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# Towards artificial general intelligence with hybrid Tianjic chip architecture

Jing Pei, Lei Deng, Sen Song, Mingguo Zhao, Youhui Zhang, Shuang Wu, Guanrui Wang, Zhe Zou, Zhenzhi Wu, Wei He, Feng Chen, Ning Deng, Si Wu, Yu Wang, Yujie Wu, Zheyu Yang, Cheng Ma, Guoqi Li, Wentao Han, Huanglong Li, Huaqiang Wu, Rong Zhao, Yuan Xie & Luping Shi⊡

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#### **Abstract**



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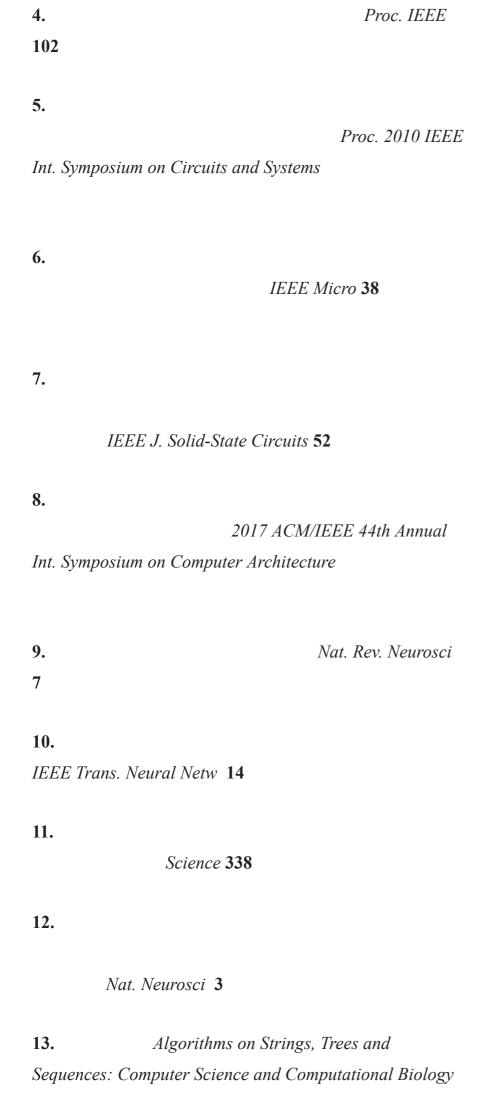
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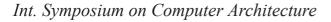
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## **Author information**

#### **Affiliations**

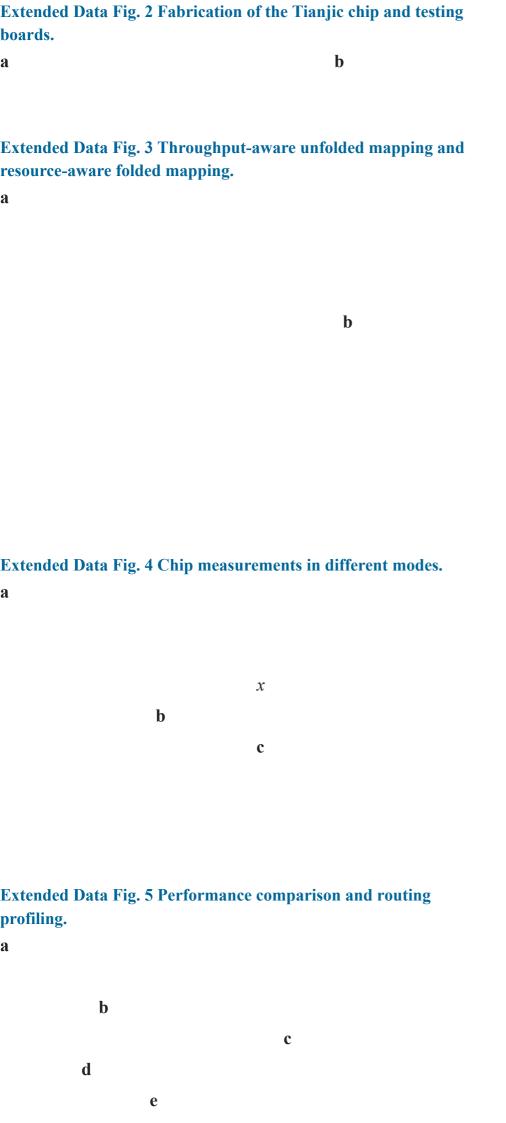
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	Yu Wang
	Rong Zhao
	Yuan Xie
Cont	ributions
Corr	responding author
Ethi	ics declarations

Competing interests
Additional information
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Extended data figures and tables
Extended Data Fig. 1 Overview of the FCore architecture.
Extended Data 11g. 1 Over view of the 1 core arentecture.



<b>Extended Data Fig. 6</b>	Overheads o	of the	Tianjic chip	during t	he
bicycle experiment.					

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Extended Data Fig. 7 Neural state machine.

**Extended Data Table 1 A unified description of neural network models** 

**Extended Data Table 2 Comparison of the Tianjic chip** with existing specialized platforms

Extended Data Table 3 Model topologies and input/output descriptions for networks applied in the bicycle demonstration

# Supplementary information

Supplementary Video 1		
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#### Further reading

 A deadlock-free physical mapping method on the many-core neural network chip

Cheng Ma, Qi Zhao[...] & Guanrui Wang

Neurocomputing

• In situ optical backpropagation training of diffractive optical neural networks

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