

The 'Evolvable Motherboard'  
A Test Platform for the Research of  
Intrinsic Hardware Evolution

**Paul Layzell**

**CSRP 479**

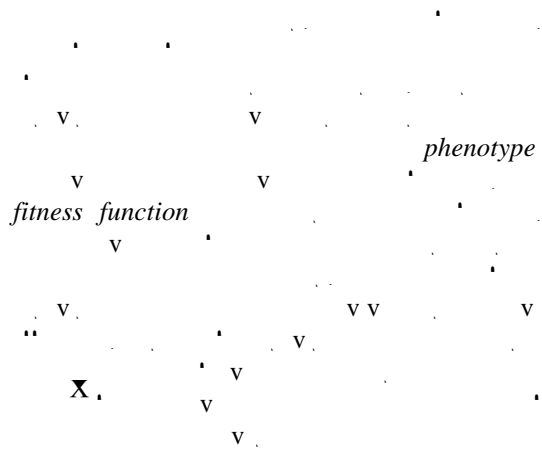
**January 1998**

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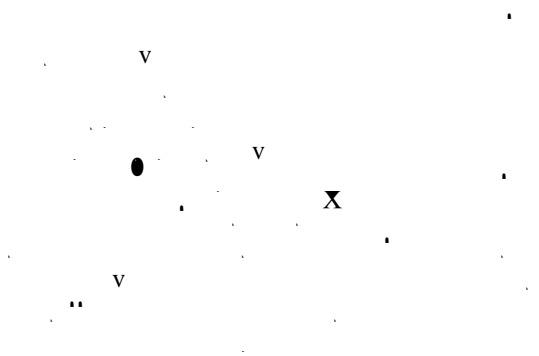
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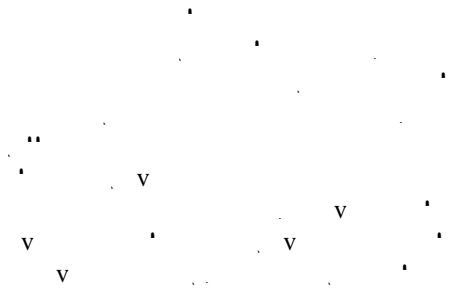
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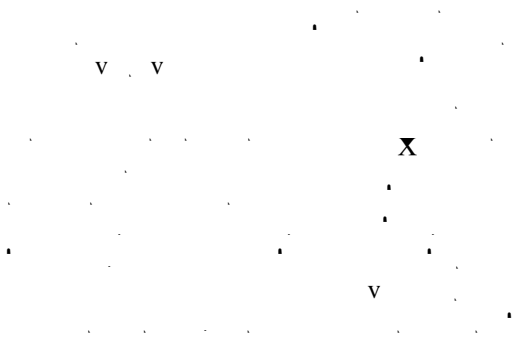
## 2.2 Choice of EA





### 3 Target domains for EHW

#### 3.1 EHW versus conventional design techniques



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### **3.5 Complex behaviour**

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*DC current gain*

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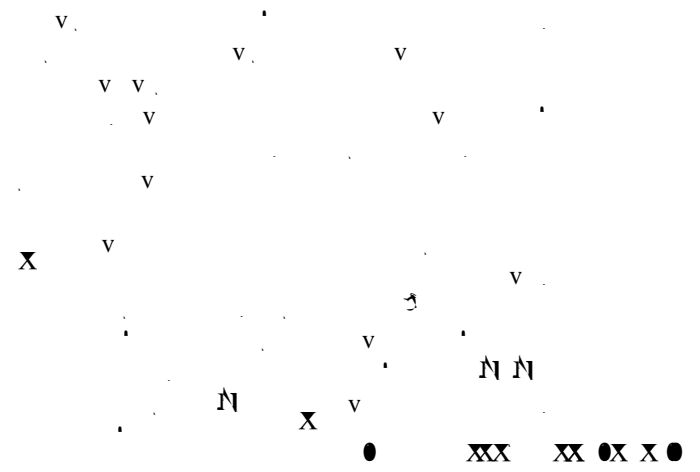
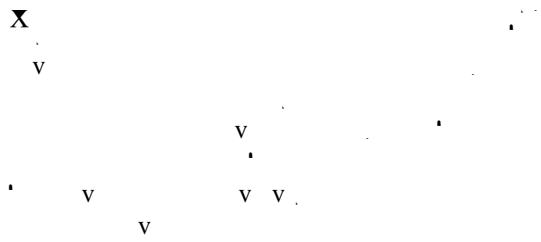


## **5 The Evolvable Motherboard - A testbed for hardware evolution**

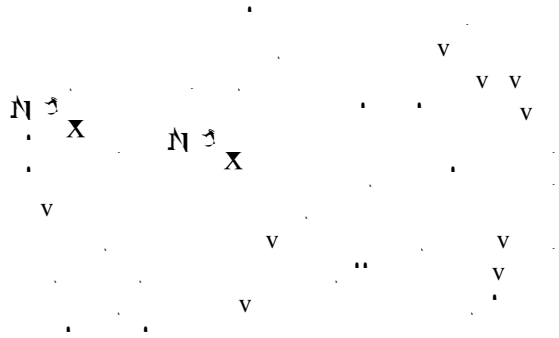
### ***5.1 Surmounting obstacles in unconstrained intrinsic EHW***



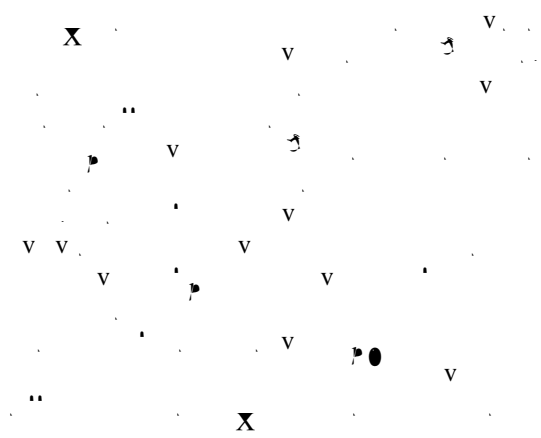
## 6 Experimentation and results



### 6.1 An intrinsically evolved NOT Gate



### 6.2 The experimental set-up







### **6.5 Evolving a NOT gate from scratch**

1.  $v_1 = 0$       $v_2 = 1$       $v_3 = 1$       $v_4 = 0$

2.  $v_1 = 1$       $v_2 = 0$       $v_3 = 0$       $v_4 = 1$

3.  $v_1 = 1$       $v_2 = 1$       $v_3 = 0$       $v_4 = 1$

4.  $v_1 = 0$       $v_2 = 1$       $v_3 = 1$       $v_4 = 0$





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v v  
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*Artificial Life II*

*Adaptation in Natural  
and Artificial Systems* X

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