Research Paper Declaration Forms

UCL Research Paper Declaration Form: referencing the doctoral candidate's own published work(s)

1. **For a research manuscript that has already been published (if not yet published, please skip to section 2):**

   (a) **What is the title of the manuscript?**

   Ultra-Fast Non-Volatile Resistive Switching Devices with Over 512 Distinct and Stable Levels for Memory and Neuromorphic Computing

   (b) **Please include a link to or DOI for the work:**

   https://doi.org/10.1002/adfm.202418980

   (c) **Where was the work published?**

   Advanced Functional Materials

   (d) **Who published the work?**

   Willey Advanced

   (e) **When was the work published?**

   25 February 2025

   (f) **List the manuscript's authors in the order they appear on the publication:**

   Ming Xiao, Markus Hellenbrand, Nives Strkalj, Babak Bakhit, Zhuotong Sun, Nikolaos Barmpatsalos, Dovydas Joksas, Hongyi Dou, Zedong Hu, Ping Lu, Samip Karki, Sundar Kunwar, Jonathan D. Major, Aiping Chen, Haiyan Wang, Quanxi Jia, Adnan Mehonic, and Judith L. MacManus-Driscoll

   (g) **Was the work peer reviewed?**

   Yes

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3. **For multi-authored work, please give a statement of contribution covering all authors (if single-author, please skip to section 4):**
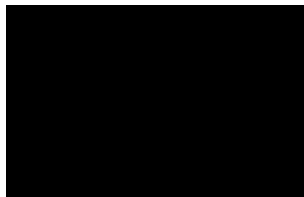
> First and last author designed the study, while the rest contributed to the experimental section and writing.

4. **In which chapter(s) of your thesis can this material be found?**

> **Chapter 7** - NBT-based ReRAM for Neuromorphic Computing: Synaptic Dynamics, Variability and Device Performance
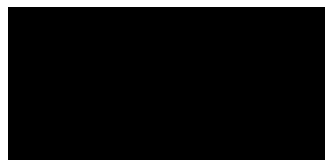
e-Signatures confirming that the information above is accurate (this form should be co-signed by the supervisor/senior author unless this is not appropriate, e.g. if the paper was a single-author work):

Candidate: Date: 12/05/2025

Supervisor/Senior Author signature: Date: 13/05/2025

UCL Research Paper Declaration Form: referencing the doctoral candidate's own published work(s)

1. **For a research manuscript that has already been published** (if not yet published, please skip to section 2):

(a) **What is the title of the manuscript?**

Nonideality-Aware Training for Accurate and Robust Low-Power Memristive Neural Networks

(b) **Please include a link to or DOI for the work:**

https://doi.org/10.1002/advs.202105784

(c) **Where was the work published?**

Advanced Science

(d) **Who published the work?**

Willey Advanced

(e) **When was the work published?**

4 May 2022

(f) **List the manuscript's authors in the order they appear on the publication:**

Dovydas Joksas, Erwei Wang, Nikolaos Barmpatsalos, Wing H. Ng, Anthony J. Kenyon, George A. Constantinides, and Adnan Mehonic

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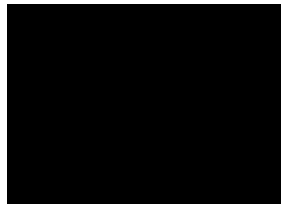
First and last author designed the study, while the rest contributed to the experimental section and writing.

4. **In which chapter(s) of your thesis can this material be found?**

Chapter 6 - Programming and Reliability of Multi-Level States in SiO_x-based ReRAM
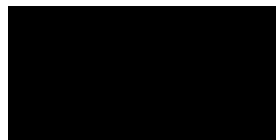
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Supervisor/Senior Author signature: ███████ Date: 13/05/2025

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1. **For a research manuscript that has already been published (if not yet published, please skip to section 2)**

2. **For a research manuscript prepared for publication but that has not yet been published (if already published, please skip to section 3):**

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   Accurately modeling the gradual RESET process of SiO_x-based ReRAM devices

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   No

   (c) Where is the work intended to be published?

   IEEE Electron Devices Letters

   (d) List the manuscript's authors in the intended authorship order:

   N. Barmpatsalos, W. H. Ng, F. L. Aguirre, E. Miranda, A. Mehonic.

   (e) Stage of publication:

   In writing

3. For multi-authored work, please give a statement of contribution covering all authors (if single-author, please skip to section 4):

   I performed the characterization and modeling work, W. H. Ng. fabricated the devices, F. L . Aguirre, helped in modeling troubleshooting, and A. Mehonic, E. Miranda, and I designed the study.

4. In which chapter(s) of your thesis can this material be found?

   Chapter 8 - Extending the Memdiode Compact Model: Capturing Current Plateau Dynamics in SiO_x-based ReRAM for Circuit Design

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