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## Quote

*Entwining physics and electronics, I explore and design unconventional computational architectures that can transcend computing to an open, interactive and evolving system that can solve a diverse range of problems.*

## Research outputs

### **A CMOS-compatible oscillation-based VO<sub>2</sub> Ising machine solver**

Maier, O. (Corresponding author), Jiménez, M., Delacour, C., Harnack, N., Núñez, J., Avedillo, M. J., Linares-Barranco, B., Todri-Sanial, A., Indiveri, G. & Karg, S. (Corresponding author), Dec 2024, In: Nature Communications. 15, 1, 11 p., 3334.

### **ClassONN: Classification with Oscillatory Neural Networks using the Kuramoto Model**

Sabo, F. & Todri-Sanial, A., 10 Jun 2024, *2024 Design, Automation & Test in Europe Conference & Exhibition, DATE 2024*. Institute of Electrical and Electronics Engineers, 2 p. 10546829

### **Multi-qubit Dynamical Decoupling for Enhanced Crosstalk Suppression**

Niu, S., Todri-Sanial, A. & Bronn, N. T., 14 Mar 2024, arXiv.org, 10 p.

### **Roadmap for unconventional computing with nanotechnology**

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### **Benchmarking Max-Cut on Oscillatory Ising Machines with Kuramoto and van der Pol Oscillators**

Sabo, F. & Todri-Sanial, A., 2024, (Accepted/In press).

### **Multimodal Processing at the Edge**

Edgar Leonard Marvin Luhulima, E., Sabo, F. & Todri-Sanial, A., 2024.

### **Ab Initio Simulations on the Structure and Properties of Supported Core-Shell Pt Nanoparticles on Single-Layer MoS<sub>2</sub>**

Boschetto, G. (Corresponding author) & Todri-Sanial, A. (Corresponding author), 28 Dec 2023, In: Journal of Physical Chemistry C. 127, 51, p. 24666-24675 10 p.

### **Operating Coupled VO-Based Oscillators for Solving Ising Models**

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### **A mixed-signal oscillatory neural network for scalable analog computations in phase domain**

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**How fast can vanadium dioxide neuron-mimicking devices oscillate? Physical mechanisms limiting the frequency of vanadium dioxide oscillators**

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**Two-Layered Oscillatory Neural Networks with Analog Feedforward Majority Gate for Image Edge Detection Application**

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Delacour, C., Carapezzi, S., Boschetto, G., Abernot, M., Gil, T. & Todri-Sanial, A., 31 Jan 2023, 30 p.

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### **Enabling Multi-programming Mechanism for Quantum Computing in the NISQ Era**

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### **TCAD Electrothermal Simulations of Beyond-CMOS VO<sub>2</sub> temperature-sensing neuron devices**

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### **Capillary-force-driven self-assembly of carbon nanotubes: from ab initio calculations to modeling of self-assembly**

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### **Oscillatory Neural Networks for Obstacle Avoidance on Mobile Surveillance Robot E4**

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#### **Editorial TVLSI Positioning - Continuing and Accelerating an Upward Trajectory**

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## Press/Media

**First Eindhoven-Taiwan Summer School on semiconductors and photonics to take place at TU/e**

Heck, M. J. R., Chen, L.-L. & Todri-Sanial, A.

22/08/23

1 item of Media coverage

**News Joining forces: Dutch and Taiwanese students mastering chip tech together**

Heck, M. J. R. & Todri-Sanial, A.

8/09/23

1 item of Media coverage