# Kolin Paul

**Annexure**: Publications

#### **Books**

- 3 Event-triggered Transmission Protocol in Robust Control Systems Niladri Sekhar Tripathy, Indra Narayan Kar, Kolin Paul CRC Press 2022
- 2 Architecture Exploration of FPGA Based Accelerators for BioInformatics Applications, Sharat Chandra Varma Bogaraju, Kolin Paul, M Balakrishnan, Springer ISBN 978-981-10-0589-3 April 2016
- 1 Algebra of Majority Logic, Rajeswari D, Kolin Paul, M Balakrishnan, Springer(in print)

# Referred Book Chapter

- 2 Yadav, G., Paul, K., Gauravaram, P. (2022). Vulnerability Management in IIoT-Based Systems: What, Why and How. In: Pal, S., Jadidi, Z., Foo, E. (eds) Secure and Trusted Cyber Physical Systems. Smart Sensors, Measurement and Instrumentation, vol 43. Springer, Cham https://doi.org/10.1007/978-3-031-08270-2\_3
- 1 Kolin Paul and Sanjay Rajopadhye, "Back Propagation Algorithm: Achieving 5 GOPS on the Virtex-E" Book Chapter in FPGA Implementations of Neural Networks By Amos R. Omondi; Jagath C. Rajapakse (Eds.). 0-387-28485-0 March, 2006.

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- 50 Vatsal Agarwal, Vijay Kumar, Swati, Rohan Chawla and Kolin Paul: "NetraDeep: An Integrated Deep Learning and Image Processing System for Precise Detection of Hard Exudates", ACM Transactions on Computing for Healthcare, ACM Trans. Comput. Heal. 5(4): 22:1-22:34 (2024)
- 49 Kirti Gupta, Bijaya Ketan Panigrahi, Anupam Joshi, Kolin Paul: Demonstration of Denial of Charging Attack on Electric Vehicle Charging Infrastructure and its consequences. Int. J. Crit. Infrastructure Prot. 46: 100693 (2024)
- 48 A Choudhury, B Mondal, K Paul, BK Sikdar Designing a Deep Neural Network engine for LLC block reuse prediction to mitigate Soft Error in Multicore Microelectronics Reliability 156, 115377
- 47 SW Kibret, K Paul, VJ Ribeiro : Al-Powered Security for IoT: A Blockchain Enabled Device Twin Approach IntechOpen 2023
- 46 Vaibhav Deorari, Debashish Chowdhury, Kolin Paul, Pritesh Srivastava, Ashish Duggal, Development of a branching logic questionnaire and a Computer Based Assessment Tool (COMBAT) for Android based smartphones for the diagnosis of primary headache disorders using International classification of Headache Disorders third version (ICHD3), CEPHALALGIA 2023

- 45 Vijay Kumar, Kolin Paul: Device Fingerprinting for Cyber-Physical Systems: A Survey. ACM Comput. Surv. 55(14s): 302:1-302:41 (2023)
- 44 Vijay Kumar, and Kolin Paul. Fundus Imaging-based Healthcare: Present and Future. ACM Transactions on Computing in Healthcare 4(3): 16:1-16:34 (2023). https://doi.org/10.1145/3586580
- 43 Vijay Kumar, Het Patel, Kolin Paul, and Shorya Azad. Deep Learning Assisted Retinopathy of Prematurity (ROP) Screening. ACM Transactions in Computing in Healthcare Accepted 4(3): 18:1-18:32 (2023) https://doi.org/10.1145/3596223
- 42 Vijay Kumar, Het Patel, Kolin Paul and Shorya Azad. Improved Blood Vessels Segmentation of Infant Retinal Image. In:, et al. (eds) Biomedical Engineering Systems and Technologies. BIOSTEC 2022. Communications in Computer and Information Science. Springer, Berlin, Heidelberg (accepted 2023)
- 41 Avishek Choudhury, Brototi Mondal, Kolin Paul, Biplab K Sikdar: Energy Efficiency in Multicore Shared Cache by Fault Tolerance Using a Genetic Algorithm Based Block Reuse Predictor, Microprocessors and Microsystems, 2023
- 40 Astha Chawla, Prakhar Agrawal, Bijaya Ketan Panigrahi, Kolin Paul: Deep-Learning-Based Data-Manipulation Attack Resilient Supervisory Backup Protection of Transmission Lines. Neural Computing Applications, 2023
- 39 Saurabh Tewari, Anshul Kumar, Kolin Paul: Minimizing Off-Chip Memory Access for CNN Accelerators. IEEE Consumer Electron. Mag. 11(3): 95-104 (2022)
- 38 Geeta Yadav, Praveen Gauravaram, Arun Kumar Jindal, Kolin Paul: SmartPatch: A Patch Prioritization Framework. Computers in Industry. 137: 103595 (2022)
- 37 Astha Chawla, Animesh Singh, Prakhar Agrawal, Bijaya Ketan Panigrahi, Bhavesh R. Bhalja, Kolin Paul: Denial-of-Service Attacks Pre-Emptive and Detection Framework for Synchrophasor Based Wide Area Protection Applications. IEEE Syst. J. 16(1): 1570-1581 (2022)
- 36 Ekaterina Avershina, Priyanka Sharma, Arne M. Taxt, Harpreet Singh, Stephan A. Frye, Kolin Paul, Arti Kapil, Umaer Naseer, Punit Kaur, Rafi Ahmad, AMR-Diag: Neural network based genotype-to-phenotype prediction of resistance towards  $\beta$ -lactams in Escherichia coli and Klebsiella pneumoniae, Computational and Structural Biotechnology Journal, Volume 19, 2021
- 35 Rajesh Kedia, Shikha Goel, M. Balakrishnan, Kolin Paul, Rijurekha Sen: Design Space Exploration of FPGA-Based System With Multiple DNN Accelerators. IEEE Embed. Syst. Lett. 13(3): 114-117 (2021)
- 34 Vijay Kumar, Het Patel, Kolin Paul, A Surve, Shorya Azad. and R Chawla: DL-Assisted ROP Screening Technique. In: C. Gehin et al. (eds) Biomedical Engineering Systems and Technologies. BIOSTEC 2021. Communications in Computer and Information Science 1710, pp. 1-23, 2022. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-031-20664-1 13
- 33 Ahmed Hemani, Muhammad Shafique, Kolin Paul: Guest Editorial: Special Issue on Architectures and Design Methods for Neural Networks. J. Signal Process. Syst. 92(11): 1215-1217 (2020)

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- 27 Madhusudana Girija Sanal, Kolin Paul, Senthil Kumar, Nirmal Kumar Ganguly: "Artificial Intelligence and Deep Learning: the Future of Medicine and Medical Practice", Journal of The Association of Physicians of India, Vol. 67, May 2019
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- 21 Niladri Tripathi, I N Kar and Kolin Paul, "Model Based Robust Control Law for Linear Event-triggered System", Asian Journal of Control December 2015 (online) DOI: 10.1002/asjc.1276
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- 17 Arun Parakh, M. Balakrishnan, Kolin Paul, "Improving Map-Reduce for GPUs with cache", International Journal of High Performance System Architecture (IJHPSA) Volume 5 Issue 3, July 2015
- 16 Syed Mohammad Asad Hassan Jafri, Ahmed Hemani, Kolin Paul, "Juha Plosila and Hannu Tenhunen "Polymorphic Configuration Architecture for Coarse Grained Reconfigurable Architectures" IEEE Transactions on Very Large Scale Integration (VLSI) Systems Page 403-407 Jan. 2016
- 15 Syed Mohammad Asad Hassan Jafri, Ozan Ozbag, Nasim Farahini, Ahmed Hemani, Kolin Paul, Juha Plosila and Hannu Tenhunen "Architecture and Implementation of Dynamic Parallelism, Voltage and Frequency Scaling on CGRAs" ACM Journal on Emerging Technologies in Computing Systems (JETC) Special Issue on Neuromorphic Computing and Emerging Many-Core Systems for Exascale Computing, Volume 11 Issue 4, April 2015
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- 13 Nasim Farahini, Ahmed Hemani, Hasan Sohofi, Syed Mohammad Asad Hassan Jafri, Muhammad Adeel Tajammul, Kolin Paul "Parallel Distributed Scalable Address Generation Scheme for a Coarse Grain Reconfigurable Computation and Storage Fabric", Microprocessors and Microsystems Embedded Hardware Design 38(8): 788-802 (2014)
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- 7 Ashish Suri, Martin Bettag, Manjul Tripathi, Rama Chandra Deo, Tara Sankar Roy, Sanjeev Lalwani, Christoph Busert, Marcus Mehlitz, Payal Jotwani, Britty Baby, Vinkle Srivastav, Ramandeep Singh, Subodh Kumar, Prem Kalra, Subhashis Banerjee, Kolin Paul, Sanjiva Prasad, Bhawani Sharma. "Simulation in Neurosurgery in India- NETS" CNS Quarterly, Summer 2014

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- 4 Tapas Kumar Kundu, Kolin Paul, "Improving Android Performance and Energy Efficiency," Journal of Low Power Electronics 7(4): 516-528 (2011)
- 3 Rajeswari Devadoss, Kolin Paul, M. Balakrishnan: p-QCA: "A Tiled Programmable Fabric Architecture Using Molecular Quantum-Dot Cellular Automata", ACM Journal on Emerging Technologies in Computing Systems 7(3): 13 2011 *Number of citations:7*
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## Journals (under Review)

1 Syed Mohammad Asad Hassan Jafri, Muhammad Adeel Tajammul, Peter Ellerve, Ahmed Hemani, Kolin Paul, Hannu Tenhunen and Juha Plosila, "Morphable Compression Architecture for Efficient Configuration in CGRAs", Microprocessors and Microsystems.

#### arXiv

- 6 Vijay Kumar, Kolin Paul Medical Image Data Provenance for Medical Cyber-Physical System arXiv preprint arXiv:2403.15522, 2024
- 5 Geeta Yadav, Kolin Paul: Architecture and Security of SCADA Systems: A Review. CoRR abs/2001.02925 (2020)
- 4 Xinhui Lai, Maksim Jenihhin, Georgios N. Selimis, Sven Goossens, Roel Maes, Kolin Paul: Early RTL Analysis for SCA Vulnerability in Fuzzy Extractors of Memory-Based PUF Enabled Devices. CoRR abs/2008.08409 (2020)
- 3 Xinhui Lai, Maksim Jenihhin, Jaan Raik, Kolin Paul: PASCAL: Timing SCA Resistant Design and Verification Flow. CoRR abs/2002.11108 (2020)
- 2 Sourav Das, Samuel Wedaj, Kolin Paul, Umesh Bellur, Vinay Joseph Ribeiro: Airmed: Efficient Self-Healing Network of Low-End Devices. CoRR abs/2004.12442 (2020)
- 1 Niladri Sekhar Tripathy, I. N. Kar, Kolin Paul, "Model Based Robust Control Law for Linear Event-triggered System", arXiv:1412.8365v1

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- 117 Priyanka Chauhan, Kolin Paul: Detection of Coronary Artery Disease Using PCG Signals for Wearable Devices: LSTM-Based Approach. HealthCom 2024: 1-3
- 116 Nikki Tiwari, Kolin Paul, Shrawan Kumar Raut, Animesh Ray, Surabhi Vyas, Naveet Wig: MMTS: Multi-Modal Time Series Based Decision Support System for Ventilator Associated Pneumonia. IJCNN 2024: 1-8
- 115 Vijay Kumar, Goldy, Kolin Paul, Mahesh Chowdhary: Long Short Term Memory (LSTM)-based Cuffless Continuous Blood Pressure Monitoring. VLSID 2024: 330-335
- 114 Avishek Choudhury, Brototi Mondal, Kolin Paul, Biplab K. Sikdar: LLC Block Reuse Predictor Design using Deep Learning to Mitigate Soft Error in Multicore. VLSID 2024: 690-695
- 113 Suyash Saxena, Varun Singh Negi, Kolin Paul: Compression of Large LSTM Networks for Inference on Space Constraint Systems. PReMI 2023: 137-146
- 112 Vijay Kumar, Vatsal Agrawal, Shorya Azad: Deep Learning Assisted Plus Disease Screening Retinal Image of Infants. In Proceedings of the 16th International Joint Conference on Biomedical Engineering Systems and Technologies HEALTHINF, ISBN 978-989-758-631-6; ISSN 2184-4305, SciTePress, pages 538-545.
- 111 Vijay Kumar, Het Patel, Kolin Paul, Abhidnya Surve, Shorya Azad, Rohan Chawla: Improved Blood Vessels Segmentation of Retinal Image of Infants. HEALTHINF 2022: 142-153
- 110 Saurabh Tewari, Anshul Kumar, Kolin Paul: SACC: Split and Combine Approach to Reduce the Off-chip Memory Accesses of LSTM Accelerators. DATE 2022: 580-583
- 109 Vijay Kumar, Het Patel, Kolin Paul, Abhidnya Surve, Shorya Azad, Rohan Chawla: Deep Learning Assisted Retinopathy of Prematurity Screening Technique. HEALTHINF 2021: 234-243
- 108 Yu Yang, Ahmed Hemani, Kolin Paul: Scheduling Persistent and Fully Cooperative Instructions. DSD 2021: 229-237
- 107 Yu Yang, Ahmed Hemani, Kolin Paul: Scheduling Persistent and Fully Cooperative Instructions. FCCM 2021: 274
- 106 Vijay Kumar, Kolin Paul: DevFing: Robust LCR Based Device Fingerprinting. MECO 2021: 1-6
- 105 Geeta Yadav, Kolin Paul: Global Monitor using SpatioTemporally Correlated Local Monitors. NCA 2021: 1-10
- 104 Geeta Yadav, Kolin Paul, Alaa M. Allakany, Koji Okamura: IoT-PEN: A Penetration Testing Framework for IoT. ICOIN 2020: 196-201
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- 98 Tara Ghasempouri, Jaan Raik, Kolin Paul, Cezar Reinbrecht, Said Hamdioui, Mottaqiallah Taouil: A Security Verification Template to Assess Cache Architecture Vulnerabilities. DDECS 2020: 1-6
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#### **Patents**

- Cuffless Blood Pressure Monitor With Multiple Inertial Measurement Units Status: U.S. Patent Appl. No. 18/063,021, Filed: December 7, 2022
- Smart Cane This is a device for helping visually challenged persons to navigate independently. Status: Provisional patent granted
- Bus Identification Module This is a two way system which helps a visually challenged person to identify, orient and board a (public transport) bus. The solution is also customizable to build navigational aids for such persons inside buildings.

Status: Provisional patent granted

 Methods and applications for altitude measurement and fusion of user context detection with elevation motion for personal navigation systems

Status: US Patent :US8566032 B2

- Methods and applications for motion mode detection for personal navigation systems Status: US Patent :US 20110029277 A1
- Neuro-endoscope box trainer

Status: US Patent: US 20170316720 A1