

# KAMARAJ

## COLLEGE OF ENGINEERING & TECHNOLOGY



(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

S.P.G.Chidambara Nadar - C.Nagammal Campus

S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

# TECHMAG'25



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# Editorial Board

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# Faculty profile



**Dr.A.Meenakshi, M.E, Ph.D.,  
Professor & HoD**



**Dr.R.Ramya, M.E., Ph.D.,  
Associate Professor**



**Dr.A.Anandh, M.E., Ph.D.,  
Associate Professor**



**Dr.G.Uma Maheswari, M.E, Ph.D.,  
Assistant Professor**



**Mr.V.Rajesh kannan, M.E.,  
Assistant Professor**



**Mr.R.Kumaravel, M.E.,  
Assistant Professor**

# Faculty profile



**Mrs.S.Athilakshmi, M.Sc., M.Phil., M.E.,  
Assistant Professor**



**Mrs.K.Muthu Lakshmi, M.E.,  
Assistant Professor**



**Mr.B.Muthu krishna Vinayagam, M.E.,  
Assistant Professor**



**Mr.G.Praveen kumar, M.E.,  
Assistant Professor**



**Mr.J.John Livingston, M.Tech,  
Assistant Professor**



**Mr.D.Asir, M.Tech,  
Assistant Professor**

# Faculty profile



**Mrs.X.Ignatius Selvarani, M.E.,  
Assistant Professor**



**Ms.S.Janani, M.E.,  
Assistant Professor**



**Mrs.E.Vijayalakshmi, M.E.,  
Assistant Professor**



**Mr.D.Raj, M.E.,  
Assistant Professor**



**Mrs.K.Leelarani, M.E.,  
Assistant Professor**



**Ms.D.Pradhiba, M.Tech.,  
Assistant Professor**

# Faculty profile



**Mrs.G.Rohinipriya, M.E.,  
Assistant Professor**



**Mr.S.Ram Prasath, M.E.,  
Assistant Professor**



**Mrs.T.Divya, M.E.,  
Assistant Professor**



**Mrs.M.Mohana, M.E.,  
Assistant Professor**



**Mrs.K.Priyadharshini, M.E.,  
Assistant Professor**



**Mrs.S.Archana Devi, M.E.,  
Assistant Professor**

# Faculty profile



**Mr.G.Sundararaju, M.E.,  
Assistant Professor**



**Ms.I.Shalom Priscilla, M.E.,  
Assistant Professor**



**Mrs.G.C.Pushpalatha, M.E.,  
Assistant Professor**



**Mrs.G.A.Muthuchelvi, M.E.,  
Assistant Professor**



## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **VISION OF THE INSTITUTION**

TO MAKE THE INSTITUTION THE UNIQUE OF ITS KIND IN THE FIELD OF RESEARCH AND DEVELOPMENT ACTIVITIES IN THE PART OF THE WORLD

### **MISSION OF THE INSTITUTION**

TO IMPART HIGHLY INNOVATIVE AND TECHNICAL KNOWLEDGE TO THE URBAN AND UNREACHABLE RURAL STUDENT FOLKS THROUGH "TOTAL QUALITY EDUCATION".

### **QUALITY POLICY**

COMMITTED TO IMPART QUALITY TECHNICAL EDUCATION IMBIDED WITH PROFICIENCY, HUMAN VALUES AND CONTINUAL IMPROVEMENTS

## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **VISION OF THE DEPARTMENT**

TO MAKE THE DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING THE UNIQUE OF ITS KIND IN THE FIELD OF RESEARCH AND DEVELOPMENT ACTIVITIES IN THIS PART OF WORLD.

### **MISSION OF THE DEPARTMENT**

TO IMPART HIGHLY INNOVATIVE AND TECHNICAL KNOWLEDGE TO THE URBAN AND UNREACHABLE RURAL STUDENT FOLKS IN COMPUTER SCIENCE AND ENGINEERING THROUGH "TOTAL QUALITY EDUCATION".



## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **PROGRAM EDUCATIONAL OBJECTIVES**

#### **PEO1**

Apply the necessary mathematical tools and fundamental knowledge of Computer Science & Engineering to solve the variety of Engineering problems.

#### **PEO2**

Develop software based solutions for real life problems and be a leaders in their profession with social and ethical responsibilities.

#### **PEO3**

Pursue life-long learning and research in selected fields of Computer Science & Engineering and contribute to the growth of those fields and society at large.

### **PROGRAM SPECIFIC OUTCOMES**

#### **PSO1**

**Profession Skills:** The ability to understand, analyze and develop computer Programs in the areas related to algorithms, system software, multimedia, web design, big data analytics, and networking for efficient design of Computer-based systems of varying complexity.

#### **PSO2**

**Problem - Solving Skills:** The ability to apply standard practices and strategies in software project development using open-ended programming environments to deliver a quality product for business success.



## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **ABOUT THE DEPARTMENT**

The Department of Computer Science and Engineering was established in the year 1998 with the initial intake of 40. The primary objective of our department is to provide "Total Quality Education" in the field of information and Communication Engineering, amid 120 students per year. Computer Science & Engineering, a dazzling department for ever is always a forerunner in impacting innovative & technical knowledge to the aspirants. The department of Computer Science and Engineering has excellent infrastructure facilities and is powered with the highly sophisticated lab with the higher configuration systems and servers with recent software updated to meet the demands of the IT industry, Research and Development organizations and computer related areas. The department offers an excellent academic environment with a team of highly qualified faculty who are technically sound and talented persons. Our faculty members monitor student's performance regularly and give moral support and motivation to them. Our department has a separate association called CYBER-HEFT through which we conduct various technical events to student.

### **HOD'S MESSAGE**

"Technology is the driving force behind the evolution of our world, and at the Department of Computer Science and Engineering, we are committed to nurturing the next generation of innovators, problem-solvers, and leaders who will shape the future. As we stand at the intersection of cutting-edge research and real-world applications, our mission is to empower students with the knowledge, skills, and mindset to tackle global challenges and create transformative solutions. This tech magazine serves as a testament to the incredible advancements and ideas emerging from our vibrant community. It is a platform to celebrate creativity, collaboration, and the relentless pursuit of excellence. Let us continue to push boundaries, embrace curiosity, and harness the power of technology to build a smarter, more connected, and sustainable world. To our students, faculty, and industry partners - your passion and dedication inspire us every day. Together, let's keep innovating, learning, and leading the way in the ever-evolving landscape of technology.

## **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

### **HOD'S PROFILE**

**Dr. A. Meenakshi, Professor and Head of the Department of Computer Science and Engineering at Kamaraj College of Engineering and Technology, Near Virudhunagar, has over 25 years of teaching experience and nearly 15 years of research experience in the field of Computer Science and Engineering. She obtained her Master of Engineering in Computer Science and Engineering from Anna University, Chennai, and her Ph.D. in Information and Communication Engineering, specializing in Machine Learning, from the same university.**

**Dr. Meenakshi has published more than 15 papers in reputed national and international journals and presented over 20 papers at national and international conferences. She is a recognized research supervisor under the Information and Communication Engineering domain at Anna University, Chennai, and currently guides seven research scholars.**

**Her research interests include Big Data Analytics, Machine Learning, and Deep Learning. She is also a member of the Computer Society of India (CSI) and a life member of the Indian Society for Technical Education (ISTE).**





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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

***DEPARTMENT  
ACTIVITIES***

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### Faculty member serving as a reviewer in academic Journal

S. No.	Name of the Faculty	Designation & Department	Title of the Journal	Publisher	Editor/Special Issue Editor/Associate Editor/Reviewer
1	Dr. A. Meenakshi	HoD/CSE	International Journal of System Assurance Engineering and Management	Springer	Reviewer

### Conference Publications by Faculty Members

Sl. No.	Name of the faculty with Co-Authors	Title of the Paper	Title of the Conference	Date & Venue of Conference	Sponsored by, if any
1	A. Anandh, N.K.Senthil Kumar, and S Kalpana	Breaking Boundaries: Harnessing the Power of Deep Learning Model Design to Predict Diabetes with Artificial Intelligence Assisted Prediction Strategy	4th International Conference on Intelligent Technologies (CONIT) Karnataka, India.	Jun 21-23, 2024, Karnataka	Nil



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### Report on Staff Development Programme FDP/Workshop/Seminar attended by Faculty members

S. No.	Name of the faculty	Name of the Programme	Date	Organizing Institution	Participated / Presented
1	Mr.S.RamPrasath, AP/CSE	Three-day (Online) Faculty Development Program on Skill Building for Tomorrow: Research Writing, Wireless Technology & Professional Excellence	12/05/2025 & 14/05/2025	Research & Development Cell, Poornima University, Jaipur	Participated



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

- Ms. D.Prathiba, AP/CSE, completed the 12-week NPTEL online course on “Introduction to Machine learning and Data analytics with Python”.
- Mr. S. Ram Prasath, AP/CSE, completed NPTEL online certification course on "Cloud Computing and Distributed Systems".
- Mrs. S. Athilakshmi, AP/CSE, completed the FEP on machine learning and got foundation certification from Infosys.
- Mrs. X.IGNATIUS SELVARANI, AP/CSE, completed the 12-week NPTEL online course on “Natural Language Processing”.



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

The Department of CSE organizes Two week Internship program on “ML & TECH Career Accelerator” - Industry-Ready Internship with Git, web & AI Deployment” the resource person was Mr.Rajesh Kannan, Co founder, Paruvaththe Payir Sei this internship enables students to work on ML projects.

- The Department of Computer Science and Engineering Organizes Six day Online Certificate Course on "Microsoft Azure" from 09/06/2025 to 14/06/2025, Mr. P. KADAL SELVAM, Senior Software Trainer, Isysway Technologies, Thanjavur was the resource person.

- The Department of Computer Science and Engineering Organizes International CCNA Certification Course on "Switching, Routing and wireless essentials - Introduction to Networks" Ms. K. Muthulakshmi, AP/CSE, KCET was the resource person.

- Dr.A.Meenakshi, HOD-CSE, Mr.G.Praveen Kumar, AP-CSE, Ms.D.Pradhiba AP-CSE, Mrs.G.Rohini Priya, AP-CSE, obtained copyright for the work titled "Learning Sql Through Experiments", Application No.: 5774/2025-CO/L.

- Dr. A. Meenakshi, HoD-CSE, participated in Annual Doctoral Committee Meeting for Ph.D Programme of Mrs.P.Divya Bharathi (Reg. No:23244797358) on 12.06.2025 for the research title: A Trust based event recommendation system using Machine Learning and Natural Language Processing and provided her valuable feedback and suggestion of improvements on the research progress of the scholar.

- Eleven students from the III CSE earned International certification on "RED HAT CERTIFIED System Administrator".

- Fifty-four students from IV CSE and four faculty members, Ms. Mohana, AP-CSE, Ms. Muthuchelvi, AP-CSE, Ms. Sharon Priscilla, AP-CSE, Ms. Divya, AP-CSE, successfully obtained International Certification on "Microsoft Azure Fundamentals".



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

S.No.	Sec	Roll Number	Register Number	Name of the Student	Name of the company
1	B	21UCS045	920421104113	VIGNESH.S	6F
2	B	21UCS026	920421104069	PAVITHRAN.R	6F
3	B	21UCS092	920421104074	PRAKASH.A	6F
4	B	21UCS037	920421104057	MANIKANDAN.V	Aarvik Digital IT Solutions
5	B	21UCS107	920421104021	DINESH.S	Aarvik Digital IT Solutions
6	B	21UCS088	920421104031	JABEZ JERIN.J	Centizien Tirunelveli
7	A	21UCS119	920421104065	NIRANCHANA SHREE.S.R.	Centizien Tirunelveli, CTS
8	A	21UCS067	920421104108	VASEEKARAN.S	Clustrex - Chennai
9	B	21UCS060	920421104084	RUTHICK SREE.S	Clustrex - Chennai
10	A	21UCS122	920421104303	KARTHIKEYAN. T.S.	Coding Bees, Maxelerator
11	B	21UCS071	920421104103	SURYA.A	Coding Bees,InfoSys
12	A	21UCS041	920421104023	GOVINDARAJAN.D	FACEPREP
13	B	21UCS123	920421104307	VASUDEVAN	FACEPREP



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14	A	21UCS012	920421104088	SANGEETHA.K	FACEPREP
15	A	21UCS013	920421104028	HARSHINA SRIM. G	FACEPREP
16	A	21UCS054	920421104056	MAHARANJITHAM.S	FACEPREP, Quintessence Business Solution
17	B	21UCS007	920421104072	PRABHU.B	FACEPREP, TERV
18	A	21UCS043	920421104064	NAVANEETHA KRISHNAN.A	FACEPREP, Quintessence Business Solution
19	A	21UCS020	920421104040	KARUPPASAMY.S	GreenPixel Tech, Surandai
20	B	21UCS078	920421104002	AAKASH KUMAR.B	HCL
21	B	21UCS105	920421104076	PRIYADHARSHINI.R	HCL
22	A	21UCS061	920421104063	NANDA GURU PANDIYAN.D	HCL
23	A	21UCS028	920421104110	VIGNESH KUMARAN.A	Hexaware
24	B	21UCS002	920421104005	ABIRAMI.V	i-Chainsys MDU
25	B	21UCS109	920421104006	ARUL KUMARAN.S	i-Chainsys MDU



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26	B	21UCS019	920421104019	DHANASEKARAN.M	i-Chainsys MDU
27	B	21UCS064	920421104013	BALAJI.J	i-Chainsys MDU
28	B	21UCS095	920421104034	JEMIMA.K	i-Chainsys MDU
29	B	21UCS108	920421104042	KAVIYA.K	i-Chainsys MDU
30	B	21UCS009	920421104068	NITHYA SRI.M	i-Chainsys MDU
31	A	21UCS044	920421104078	PUNITHA BRIDJITH.A	i-Chainsys MDU
32	B	21UCS102	920421104079	RAJA ASWIN.T	i-Chainsys MDU
33	B	21UCS117	920421104101	SUGANESAN.D	i-Chainsys MDU
34	B	21UCS042	920421104107	THIRISHA.M	i-Chainsys MDU
35	A	21UCS024	920421104029	HEMSHIKA HARINI DEVI.C.S	Infosys
36	A	21UCS038	920421104022	GANNIGAA.S	Infosys, Vinsinfo
37	B	21UCS103	920421104058	MANOJKUMAR.R	IZAPY, Zoho



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38	A	21UCS023	920421104118	YASWANT.R	IZAPY,Mitsuba,Aarvik
39	B	21UCS059	920421104053	LITHIN.X	Kaashiv Info Tech, Chennai
40	A	21UCS101	920421104014	BANU SUBIKSHA.M	Kaaviyan Systems, VNR
41	A	21UCS010	920421104018	DEEPAN SAKKARAVARTHIS	Kaaviyan Systems, VNR
42	A	21UCS106	920421104097	SIVARANJANI.S	Kaaviyan Systems, VNR
43	A	21UCS068	920421104116	VISHVA.K	Kaaviyan Systems, VNR
44	B	21UCS049	920421104104	SWATHI.R	Kaaviyan Systems, VNR
45	B	21UCS001	920421104015	BARATH DAVID.S.R	Kaaviyan Systems, VNR
46	A	21UCS082	920421104096	SIVA.K	Maxelerator
47	A	21UCS006	920421104004	ABINAYASARASWATHI.B	Mitsuba
48	B	21UCS057	920421104055	MAGATHI LAKSHMI.K	Mitsuba
49	A	21UCS015	920421104085	SAKTHISHIVASANKAR.K	Mitsuba
50	B	21UCS065	920421104001	AAKAASH KUMAR.M	Novacis Digital, Chennai



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51	A	21UCS034	920421104066	NIRANJANA.P	Novacis Digital, Chennai
52	B	21UCS056	920421104041	KATHIRVEL.A	Novacis Digital, Chennai
53	B	21UCS058	920421104100	SRIRAM RATHINAVEL.P	Novacis Digital, Chennai
54	A	21UCS094	920421104071	PERUMAL.V	Pranion Technology, Mitsuba
55	B	21UCS011	920421104044	KAYALVIZHI.R	Quintessence Business Solutions
56	B	21UCS093	920421104052	KRITHIKA DEVI.U	Quintessence Business Solutions
57	B	21UCS097	920421104083	ROOPA.S	Quintessence Business Solutions
58	B	21UCS110	920421104086	SAMSITHA.P.P.	Quintessence Business Solutions
59	B	21UCS072	920421104012	BABYPREETHI.M.S	Quintessence Business Solutions
60	B	21UCS048	920421104087	SANGEETHA.K	Quintessence Business Solutions, HCL
61	B	21UCS039	920421104035	JESWANTH.S	Relevantz, MDU



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62	B	21UCS099	920421104043	KAVYA SRI VAIPAVA.S	Relevantz, MDU
63	A	21UCS114	920421104062	MUKESH.N	Relevantz, MDU
64	A	21UCS084	920421104067	NITHIS BANGARU.B	Relevantz, MDU
65	A	21UCS079	920421104105	THANGA BALAJI.P	Relevantz, MDU
66	B	21UCS030	920421104117	VISHWESHWARAN.E	Relevantz, MDU
67	A	21UCS035	920421104093	SHIVAKUMARAN.S	SANMINA
68	B	21UCS086	920421104046	KESAVAN.R	SANMINA
69	A	21UCS090	920421104075	PREETHI.K	SANMINA
70	A	21UCS113	920421104073	PRAGADEESWARAN.S	SANMINA
71	B	21UCS089	920421104077	PRUTHIVIRAJ.M	SANMINA
72	B	21UCS126	920421104302	ARUN KUMAR.S	SANMINA
73	B	21UCS075	920421104025	HARI PRASATH.C	SANMINA



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74	B	21UCS040	920421104017	BHARATHY.S	SANMINA
75	A	21UCS018	920421104091	SATHEESHKUMAR.V	SANMINA
76	B	21UCS070	920421104095	SHYAM SREERAM.N	SANMINA
77	B	21UCS036	920421104102	SUNIL.P	SJ Techvision Solutions, VPG
78	B	21UCS100	920421104090	SARAVANAN.K	SJ Techvision Solutions, VPG
79	A	21UCS005	920421104081	RAJESWARI.R	SKILL MINE
80	B	21UCS063	920421104099	SRI SHARAN PRAKASH.S	SKILL MINE
81	A	21UCS008	920421104003	AARON ARULRAJA	Sure Soft
82	A	21UCS098	920421104115	VISHNU.N	Sure Soft
83	B	21UCS050	920421104010	ASWINI.M	Sure Soft, Quintessence Business Solution, Roriri Software
84	B	21UCS076	920421104011	ASWINI.R	TechVolts Software Pvt. Ltd, Coimbatore
85	A	21UCS022	920421104048	KISHOR.P	TechVolts Software Pvt. Ltd, Coimbatore
86	B	21UCS104	920421104061	MOHANA PRAKASH.G	TechVolts Software Pvt. Ltd, Coimbatore



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

87	A	21UCS051	920421104070	PAVITRA RAO.S	TERV
88	A	21UCS062	920421104047	KIRUTHIKA.S	TERV, Mitsuba, HCL
89	B	21UCS073	920421104094	SHIYAMA.A	TERV, VPG
90	A	21UCS081	920421104008	ASATH SUGAINA.A	Trivine Technology
91	B	21UCS003	920421104036	JOHN RATHINAM.V	Vinsinfo
92	A	21UCS069	920421104050	KOWSALYA.C	Vinsinfo, Roriri Software, HCL
93	B	21UCS027	920421104039	KARSHANVICTOR JOSH.T	VPG INDIA PVT LTD
94	B	21UCS032	920421104112	VIGNESH.S	VPG INDIA PVT LTD
95	B	21UCS033	920421104109	VIDHYA.S	VPG INDIA PVT LTD
96	A	21UCS046	920421104092	SHEIK ABDHULLA.R	VPG INDIA PVT LTD



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97	A	21UCS085	920421104059	MARY SELJA.J	VPG INDIA PVT LTD
98	A	21UCS083	920421104054	MADHURAM.S	VPG INDIA PVT LTD, Maxelerator
99	A	21UCS016	920421104037	JONES SIMEON.D	WIZINOA
100	A	21UCS025	920421104032	JANA VIKRAM.K.M. S	Xmplar, MDU
101	A	21UCS052	920421104119	YOGESHWARAN.R	Xmplar, MDU
102	A	21UCS080	920421104082	RISHIKESH.C	Xmplar, MDU
103	A	21UCS111	920421104007	ARUN KUMAR.K	Xmplar, MDU
104	A	21UCS116	920421104049	KOUSHIKAN.S	Xmplar, MDU
105	A	21UCS077	920421104026	HARIHARAN.C	ZOHO
106	A	21UCS129	920421104304	MUNIESH VIJAY	ZOHO



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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**STUDENT  
ARTICLES**



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Stealth fighter jets are advanced military aircraft designed to avoid detection by radar and infrared systems. They use radar-absorbent materials, special body shapes, and minimal heat emissions to stay nearly invisible.

Examples: F-22 Raptor, F-35 Lightning II, and Su-57 Felon.



Artificial Intelligence plays a crucial role in enhancing the performance and stealth capabilities of modern fighter jets. Computer Vision enables the aircraft to detect and track enemy targets using onboard cameras and sensors, providing real-time situational awareness. Neural Networks help the jet “learn” from past flight patterns and adapt its control systems for better manoeuvrability and decision-making. Through Reinforcement Learning, the jet gains the ability to make autonomous navigation and combat decisions, continuously improving its strategies based on outcomes. Meanwhile, Data Fusion integrates information from multiple sources such as radar, sonar, and satellite feeds, creating a unified and accurate picture of the surrounding environment. Together, these AI methodologies make the stealth fighter jet smarter, more responsive, and capable of performing complex missions with minimal human input.



## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



Artificial Intelligence is revolutionizing the way stealth aircraft operate by enhancing both performance and safety. Through autonomous assistance, AI acts as a co-pilot that continuously analyses combat data in real time and recommends the best possible manoeuvres to pilots. Predictive maintenance powered by machine learning algorithms allows the aircraft to identify potential part failures before they occur, ensuring reliability and reducing downtime. AI also plays a key role in radar signal optimization, intelligently managing radar emissions to minimize the aircraft's visibility to enemy systems. Additionally, mission planning has become more efficient with AI calculating fuel-saving and low-risk flight routes automatically. Together, these advancements enable stealth jets to perform complex missions with remarkable precision and autonomy.



Swetha K  
III-CSE-'C'  
R23UCS135

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### “Neuromorphic Computing: Mimicking the Human Brain for Smarter Machines”

#### DIGITAL TWIN TECHNOLOGY IN INDUSTRIES



Neuromorphic computing represents a groundbreaking shift in computer architecture, inspired directly by the structure and functioning of the human brain. Unlike traditional computing systems that process information sequentially, neuromorphic chips are designed to emulate neural networks, allowing them to process data in parallel and adapt through learning. This biomimetic approach enables faster computation, lower power consumption, and higher efficiency in tasks such as pattern recognition, perception, and autonomous decision-making. By bridging the gap between artificial intelligence and biological intelligence, neuromorphic systems are redefining how machines perceive, analyze, and respond to complex real-world environments.

The foundation of neuromorphic technology lies in specialized hardware known as spiking neural networks (SNNs), which mimic the electrical impulses of human neurons. Companies like Intel (with Loihi) and IBM (with TrueNorth) are pioneering this domain, developing chips capable of learning and adapting in real time. These chips function without traditional programming, instead forming dynamic neural connections based on experience. Such adaptability positions neuromorphic computing as a transformative technology for edge devices, robotics, and smart sensors, where rapid decision-making and minimal energy use are critical to system performance and sustainability.

As research advances, neuromorphic computing is expected to revolutionize the future of artificial intelligence, moving it closer to human-like cognition. From enabling real-time learning in autonomous vehicles to powering next-generation prosthetics and smart surveillance systems, the potential applications are vast. However, challenges such as scalability, standardization, and integration with current AI frameworks remain. Overcoming these barriers will pave the way for machines that not only compute but truly comprehend. Ultimately, neuromorphic computing represents the next evolution of intelligence — where silicon begins to think, sense, and adapt like the human brain itself.



Naavneeth V R

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23UCS135



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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**STAFF  
ARTICLES**

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

### Serverless Computing: The Future of Scalable Cloud Architecture

Serverless computing is a paradigm shift in cloud architecture, where developers can create and deploy their applications without the headaches of managing the servers. This model implies a cloud provider allocating resources dynamically depending on demand, where code is executed only when needed and scales automatically. It eliminates the messy provisioning and maintenance of servers, thus permitting teams to stay focused on pure innovation and application logic. This extends to a wonderfully cost-effective and operationally agile position, as serverless computing only charges for compute time engaged, rather than idle capacity, which makes it a cornerstone of modern cloud-native development and enterprise digital transformation.

The core of serverless computing is essentially made up of Function-as-a-Service, such as AWS Lambda, Google Cloud Functions, and Azure Functions. These services enable developers to deploy event-driven functions that execute in response to database updates, API calls, or file uploads. Architecture that scales seamlessly to thousands of concurrent executions with high availability, and all without manual intervention. What's more, serverless integrates well with containerized and microservice-based systems for easy hybrid deployments and continuous delivery pipelines. In fact, this flexibility has made serverless architecture the favorite of startups and enterprises alike for fast innovation at minimal infrastructure overhead.

The future of serverless computing goes beyond backend automation into full-stack scalability and intelligent orchestration. Innovations such as serverless databases, edge serverless, and AI-driven resource optimization are taking responsiveness and efficiency even further.

Of course, there are several challenges- bitter truths-cold start latency, vendor lock-in, and debugging complexity-being one among them. As research and industry adoption of the pattern reach maturity, serverless computing is going to change how applications will be built, deployed, and managed, developing cloud computing into an elastic, cost-effective, but above all, developer-centric model.



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