

# Call for Summer Research Internship Under Accelerate Vigyan - Vritika Title: Neuromorphic Circuits and Systems

## IIITDM KANCHEEPURAM

Indian Institute of Information Technology Design and Manufacturing (IIITDM) Kancheepuram Chennai ([www.iiitdm.ac.in](http://www.iiitdm.ac.in)) is an Institute of National Importance established in 2007 by the Ministry of Education, Government of India to pursue design and manufacturing oriented engineering education and research and to generate design specialists with strong fundamentals in their core engineering to demonstrate competitive advantage of Indian engineering products in global markets. In addition to the B Tech, M Tech and M Des programmes, the Institute offers PhD programmes in Computer Science and Engineering, Electronics and Communication Engineering, Mechanical Engineering, Interdisciplinary Product Design, Mathematics, Physics and English. It's located on a 51-acre campus on the outskirts of Chennai, off the Vandalur-Kelambakkam road.

## VRITIKA (Training and Skill Internship)

'VRITIKA' is the call for initiation and practice in science through Training and Skill Internship. This program aims to provide opportunities to promising PG students from universities and colleges to get exposure and hands-on research skill development experience. These internships will primarily be facilitated by organizations / institutions / laboratories of national importance such as IITs, IISc, IISERs, NITs, CSIR, ICAR, ICMR etc. For more details visit the following links:

<https://acceleratevigyan.gov.in/programs/abhyas/vritika>  
& <http://serb.gov.in/abhyaas.php>

## OBJECTIVE AND SCOPE OF THIS INTERNSHIP PROGRAMME:

Neuromorphics brings neuroscience and electronics together to translate neuro-biological architectures in the nervous system into analog, digital, or mixed-signal hardware and employ them in a variety of applications with enhanced performance in terms of power, processing speed and resource requirement. Network of such neurons that closely mimic the characteristics of biological neurons known as Spiking neural networks transfer information in the form of spatiotemporal spike sequences. Computational complexity of conventional method of frequency domain transformation including Wavelet transform is the major bottleneck in the hardware implementation of bio-signal processing pipeline. The crux of this work is to target this bottleneck by designing analog / digital / mixed signal hardware implementing important learning algorithms that help to analyse bio-signals using Spiking Neural Networks.

## WHO CAN APPLY:

- Regular PG level (MTech/M.E./M.S.) students pursuing their degree from University / Institution within India.
- Specialization – VLSI Design and related domains
- Successfully completed projects with Verilog / VHDL
- Schematic Simulation of Analog VLSI Circuits
- Very good analytical skills

## HOW TO APPLY & SELECTION PROCESS:

- Candidate shall apply for the Internship program by filling the following Google form:  
<https://forms.gle/xx5UigQYdsAHBsek8>
- Last Date for Submission: 30<sup>th</sup> April 2022
- Candidates shall be shortlisted based on academic performance, projects completed in the domain and GATE score
- Final selection shall be based on an online interview.

## DETAILS OF INTERNSHIP:

- Duration – 10<sup>th</sup> May to 08<sup>th</sup> July 2022
- Domain of Internship – VLSI Design – Neuromorphic Circuits
- Number of Interns Required – 05
- Last Date for Submission of Application: 30<sup>th</sup> April 2022
- Shortlisted Candidates shall be informed by email: 2<sup>nd</sup> May 2022
- Interview to be held online: 3<sup>rd</sup> May 2022
- List of selected students shall be announced by: 4<sup>th</sup> May 2022
- Confirmation of Acceptance of Internship by the selected candidates: 5<sup>th</sup> May 2022
- Reporting date for confirmed Candidates: 9 am – 5 pm on 9<sup>th</sup> May or before 9 am on 10<sup>th</sup> May 2022
- Venue: L213, Lab Block, Academic Complex, IIITDM Kancheepuram
- No stipend will be provided for the internship.
- Boarding and lodging expenses for the internship period and other contingency expenditures as approved under Vritika scheme will be provided.

## EVENT ORGANIZER:

Dr. Binsu J Kailath, Associate Professor, Department of ECE, IIITDM Kancheepuram, Melakottaiyur, Off Vandalur - Kelambakkam Road, Chennai-600127; Email: [bkailath@iiitdm.ac.in](mailto:bkailath@iiitdm.ac.in), Contact Number: 9884201895, 9080932307