



Anand Nagar, Krishnankoil - 626126, Srivilliputtur (via), Virudhunagar District, Tamilnadu.

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:23-12-2020

Department	COMPUTER SCIENCE AND ENGINEERING	Application No.	202020177
Area of Research	MACHINE LEARNING APPROACHES IN 5G TECHNOLOGY	Research Mode	FULL TIME

Name :SHENBAGAVALLI

Date of Birth / Age :09-04-1990 / 30 Years

Gender :FEMALE

Category :BC

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H. Shenbagavalli

Father's/Husband's Name	SHUNMUGA SUNDARAM	Father's/Husband's Occupation	RAILWAY
Family Income	3,30,000	Residential Type	RURAL
Birth Place	KOVILPATTI	Mother Tongue	TAMIL
Religion	HINDU	Martial Status	MARRIED
Aadhaar No.	770892773281	PAN No.	CSAPS7450N
Physically Challenged	NO	Type of Disability	-
Address for Communication: 59/2A1, RAMAIAH NAGAR 2ND STREET,MANDHITHOPPU ROAD KOVILPATTI TUTICORIN DISTRICT TAMILNADU INDIA Pin-628501		Permenant Address: 59/2A1 RAMAIAH NAGAR 2ND STREET,MANDHITHOPPU ROAD KOVILPATTI TUTICORIN DISTRICT TAMILNADU INDIA Pin-628501	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
M.E	CSE	TAGORE ENGINEERING COLLEGE	2013	8.33	FIRST	REGULAR
B.E	CSE	FRANCIS XAVIER ENGINEERING COLLEGE	2011	73	FIRST	REGULAR

Experience					
Organization	Designation	Experience From	Experience TO	Work Nature	
KALASALINGAM UNIVERSITY	TEACHING ASSISTANT	2014-08-11	2016-06-06	PLACEMENT CELL	
KALASALINGAM UNIVERSITY	TEACHING ASSISTANT	2016-06-07	2017-05-15	IT DEPARTMENT FACULTY	

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status

202020177_201223130717	VUR29586852951	23-12-2020	600	SUCCESS
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Implementation of Machine Learning approaches in 5G for Healthcare Management

Abstract:

5G is the forthcoming revolution of mobile technology. The features and its usability are much beyond the expectation of a normal human being. A 5G network will be able to analyze historical data patterns and conversation, allowing for more efficient transmission of data at all the times. It supports wide range of bandwidth radio channels. Also it can able to support the speed up to 10Gbps. 5G Wi-Fi technology will offer contiguous and consistent coverage which is called as “wider area mobility in true sense”. The huge volume of big data is generated by IoT devices in healthcare environment. 5G system based on Machine Learning techniques to remotely provide a high-quality and continuous monitoring of the patient’s health situations. Machine Learning is ideally suited to unite with 5G networks because it requires massive amounts of data to predict activity accurately. At the same time 5G can transmit higher volumes of data faster than current networks.

Keywords: Healthcare- Internet of Things-5G cellular network-5G architectures-5G challenges- Machine Learning-ML techniques.

Introduction:

Healthcare:

Healthcare is undergoing a rapid transformation from traditional hospital and specialist focused approach to a distributed patient-centric approach. Advances in several technologies fuel this rapid transformation of healthcare vertical. Among various technologies, communication technologies have enabled to deliver personalized and remote healthcare services. At present, healthcare widely use an existing 4G network and other communication technologies for smart healthcare applications and are continually evolving to accommodate the needs of future intelligent healthcare applications. As the smart healthcare market expands the number of applications connecting to the network will generate data that will vary in size and formats. This will place complex demands on the network in terms of bandwidth, data rate and latency, among other factors. As this smart healthcare market matures, the connectivity needs for a large number of devices and machines with sensor-based applications in hospitals will necessitate the need to implement Massive-Machine Type Communication. Further use cases such as remote surgeries and Tactile Internet will spur the need for Ultra Reliability and Low Latency Communications or Critical Machine Type Communication. Existing communication technologies are unable to fulfill the complex and dynamic need that is put on the communication networks by the diverse smart healthcare applications.

Therefore, the emerging 5G network is expected to support smart healthcare applications, which can fulfill most of the requirements such as ultra-low latency, high bandwidth, ultra-high reliability, high density and high energy efficiency. 5G and IoT devices which are expected to increase cellular coverage, network performance and address security related concerns.

Internet of Things (IoT):

It is a dynamic network infrastructure which has the capability of self-configuration on the bases of interoperable and standard communication protocol. In other words, IoT is flexible, complex and dynamic network infrastructure that connects anyone, anything, anytime, anywhere for any services. The IoT has numerous applications in healthcare from remote monitoring to smart sensors and medical devices integration.

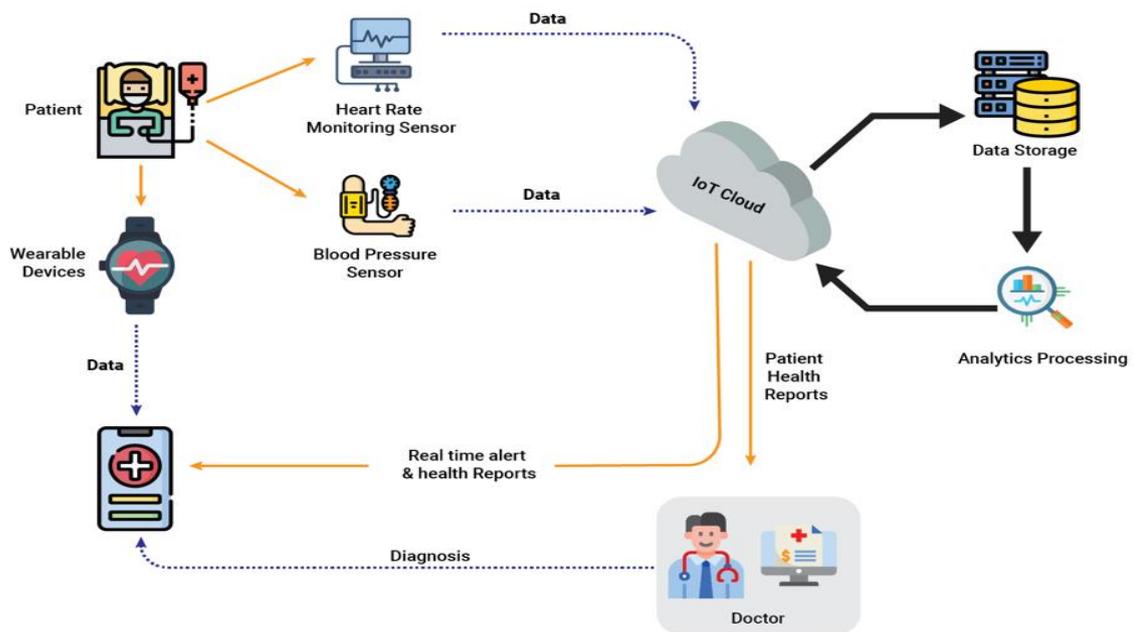


Fig: IoT is transforming the healthcare industry.

5G Technology:

5G technology is expected to provide a new frequency bands along with the wider spectral bandwidth per frequency channel. Due to the potential increase in mobile traffic and the rapid expansion of communication infrastructures, 4G can no longer meet the actual needs of users. In order to improve quality of services and reach user satisfaction, 5G technology is used.

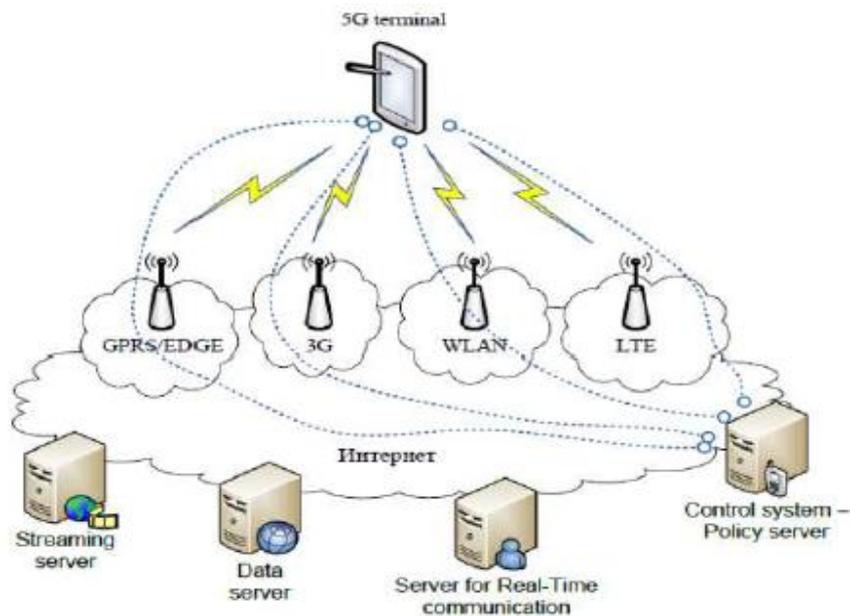


Fig1: Simple 5G network architecture

5G is also advanced in terms of

- High increased peak bit rate.
- Larger data volume per unit area.
- High capacity to allow more devices connectivity concurrently and instantaneously.
- Lower battery consumption.
- Larger number of supporting devices.
- Lower cost of infrastructural development.
- Higher reliability of the communications.

The response to 5G requirements, for instance low latency, fast data transmission, high throughput is expected to serve a large range of applications. Some applications which are improve by 5G.

- Internet of Things
- M2M communication
- Internet of Vehicles.
- Health care
- Smart Grid.
- Smart homes and smart societies.
- Internet Tactile.

5G technologies are designed to provide incredible and remarkable data capabilities, unhindered call volumes and immeasurable data broadcast within the latest mobile operating system. 5G has also big challenges to deal with following.

- Technological Challenges
 - Inter-cell interference
 - Efficient Medium Access Control
 - Traffic Management

- Common Challenges
 - Multiple services
 - Infrastructure
 - Communication, navigation and sensing
 - Security and privacy
 - Legislation of cyber law

The huge volume of big data is generated by IoT devices in healthcare environment. 5G system based on ML techniques to remotely provide a high-quality and continuous monitoring of the patient's health situations and supply treatment services.

Machine Learning:

It is a collection of methods that allows computers to be able to learn, automate and optimize using large data sets that cannot be used systematically by humans. Without ML, network operators will not be able to efficiently delivering 5G services with its various requirements. ML approaches have the potential to automatically to learn the system experience, predict future scenarios and to adapt to fluctuating environments. In 5G systems, that are multiple parameters and complex multi-variable scenarios, the pattern of learning will take different categories for each kind of problem and within each stage of the learning model.

Machine Learning approaches are classified into three main categories.

- Supervised Learning(SL)
- Unsupervised Learning(UL)
- Reinforcement Learning(RL)

Other Categories:

- Markov Models
- Heuristics
- Controllers.

Each ML category can be divided into several sub-classes dealing with very specific algorithm that will be applied in cellular networks.

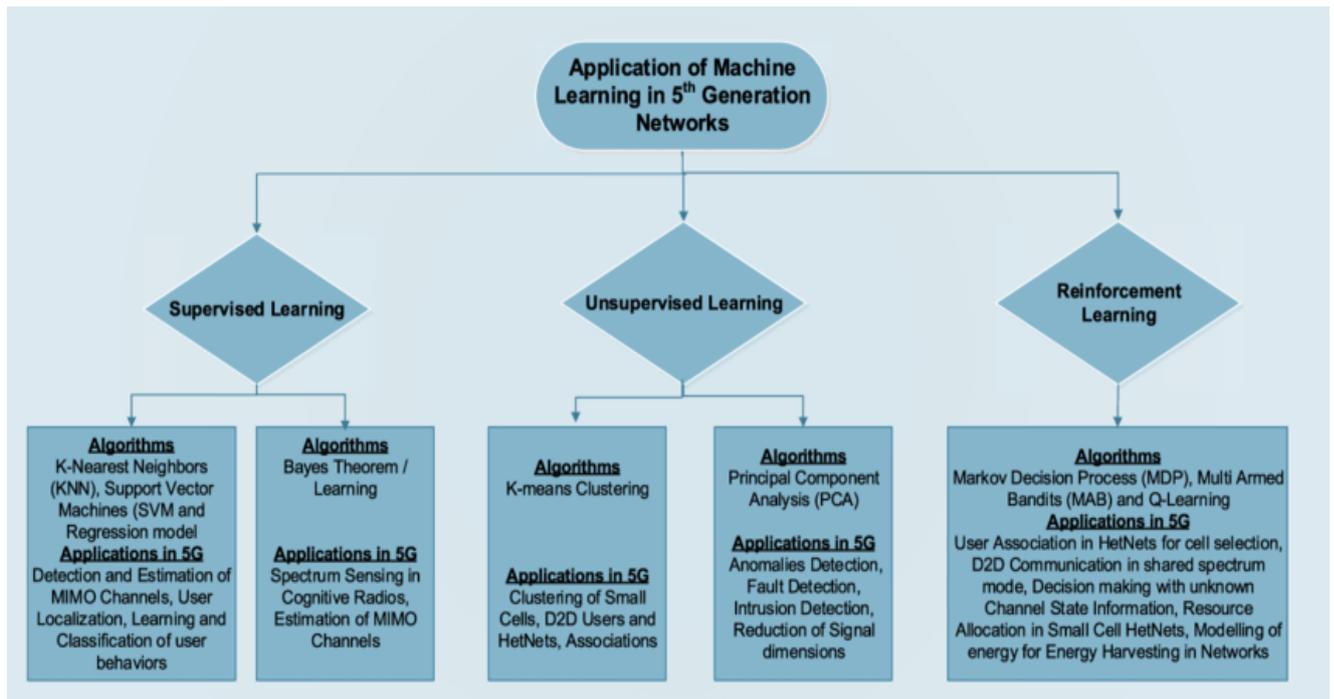


Fig: Machine Learning Techniques

Objective:

To apply Machine Learning (ML) in 5G network to early detect heart diseases. Respiratory rate, heart rate, blood pressure and systolic range and body temperature parameters help to indicate the heart disease. It proposes scalable three levels architecture based on IoT which is interconnected. To store and process the enormous amount of data generated by the health monitoring system based on IoT. The sensor data collection using the 5G network, storing of the huge volume of portable IoT sensor data in the cloud and development of the logistic regression-based prediction model in case of heart diseases.

References:

1. Valente KP, Imran MA, Onireti O, Souza RD (2017) A survey of machine learning techniques applied to self organizing cellular networks. *IEEE Commun Surv Tutor* 19:2392–2431
2. Jiang C, Zhang H, Ren Y, Han Z, Chen K-C, Hanzo L (2017) Machine learning paradigms for next-generation wireless networks. *IEEE Wirel Commun* 24(2):98–105
3. Javaid N, Sher A, Nasir H, Guizani N (2018) Intelligence in iot-based 5G networks: opportunities and challenges. *IEEE Commun Mag* 56(10):94–100
4. Morocho-Cayamcela ME, Lee H, Lim W (2019) Machine learning for 5G/b5G mobile and wireless communications: potential, limitations, and future directions. *IEEE Access* 7:137184–137206
5. Chang Z, Lei L, Zhou Z, Mao S, Ristaniemi T (2018) Learn to cache: machine learning for network edge caching in the big data era. *IEEE Wirel Commun* 25(3):28–35
6. Monserrat JF, Mange G, Braun V, Tullberg H, Zimmermann G, Bulakci Ö (2015) Metis research advances towards the 5G mobile and wireless system definition. *EURASIP J Wirel Commun Netw* 2015
7. Abdul ahad, mohammad tahir ,(member, ieee), and kok-lim alvin yau(2019) (Senior Member, IEEE), 5G- based healthcare network: Architecture, Taxonomy, Challenges and Future Research Directions.



ANNA UNIVERSITY OF TECHNOLOGY TIRUNELVELI

TIRUNELVELI - 627 007

PROVISIONAL CERTIFICATE

Folio No. : HUG0701416

This is to certify that the undermentioned candidate has qualified for the award of Degree as detailed below :

Name : SHENBAGAVALLI.M

Register No. : 95507104074

Degree : B.E.

Branch / Specialization : Computer Science and Engineering

College of Study : FRANCIS XAVIER ENGINEERING COLLEGE

Month & Year of Passing: APRIL 2011

Classification : FIRST CLASS

* Previously Anna University Tirunelveli

Tirunelveli - 627 007
Date : 20/05/2011



M. [Signature]
CONTROLLER OF EXAMINATIONS_{1/c}



Reg. No. 95507104074



The Syndicate of the Anna University of Technology Tirunelveli hereby makes known that **SHENBAGAVALLI M** has been admitted to the **DEGREE OF BACHELOR OF ENGINEERING** in **COMPUTER SCIENCE AND ENGINEERING** under the **FACULTY OF INFORMATION AND COMMUNICATION ENGINEERING**, having completed the prescribed programme of study and having been certified by the duly appointed examiners to be qualified to receive the same, and has been placed in **FIRST CLASS** at the Examination held in **APRIL 2011**.



Given under the seal of the University

TIRUNELVELI-627 007
INDIA
February 2012


Controller of Examinations i/c


Registrar i/c


Vice-Chancellor

ANNA UNIVERSITY, CHENNAI - 600 025



PROVISIONAL CERTIFICATE

Folio No.: **AUCD307882**

This is to certify that the following candidate has qualified for the award of Degree as detailed below:

Name : **SHENBAGAVALLI M**

Registration Number : **412711405016**

Degree : **M.E.**

Branch/Specialization : **Computer Science and Engineering**

Month and Year of Passing : **June 2013**

Classification : **FIRST CLASS**



Controller of Examinations

Chennai - 600 025

Date: **19/08/2013**
SI03081954532M

அரசுத் தேர்வுகள் துறை, சென்னை - 600 006.

DEPARTMENT OF GOVERNMENT EXAMINATIONS, CHENNAI - 600 006.

இடைநிலைக் கல்வி பள்ளி இறுதி வகுப்புச் சான்றிதழ்
SECONDARY SCHOOL LEAVING CERTIFICATE

பத்தாம் வகுப்பு

X STANDARD

தமிழ்நாடு அரசின் அதிகாரத்திற்கு உட்பட்டு வழங்கப்படுகிறது
ISSUED UNDER THE AUTHORITY OF THE GOVERNMENT OF TAMILNADU

தேர்வர் SHENBAGAVALLI. M

MAR. 2005 இல்

பத்தாம் வகுப்புப் பொதுத் தேர்வெழுதிக் கீழ்க்காணும் விழுக்காட்டு மதிப்பெண்களைப் பெற்றுள்ளார் என்று சான்றளிக்கப்படுகிறது.

Certified that the above mentioned candidate appeared for the SSLC Public Examination and obtained the following percentage of marks :

பாடம் SUBJECT	மதிப்பெண் MARKS
மொழி LANGUAGE	94 NINE FOUR
ஆங்கிலம் ENGLISH	81 EIGHT ONE
கணிதம் MATHEMATICS	98 NINE EIGHT
அறிவியல் SCIENCE	94 NINE FOUR
சமூக அறிவியல் SOCIAL SCIENCE	72 SEVEN TWO
மொத்தம் TOTAL	439 FOUR THREE NINE

பிறந்த நாள் / DATE OF BIRTH 09.04.1990	பதிவேண் / REGISTER NO. 069122	ம.அ.ப.குறியிட.கொட்பெண் & நாள் / MTR CODE NO. & DATE A058066 04.06.2005
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பள்ளியின் பெயர் / SCHOOL

THE L M HSS KOVILPATTI

பத்தாம் வகுப்புத் தேர்வில் தேர்ச்சி பெற ஒவ்வொரு பாடத்திலும், 100க்குக் குறைய அளவு முப்பத்தைந்து விழுக்காடு மதிப்பெண் பெறுதல் வேண்டும். இது பகுதி முறையில் தேர்வு எழுதித் தேர்ச்சி பெறுவதற்கும் பொருந்தும்.

A PASS IN THE SSLC (X STD.) EXAMINATION REQUIRES A MINIMUM OF THIRTY FIVE PERCENT OF MARKS IN EACH ONE OF THE FIVE SUBJECT. THIS INCLUDES PASSING UNDER THE COMPARTMENTAL SYSTEM ALSO.

M. Shenbagavalli
தேர்வரின் ஒப்பம்
Candidate's Signature

SSLC

சென்னை
- செயலாளர்
மாநிலப் பள்ளித்தேர்வுகள் குழுமம், தமிழ்நாடு
SECRETARY
STATE BOARD OF SCHOOL EXAMINATIONS, TAMILNADU

அரசுத் தேர்வுகள் துறை, சென்னை - 600 006
DEPARTMENT OF GOVERNMENT EXAMINATIONS, CHENNAI - 600 006

மேனிலைப் பள்ளிக் கல்விச் சான்றிதழ்
HIGHER SECONDARY COURSE CERTIFICATE

பொதுக்கல்வி / GENERAL EDUCATION

தமிழ்நாடு அரசின் அதிகாரத்திற்கு உட்பட்டு வழங்கப்படுகிறது

ISSUED UNDER THE AUTHORITY OF THE GOVERNMENT OF TAMILNADU

தேர்வர் SHENBAGAVALLI M

MAR. 2007

இல்

மேனிலைப் பள்ளி இறுதி வகுப்புப் பொதுத் தேர்வுவழி கீழ்க்காணும் மதிப்பெண்களைப் பெற்றுள்ளார் என்று சான்றளிக்கப்படுகிறது.

Certified that the above mentioned candidate appeared for the Higher Secondary Public Examination and obtained the following marks :

பாடம் SUBJECT	கருத்தியல் THEORY 150	செய்முறை PRAC. 50	பெற்ற மதிப்பெண் 200 க்கு MARKS OBTAINED FOR 200	
TAMIL			170 ONE	SEVEN ZERO
ENGLISH			146 ONE	FOUR SIX
PHYSICS	114	050	164 ONE	SIX FOUR
CHEMISTRY	088	050	138 ONE	THREE EIGHT
BIOLOGY	062	050	112 ONE	ONE TWO
MATHEMATICS			172 ONE	SEVEN TWO

மொத்த மதிப்பெண்

0902 ZERO NINE ZERO TWO

TOTAL MARKS

பிறந்த நாள் / DATE OF BIRTH

09/04/90

பதிவேண் / REGISTER NO.

148878

ம.அ.ப. குறியீட்டெண் & நாள் / TMR CODE NO. & DATE

6039359 14.05.2007

பள்ளியின் பெயர் / NAME OF THE SCHOOL

THE L M HSS KOVILPATTI

பாடத் தொகுப்பு எண் / GROUP CODE

103

தேர்ச்சிக்கான குறைம அளவு : ஒவ்வொரு பாடத்திலும், 200க்கு 70 மதிப்பெண் பெறவேண்டும். இது பகுதி முறையில் தேர்வுவழித் தேர்ச்சி பெறுவதற்கும் பொருத்தும். கருத்தியல் மற்றும் செய்முறைத் தேர்வுகள் கொண்ட பாடங்களில் தேர்ச்சி பெற கருத்தியல் தேர்வில் 150க்குக் குறைம அளவு 30 மதிப்பெண்களும், செய்முறைத் தேர்வில் 50க்குக் குறைம அளவு 40 மதிப்பெண்களும் பெறவேண்டும்.

Minimum for a Pass: 70 Marks out of 200 in each subject. This includes passing under the compartmental system also. For the subjects consisting of Theory and Practical Examinations Minimum Marks for a Pass is 30 out of 150 in Theory and 40 out of 50 in Practical.

M. Shenbagavalli

தேர்வரின் ஒப்பம்
Candidate's Signature

J. J. J.

மாநிலப் பள்ளித் தேர்வுகள் குழுவும், தமிழ்நாடு
SECRETARY
STATE BOARD OF SCHOOL EXAMINATIONS, TAMILNADU



ANNA UNIVERSITY OF TECHNOLOGY TIRUNELVELI

TIRUNELVELI - 627 007

B.E. DEGREE EXAMINATIONS

CONSOLIDATED STATEMENT OF MARKS

Folio No: HUG0701416

CANDIDATE	REGISTER NO.		SUBJECT TITLE	SEM. NO.	SUBJECT CODE	MONTH & YEAR OF PASSING	MARKS SECURED	MIN.	MAX.	SUBJECT TITLE	MAX.	MIN.	MARKS SECURED	MONTH & YEAR OF PASSING
	SHENBAGAVALLM	95507104074												
STUDY	MONTH & YEAR OF LAST APPEARANCE		SUBJECT TITLE	SEM. NO.	SUBJECT CODE	MONTH & YEAR OF PASSING	MARKS SECURED	MIN.	MAX.	SUBJECT TITLE	MAX.	MIN.	MARKS SECURED	MONTH & YEAR OF PASSING
& BRANCH	APRIL 2011													
REGULATIONS: 2007														
UBJECT CODE	SUBJECT TITLE	MAX.	MIN.	MARKS SECURED	MONTH & YEAR OF PASSING	SEM. NO.	SUBJECT CODE	SUBJECT TITLE	MAX.	MIN.	MARKS SECURED	MONTH & YEAR OF PASSING		
CY101	Engineering Chemistry	100	50	053	JAN 2008	05	CS1303	Theory of Computation	100	50	070	DEC 2009		
GE102	Engineering Graphics	100	50	056	JAN 2008	05	CS1304	Microprocessors & Micro controllers Network Lab	100	50	064	DEC 2009		
GE104	Fundamentals of Computing	100	50	057	JAN 2008	05	CS1305	Microprocessors & Micro controllers Lab	100	50	097	DEC 2009		
GE107	Engineering Practise Lab	100	50	088	JAN 2008	05	CS1306	DBMS Lab	100	50	086	DEC 2009		
HS106	Technical English - I	100	50	061	JAN 2008	05	CS1307	Communication Skills and Seminar	100	50	089	DEC 2009		
MA105	Mathematics - I	100	50	065	JAN 2008	05	MA1256	Discrete Mathematics	100	50	074	DEC 2009		
PCP108	Physics & Chemistry Lab	100	50	090	JAN 2008	05	MG1351	Principles of Management	100	50	055	DEC 2009		
PH103	Engineering Physics - I	100	50	071	JAN 2008	05	CS1004	Data Warehousing and Mining	100	50	057	DEC 2009		
CY201	Engineering Chemistry - II	100	50	053	MAY 2008	06	CS1352	Principles of Compiler Design	100	50	076	JUN 2010		
GE202	Basic Engineering	100	50	053	MAY 2008	06	CS1353	Software Engineering	100	50	056	JUN 2010		
GE204	Engineering Mechanics	100	50	069	MAY 2008	06	CS1354	Graphics and Multimedia	100	50	065	JUN 2010		
GE208	Computer Laboratory	100	50	078	MAY 2008	06	CS1355	Graphics and Multimedia Lab	100	50	069	JUN 2010		
HS206	Technical English - II	100	50	077	MAY 2008	06	CS1356	Compiler Design Lab	100	50	097	JUN 2010		
MA205	Mathematics - II	100	50	057	MAY 2008	06	GE1351	Presentation Skills and Technical Seminar	100	50	088	JUN 2010		
ML207	Engineering Drawing Laboratory	100	50	088	MAY 2008	06	IT1252	Digital Signal Processing	100	50	069	JUN 2010		
PC P209	Physics and Chemistry Laboratory - II	100	50	086	MAY 2008	06	MA1251	Numerical Methods	100	50	081	JUN 2010		
PH203	Engineering Physics - II	100	50	068	MAY 2008	06	CS1014	Information Security	100	50	071	DEC 2010		
CS1151	Data Structures	100	50	064	DEC 2008	07	CS1015	User Interface Design	100	50	059	DEC 2010		
CS1152	Data Structures Lab	100	50	065	DEC 2008	07	CS1351	Artificial Intelligence	100	50	057	DEC 2010		
CS1202	Electronic Circuits and Digital Systems.	100	50	054	DEC 2008	07	CS1401	Internet Programming	100	50	069	DEC 2010		
CS1203	System Software	100	50	058	DEC 2008	07	CS1402	Object Oriented Analysis and Design	100	50	060	DEC 2010		
CS1204	Object Oriented Programming	100	50	052	DEC 2008	07	CS1403	Case Tools Lab	100	50	093	DEC 2010		
CS1205	Object Oriented Programming Lab	100	50	085	DEC 2008	07	CS1404	Internet Programming Lab	100	50	097	DEC 2010		
CS1206	Electronic Circuits and Digital Systems Lab	100	50	096	DEC 2008	07	IT1352	Cryptography and Network Security	100	50	060	DEC 2010		
CY1201	Environmental Science and Engineering	100	50	063	DEC 2008	07	CS1020	Software Quality Management	100	50	071	APR 2011		
GE1202	Communication Skills & Technical Seminar - I	100	50	064	DEC 2008	08	CS1451	Project Work	100	100	195	APR 2011		
MA1201	Mathematics III	100	50	076	DEC 2008	08	CS1452	Comprehension	100	50	099	APR 2011		
CS1201	Design and Analysis of Algorithms	100	50	063	MAY 2009	08	EC1008	High Speed Networks	100	50	072	APR 2011		
CS1207	System Software Lab	100	50	078	MAY 2009	08	IT1402	Mobile Computing	100	50	055	APR 2011		
CS1251	Computer Architecture	100	50	070	MAY 2009	08	**** End of Statement****							
CS1252	Operating Systems	100	50	056	MAY 2009	08	Classification : FIRST CLASS							
CS1253	Visual Programming	100	50	054	MAY 2009	08	Total Marks (from 3rd to 8th semester) : 3857 / 5300							
CS1254	Operating Systems Lab	100	50	081	MAY 2009	08	Percentage(rounded to nearest integer): 73							
CS1255	Visual Programming Lab	100	50	082	MAY 2009	08								
EC1291	Analog and Digital Communication	100	50	073	MAY 2009	08								
GE1251	Communication skills and Technical Seminar-II	100	50	084	MAY 2009	08								
MA1252	Probability and Queuing Theory	100	50	062	MAY 2009	08								
CS1301	Database Management Systems	100	50	063	DEC 2009	08								
CS1302	Computer Networks	100	50	066	DEC 2009	08								



* Previously Anna University Tirunelveli

Signature of the Student

M. G. G. G.

CONTROLLER OF EXAMINATIONS



ANNA UNIVERSITY, CHENNAI - 25
M.E. DEGREE EXAMINATIONS
CONSOLIDATED STATEMENT OF GRADES

S103081954532M

Folio No. AUCD307882



NAME OF THE CANDIDATE	SHENBAGAVALLI M			REGISTER NO.	412711405016
DATE OF BIRTH	09-APR-90	GENDER	FEMALE	MONTH & YEAR OF LAST APPEARANCE	JUN 2013
COLLEGE OF STUDY	TAGORE ENGINEERING COLLEGE			REGULATIONS	2009
PROGRAMME & SPECIALIZATION	M.E. Computer Science and Engineering				

SEM. NO.	COURSE CODE	COURSE TITLE	CREDITS	LETTER GRADE	GRADE POINT	MONTH & YEAR OF PASSING
01	CS9211	Computer Architecture	3	B	8	JAN 2012
01	CS9212	Data Structures and Algorithms	3	C	7	JAN 2012
01	CS9213	Computer Networks and Management	3	B	8	JAN 2012
01	MA9219	Operations Research	4	D	6	JAN 2012
01	SE9213	Object Oriented Software Engineering	3	D	6	JAN 2012
01	CS9215	Data Structures Laboratory	2	S	10	JAN 2012
01	CS9216	Networking Laboratory	2	S	10	JAN 2012
02	CS9221	Data Base Technology	3	C	7	JUN 2012
02	CS9222	Advanced Operating Systems	3	B	8	JUN 2012
02	CS9223	Advanced System Software	3	B	8	JUN 2012
02	CS9224	Information Security	3	C	7	JUN 2012
02	CS9225	Web Technology	3	B	8	JUN 2012
02	CS9263	Adhoc Networks	3	C	7	JUN 2012
02	CS9227	Operating System Lab	2	S	10	JUN 2012
02	CS9228	Web Technology Lab	2	S	10	JUN 2012
03	CS9251	Mobile Computing	3	B	8	NOV 2012
03	CS9264	Data Warehousing and Data Mining	3	B	8	NOV 2012
03	CS9269	Software Project Management	3	C	7	NOV 2012
03	CS9234	Project Work (Phase I)	6	S	10	NOV 2012
04	CS9241	Project Work (Phase II)	12	S	10	JUN 2013

*** End of Statement ***

Cumulative Grade Point Average : 8.33

Classification : FIRST CLASS





TAGORE ENGINEERING COLLEGE

Approved by All India Council for Technical Education and Government of Tamilnadu
 Affiliated to Anna University
 (Accredited by NBA & NAAC)
 Rathinamangalam, Vandalur Post, Chennai - 600 048.

TRANSFER CERTIFICATE

1. Name of the Student : Ms. SHENBAGAVALLI M
2. Department/Reg.no : COMPUTER SCIENCE AND
ENGG
412711405016
3. Name of the Parent/guardian : Mr. I MURUGAN
4. Nationality, Religion & Caste : INDIAN-HINDU-VEERAKODI
VELLALAR (BC)
5. Date of Birth (in words & Figures as
entered in the admission Register) : 09/04/1990 (NINETH APRIL
NINETEEN NINETY)
6. Date of Admission to this college : 07/09/2011
7. Medium of Instruction : ENGLISH/TAMIL
8. Course and Year / Semester to
which he / she was admitted : M.E. FIRST YEAR
9. Class in which the student was
studying at the time of Leaving : M.E. FINAL YEAR
10. Whether qualified for promotion to a
higher class : REFER MARK SHEETS
11. Date on which the student
actually left the college : 12/07/2013
12. Date on which application for Transfer
Certificate was made by the student or
parent / guardian : 12/07/2013
13. Date of Issue of Transfer Certificate : 17/07/2013
14. Reason for leaving the College : COURSE COMPLETED
15. Conduct : GOOD




PRINCIPAL
 TAGORE ENGINEERING COLLEGE

**F
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KALASALINGAM

Academy of Research and Education

UNIVERSITY

Estd. U/S 3 of UGC Act 1956. Accredited by NAAC with "A" Grade



M. SHENBAGAVALLI

TEACHING ASSISTANT

Computer Science and Engineering



* 1 4 C S E F T A 0 1 *

[Signature]
Vice-Chancellor

Date of Birth : 09.04.1990

Blood Group : B+

Communication Address

W/o. Mr. S.M. Shunmuga Sundram
Ps02, NOP Dhanya Block
Agrini Apartment, Andalpuram
Madurai
Tamilnadu.

Pin Code - 625003

Number : 9487385019

030

**KLU
BUS PASS
MDU**

**KLU-BUS
MADURAI**

T

KALASALINGAM UNIVERSITY

Kalasalingam Academy of Research and Education
Anand Nagar, Krishnankoil - 626 126
Srivilliputtur (Via), Virudhunagar District, Tamil Nadu.
Ph : 04563 289012 / 42 Fax : 04563 289322
e-mail : info@kalasalingam.ac.in
website : www.kalasalingam.ac.in

*If found, Please return to the above address

आयकर विभाग
INCOME TAX DEPARTMENT
M SHENBAGAVALLI
MURUGAN
09/04/1990
Permanent Account Number
CSAPS7450N
M. Shenbagavalli
Signature

भारत सरकार
GOVT OF INDIA
भारत सरकार



28/04/2010

यदि कार्ड खोया / यादों पर कृपया सुरक्षित करें / नोटिस।
आयकर विभाग के कार्ड, एन एनटी सी यू
सीसीटी आर सीसी, आयकर विभाग,
कानून टैलरिंग एंड रिपैरिंग के नजारे,
बानेर, पुणे - 411 045

If this card is lost / someone's lost card is found,
please inform / return to:
Income Tax PAN Services Unit, NSDL,
3rd Floor, Pappaloo Chambers,
Near Baner Telephone Exchange,
Baner, Pune - 411 045

Tel: 91-20-2721 8080, Fax: 91-20-2721 8081
e-mail: tininfo@nsdl.co.in

M. Shenbagavalli



India Driving Licence (Tamilnadu)

Form - 7

D.O.I. 06/06/2006

D.L. No : F/TN/69Z/001227/2006

Name : M.Shenbagavalli

S/D/W of: I.Murugan

Address :

274 Ramaiahnagar

Kovilpatti



D.O.B. : 09/04/1990 B.G.:

Endorsement

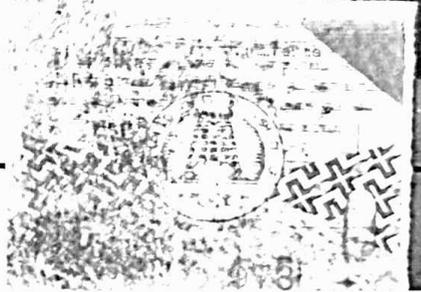
1

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Licensed to drive throughout India, vehicles of the following description and valid upto 05/06/2026
MC<50 -06/06/2006/TN/69Z

M. Shenbagavalli
Signature/L.T.I.
of the Holder

[Signature]
Asst.Licensing Authority
Kovilpatti Unit Office

[Signature]
6/6

R.Dis. 28/8/2004 dt.

BC



மாவட்டக் குறியீடு எண் :
District Code :
மாவட்டக் குறியீடு எண் :
Taluk Code :
கிராமக் குறியீடு எண் :
Village Code :

1	9
0	5
0	3
	9

சான்றிதழ் எண் :
Certificate No. :

4745512

**சாதிச் சான்றிதழ்
COMMUNITY CERTIFICATE**

தூத்துக்குடி மாவட்டம் **கோவில்பட்டி** வட்டம்
கோவில்பட்டி கிராமம்/நகரம், திரு / திருமதி / செல்வி /
செல்வன் / செல்வன் / செல்வன்
பெயர் **முருகன்** தகவலளிப்பவரின் பெயர்

திரு. சீரவேல் வெள்ளை

மதுரைச் சாந்தவர், அரசு ஆணை நம்ப எண் 28, பிற்பட்ட மற்றும்
மிகவும் பிற்பட்ட பிரிவின் கீழ் துறை நாள 19/7/94 அறிவு எண் 95 படி,
பிற்பட்ட பிரிவினரை சாந்தவர் எனச் சான்றிக்கொடுக்கிறது.

This is to certify that **SHENBAGAVALLI . M** Son / Daughter
of Thiru **MURUGAN** of **KOVILPATTI**
Village / Town, **KOVILPATTI** Taluk,

THOOTHUKUDI District of the State of Tamil Nadu belongs to
HINDU VIRAKODI VELLALA Community, which is recognised as
a Backward Class as per Government Order (Ms.) No. 28, Backward Classes
and Most Backward Classes Welfare, dated 19th July 1994.
vide Serial No. **095**

2. திரு / திருமதி / செல்வன் / செல்வி **செல்வன்**
மதுரை அமைதியான குடியேற்றம் தர நிபுணர் **தூத்துக்குடி**
மாவட்டத்தில் **கோவில்பட்டி** வட்டத்தில் **கோவில்பட்டி**
கிராமத்தில் / நகரத்தில் அகிந்து வந்திரார்கள் எனச் சான்றிக்கொடுக்கிறது.

2. It is certified that Thiru/Tmt/Selvan/Selvi **SHENBAGAVALLI . M**
his/her family ordinarily reside(s) at **KOVILPATTI** Village/
Town **KOVILPATTI** Taluk **THOOTHUKUDI** District of
Tamil Nadu.



கையொப்பம் :
Signature :

நாள் :
Date :

பெயர் (அகர எழுத்துக்களில்)
Name (in Capital Letters)

தலைப்பு :
Designation :

சுமதி வெள்ளை
கோவில்பட்டி

சுமதி வெள்ளை