2021 12th International Green and Sustainable Computing **Conference (IGSC 2021)**

Pullman, Washington, USA 18 – 21 October 2021



IEEE Catalog Number: CFP2128K-POD ISBN:

978-1-6654-7852-6

Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP2128K-POD

 ISBN (Print-On-Demand):
 978-1-6654-7852-6

 ISBN (Online):
 978-1-6654-7851-9

Additional Copies of This Publication Are Available From:

Curran Associates, Inc 57 Morehouse Lane Red Hook, NY 12571 USA Phone: (845) 758-0400

Fax: (845) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



Contents

Ι	Workshop on Energy-Efficient Machine Learning (E2N	/IL) 5
1	Inf4Edge: Automatic Resource-aware Generation of Energy-efficient CNN Inference Accelerator for Edge Embedded FP-GAs	7
2	Quantum Most-significant Digit-first addition	17
II 2 0) 27
3	Benchmarking a New Paradigm: Understanding a Modern Procein-Memory Architecture	essing- 29
II	I AI at the Edge	37
4	Real-Time Evolution and Deployment of Neuromorphic Computing at the Edge	39
	Neuromorphic Computing: from Material to Algorhm (NeuMA)	49
5	Approaching the Area of Neuromorphic Computing Circuit and System Chip Design	51
6	Design Technology Co-Optimization for Neuromorphic Computing	61
7	An Adaptive Sampling and Edge Detection Approach for Encoding Static Images for Spiking Neural Networks	69