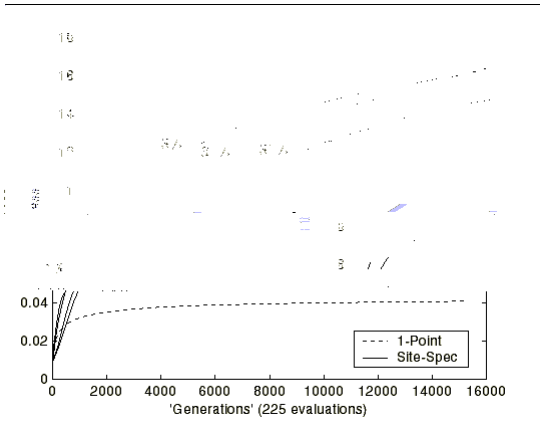
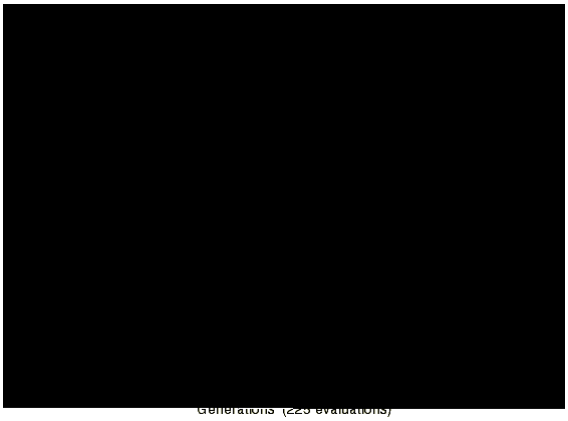
F ure resu ts for runs w t us n utat on et n



a F



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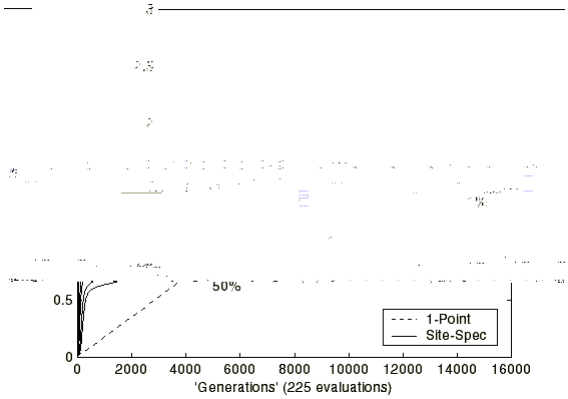

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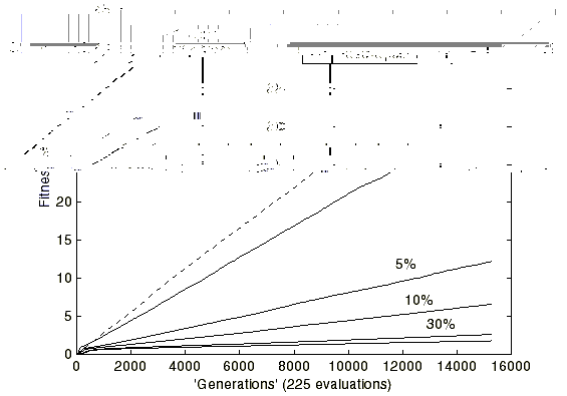

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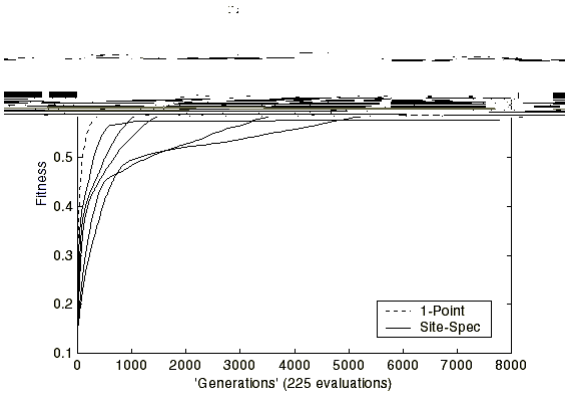

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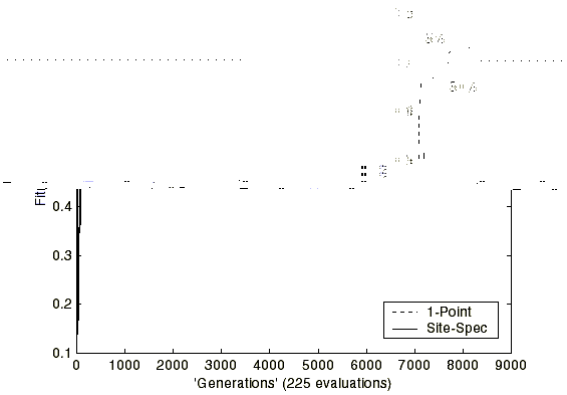

c F

F ure avera e perfor ance of ord nary runs

F ure avera e perfor ance of runs w t ocaˆ searc

5 Discussion

On exa n n t e resuˆts part cuˆarˆy t ose at ered for funct ons F and F ven t e r oppos n c aracter st cs t s encoura n u e rt nn t pr c c d a d t d E q u d

s n f cant y Nevert e ess t ere wou d appear to be d st nct opt u eve s of c b n for t e d fferent funct ons f ure ustrates t at a t ou reduc n t e a ount of c b n nvar ab u

at construct ve crossover operat ons are st ⁄⁄ be n carr ed out even at t e very end of a run per aps nd cates a s⁄ow n of conver ence desp te t e acce⁄erat on of prove ent and t at ntu t ve⁄y t e nature of t e

M McI a a P Husbands and Ives A Co par son of Opt sat on ec n ques for Inte rated Manufactur n P ann n and c edu n n H M o t Ebe n I ec enber and H P c wefe ed tors *PPSN IV* pr n er

M McI a a P Husbands and Ives A Co par son of earc ec n ques on a n Box Opt sat on Prob e n H M o t Ebe n I ec enber and H P c wefe ed tors *PPSN IV* pr n er

M M tc e *An Introduction to Genetic Algorithms* MI Press

J D c affer A Caruana L J Es e an Das A tudy of Contro Para eters Affect n On L ne Perfor ance of Genet c A or t s for Funct on Opt zat on n J D c affer ed *Proceedings of the Third ICGA* Mor an Kauf an

G yswerda n for Crossover n Genet c A or t s n