



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

APPLICATION FOR ADMISSION TO Ph.D. PROGRAMMES

Date of Application:24-06-2020

Department	ELECTRONICS AND COMMUNICATION ENGINEERING	Application No.	20200125
Area of Research	MEDICAL IMAGE PROCESSING	Research Mode	PART TIME

Name :S K RAJEEV
Date of Birth / Age :19-01-1981 / 39 Years
Gender :MALE
Category :OBC
e-Mail ID :mail2skrajeev@gmail.com
Mobile :9446249043



Father's/Husband's Name	K V SASIDHARAN	Father's/Husband's Occupation	RETD. GOVT. SERVANT
Family Income	500000	Residential Type	URBAN
Birth Place	KOLLAM	Mother Tongue	MALAYALAM
Religion	HINDU	Martial Status	MARRIED
Aadhaar No.	356175768096	PAN No.	ATLPR8665C
Physically Challenged	NO	Type of Disability	-
Address for Communication: ASHIANA, MALAYALAM NAGAR - 48 TKM COLLEGE (PO) KOLLAM KOLLAM DISTRICT KERALA INDIA Pin-691005		Permenant Address: ASHIANA, MALAYALAM NAGAR - 48 TKM COLLEGE (PO) KOLLAM KOLLAM DISTRICT KERALA INDIA Pin-691005	

Qualification						
Degree	Discipline	College/university	Year Passed	AVG/CGPA	Class	Mode
B.TECH	APPLIED ELECTRONICS AND INSTRUMENTATION	KERALA UNIVERSITY	2002	62.9	FIRST	REGULAR
M.E	APPLIED ELECTRONICS	ANNA UNIVERSITY	2009	76	FIRST	REGULAR

Experience				
Organization	Designation	Experience From	Experience TO	Work Nature
YOUNUS COLLEGE OF ENGINEERING AND TECHNOLOGY	ASSOCIATE PROFESSOR	2005-06-15	2020-06-22	TEACHING

Payment Details				
Transaction ID	Reference	Date of transaction	Amount	Status
20200125_200624222101	SHMP8929512252	24-06-2020	600	SUCCESS

RESEARCH PROPOSAL

According to world health organization's statistics, cancer is considered as the second leading cause of human fatalities across the world, being responsible for an estimated 9.6 million deaths in this year. Among different type of cancers, brain tumor is widely seen as one of the deadliest cancers due to its aggressive nature, heterogeneous characteristics (types), and low relative survival rate (e.g., in US relative survival rate following a diagnosis of a primary malignant brain tumor is around 35%).

Brain tumor is referred to the aggregation of abnormal cells in some tissues of the brain or central spine canal. The term "tumor," which literally means swelling, can be applied to any pathological process that produces a lump or mass in the body. Primary brain tumors and metastatic brain tumors form the two basic kinds of tumors. Primary brain tumors start and stay in the brain itself whereas metastatic brain tumors begin as cancer in different parts of the body and then spread to the brain. Tumors can be cancerous (or malignant) or noncancerous (or benign). Malignant brain tumors grow fast and spread to other areas of the brain and spine and compared to benign tumors, they are more life-threatening.

The World Health Organization (WHO) classifies brain tumors by cell origin and behavior, from least to most aggressive. Many non-malignant brain tumors are classified as Grade I or II, also known as low grade (LG) tumors, and malignant tumors as Grade III or IV, as high grade (HG). While HG tumors are threatening with a maximum life expectancy of two years, LG tumors may allow the sufferer to have many years of life expectancy. A tumor which occurs in the brain or spinal cord is called as glioma and the tumor that arises from the meninges is called as meningioma. The abnormal cell growth in the pituitary gland is observed as pituitary tumor.

The American Cancer Society's estimates for brain and spinal cord tumors in the United States for 2020 include both adults and children.

- About 23,890 malignant tumors of the brain or spinal cord (13,590 in males and 10,300 in females) will be diagnosed. These numbers would be much higher if benign (non-cancer) tumors were also included.
- About 18,020 people (10,190 males and 7,830 females) will die from brain and spinal cord tumors.

This cancer can drastically influence the quality of life, for both patients and their families. The key factor in treating brain cancer and increasing its survivability rate is early diagnosis and correctly determining its type.

Since manual segmentation of brain tumors is a highly time-consuming, expensive and subjective task, Brain tumor segmentation is a critical step towards improving disease diagnosis, treatment planning, monitoring and clinical trials. Reliable brain tumor segmentation is required to detect the location and also the extent of the tumor. However, brain tumors have properties that make their accurate segmentation challenging. These tumors are highly heterogeneous in terms of location, shape, texture and size. In addition, they are usually poorly contrasted and the intensity value of a tumor may overlap with the intensity value of healthy brain tissue. Therefore, it is not easy to distinguish healthy tissue from the tumor.

The early brain tumor detection plays a major role in treatment and recovery of the patient. For medical image diagnosis, the images can be obtained from various imaging modalities namely Positron Emission Tomography (PET), Magnetic Resonance Imaging (MRI) and Computed Tomography (CT). Among different screening technologies, Magnetic Resonance Imaging (MRI) is, typically, selected as the utilized technique for brain tumor classification, due to the high resolution images it can provide on brain tissue and MRI is harmless because it is based on magnetic field and radio waves and do not pose any radiation hazard to human body. However, cancer type recognition based on MRI images is a challenging, error-prone, and time-consuming procedure, as it highly depends on the experience of the radiologist, and more importantly, there may not be enough visible landmarks in the image to contribute to an accurate decision. Segmentation methods includes a range of approaches based on

classification using extracted features, level set methods, Markov random field (MRF) methods, fuzzy c-means (FCM), k-nearest neighbor (KNN) and region growing.

Conventional MRI detects and localizes the proton signals from fat and water molecules to produce images. Proton MR Spectroscopy (MRS) measures the chemical spectrum of the tissue, where individual resonance peaks represent metabolite concentrations from a specific region. Hence, MR Spectroscopy can complement the anatomical information from conventional MRI to allow better tissue characterization. The most important and common MRS metabolites include N-acetyl aspartate (NAA), total choline compounds (Cho), total Creatine compounds (Cr), lipids, lactate, myoinositol, glutamate, and glutamine. Increased levels of Cho and decreased levels of NAA have been detected in malignant tumors. MR Spectroscopy is a promising non-invasive technique that provides both tumor metabolic information and insight into the physiology of malignant transformation in brain tumors. MRS spectra can be analyzed both qualitatively and quantitatively to distinguish between tissue conditions, i.e. normal, benign, malignant, necrotic or hypoxic.

The aim of the proposal is to extend the concept of deep learning networks to MR Spectroscopy to obtain super-resolution MR Spectroscopy Imaging (MRSI). Deep learning techniques can be used to remove artifacts so that the accuracy of the MRSI can be improved. Different deep learning models and architecture can be used to improve the accuracy, classification and prediction rate of the brain tumor. Deep learning techniques might provide super resolution MRSI images similar to MRI and using both MRI and MRS may help tailor treatment planning.

Rajeev S K
Associate Professor
YCET, Kollam

Register No. 22835

294153



FACULTY OF ENGINEERING & TECHNOLOGY

The Senate of the University of Kerala hereby makes known that

S. K. Rajeev

has been admitted to the

Degree of Bachelor of Technology under

Applied Electronics

& Instrumentation

Branch, he/she having been

certified by duly appointed examiners to be qualified to receive the same

and having been by them placed in the

First class

at the examination held in

April 2002

Given under the seal of the University.



University Buildings,

Thiruvananthapuram, May 5, 2003.

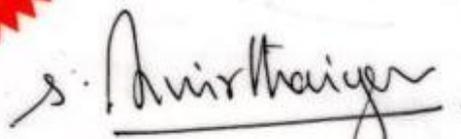
K. M.
Vice-Chancellor



The Syndicate of the ANNA UNIVERSITY TIRUNELVELI hereby makes known that RAJEEV S K has been admitted to the DEGREE OF MASTER OF ENGINEERING in APPLIED ELECTRONICS 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 MAY 2009.



Dated : 07-08-2010
TIRUNELVELI
INDIA


Controller of Examinations

Given under the Seal of the University


Registrar


Vice-Chancellor



UNIVERSITY OF KERALA

Book No.

1

Serial No.

37

EE II C



Thiruvananthapuram,

Register Number 22835

Dated 19 AUG 2002

MEMORANDUM

Rajeev . S . k

The following marks were awarded to Shri / Smt. _____
at the VIII Semester (Final) B. Tech. Degree Examination of April - May / October -
November 2002

Branch : Applied Electronics & Instrumentation Engineering.

Subject	Marks Awarded		
	Written	Sessional	Total
A. Modern Control Theory	62	36	98
B. Digital Instrumentation Techniques	44	37	81
C. Computerised Process Control	72	31	103
D. Optical Instrumentation	63	35	98
E. Micro Controller Based Instrumentation	59	35	94
F. Elective II <i>Artificial Neural Network</i>	48	36	84
G. Process Control Lab.	58	38	96
H. Project & Viva-Voce	91	30	121
Grand Total			775
Carry over of marks I to VII Semesters			4634
Aggregate			5409
In words		<i>Five, Four, Zero, Nine</i>	

Maximum Marks : 100 for Written / Practical and 50 for Sessional for each subject (1200 marks)

Pass Minimum : In whole appearance Complete Pass : 40% of Written / Practical of each subject and 50% of the aggregate (ie. 600 marks) Pass in individual subject(s): 40% of Written / Practical and 50% of the total marks of each subject. Aggregate Maximum 8600.

Prepared by _____

Compared by _____

Section Officer _____

Assistant Registrar _____

K. U. P. 172/2002-03 100 x 15 Bks.

[Signature]
CONTROLLER OF EXAMINATIONS



ANNA UNIVERSITY TIRUNELVELI



DEGREE EXAMINATIONS

CONSOLIDATED STATEMENT OF MARKS

Folio No. : D07000471

NAME OF THE CANDIDATE	RAJEEV.S K	REGISTER NO.	96307401005
COLLEGE OF STUDY	NOORUL ISLAM COLLEGE OF ENGINEERING	MONTH & YEAR OF LAST APPEARANCE	MAY 2009
PROGRAMME & BRANCH	M.E. - Applied Electronics	REGULATIONS	2007

SEM. NO.	SUBJECT CODE	SUBJECT TITLE	MAX	MIN	MARKS SECURED	MONTH & YEAR OF PASSING
01	MA1616A	Applied Mathematics for Electronics Engineers	100	050	060	JAN 2008
01	AN1622	Neural Networks and Applications	100	050	066	JAN 2008
01	AN1605	Electronics Design Lab - I	100	050	099	JAN 2008
01	AN1604	Advanced Microprocessors and Micro Controllers	100	050	058	JAN 2008
01	AN1603	VLSI Design Techniques	100	050	067	JAN 2008
01	AN1601	Advanced Digital Signal Processing	100	050	080	MAY 2008
01	AN1602	Advanced Digital System Design	100	050	063	MAY 2008
02	AN1651	Analysis and Design of Analog Integrated Circuits	100	050	058	MAY 2008
02	AN1652	Computer Architecture and Parallel Processing	100	050	068	MAY 2008
02	AN1653	Digital Control Engineering	100	050	072	MAY 2008
02	AN1654	Embedded Systems	100	050	070	MAY 2008
02	AN1655	Electronic Design Lab II	100	050	098	MAY 2008
02	AN1628	Internetworking Multimedia	100	050	063	MAY 2008
02	AN1621	Digital Image Processing	100	050	064	MAY 2008
03	AN1630	High Performance Communication Networks	100	050	068	DEC 2008
03	AN1623	Robotics	100	050	079	DEC 2008
03	AN1625	ASIC Design	100	050	062	DEC 2008
04	AN1751	Project Work	600	300	564	MAY 2009

* End of Statement *

Classifications : FIRST CLASS

Total Marks : 1759 / 2300

Percentage (rounded to nearest integer) : 76

This document is issued without any correction
Medium of instruction : English

Tirunelveli - 627 007
Date : 07-Oct-2009

SIGNATURE OF THE STUDENT



S. Amirthalingam
For
CONTROLLER OF EXAMINATIONS

Book No.....36.....

Serial No.....1109.....

NOORUL ISLAM COLLEGE OF ENGINEERING



KUMARACOIL, POST BOX No.1, THUCKALAY
KANYAKUMARY DIST, (TAMIL NADU), Pin-629180

Approved by the A.I.C.T.E., Govt. of India

Accredited by National Board of Accreditation, AICTE, New Delhi

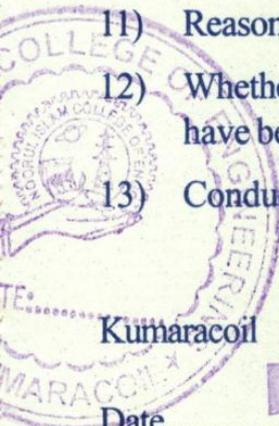
An I.S.O. Certified Institution and Accredited by Institution of Engineers (India)



Permanently affiliated to Anna University, Chennai

TRANSFER CERTIFICATE

- 1) Name of Student : RAJEEV. S. K.
- 2) Father's Name : Mr. K. V. Sasidharan
- 3) Community and religion : Hindu Ezhava.
- 4) Date of birth of student as entered in Admission register } : 19-01-1981 (Nineteenth - January - Nineteen Eighty one)
- 5) Admission number : 07RMAE105
- 6) Date of admission : 29-08-2007.
- 7) Course and branch of study in which admitted } : M.E (Applied Electronics)
- 8) Semester up to which the student studied in the college } : IV Semester.
- 9) Whether the student is eligible for promotion and if so to which higher Semester } : REFER MARKS STATEMENT
- 10) Date of leaving : June 2009
- 11) Reasons for leaving the college : COURSE COMPLETED
- 12) Whether all dues in the college have been paid : Yes.
- 13) Conduct and character : Good



Kumaracoil

2 DEC 2009

Date.....

(Seal)

Dr. A.K. Rath
21/12/2009
PRINCIPAL

Dr. A.K. RATH
Vice Principal (Administration)
Noorul islam College of Engineering
Kumaracoil - 629 180



YUNUS COLLEGE OF ENGINEERING & TECHNOLOGY

VADAKKEVILA P.O., KOLLAM - 691 010, PHONE : OFF : 0474 - 2724305, 2723292, FAX : 0474 - 2726055

E-mail : info@ycet.ac.in, infoycet@gmail.com

(Approved by A.I.C.T.E, Affiliated to APJ Abdul Kalam Technological University)

No. 09/Estt/YCET/2020

23RD JUNE, 2020.

EXPERIENCE CERTIFICATE

This is to certify that Sri. Rajeev S K residing at Ashiana, Malayalam Nagar -48, TKMC P.O, Kollam- 691005 has been working in this college from 15.06.2005 onwards. He is currently working as **Associate Professor** in the Dept. of Electronics & Communication Engineering.

He is efficient, honest, sincere and hardworking.

His conduct and character are excellent.

This certificate is issued on his request.



R/Keezay
25/6/2020

D. SUREKHAJ
PRINCIPAL
Younus College of Engineering
& Technology
Kollam - 691 010

आयकर विभाग

INCOME TAX DEPARTMENT



भारत सरकार

GOVT. OF INDIA

RAJEEV

SASIDHARAN

19/01/1981

Permanent Account Number

ATLPR8665C



Rajeev
Signature



ELECTION COMMISSION OF INDIA

ഇൻഡ്യ തെരഞ്ഞെടുപ്പ് കമ്മീഷൻ

IDENTITY CARD

തിരിച്ചറിയൽ കാർഡ്

DQK3060084



Elector's Name : Rajeev

സമ്മതിനായകന്റെ പേര് : രാജീവ്

Father's Name : Sasidharan

അച്ഛന്റെ പേര് : ശശിധരൻ

Sex: സ്ത്രീ/പുരുഷൻ : M / പു

Age as on 01-01-2007 : 25
വയസ്സ് 01-01-2007 ൽ : 25

Address : 256 (20/450)

DQK3060084

Ashyana

10,

Kollam Corporation

Pin code - 691005

വിലാസം : 256 (20/450)

ആഷ്യാന

10,

കൊല്ലം കോർപ്പറേഷൻ

പിൻ കോഡ് 691005

Electoral Registration Officer

ഇലക്ടറൽ രജിസ്ട്രേഷൻ ഓഫീസർ

Kollam LA Constituency

കൊല്ലം അസംബ്ളി നിയോജകമണ്ഡലം

Place : Kollam

സ്ഥലം : കൊല്ലം

Date / തീയതി : 04-04-2007

This card may be used as Identity Card under different Government Schemes

ഈ കാർഡ് വിവിധ സർക്കാർ പദ്ധതികൾക്കുള്ള തിരിച്ചറിയൽ കാർഡായി ഉപയോഗിക്കാവുന്നതാണ്

ANNEXURE-I

CERTIFICATE FROM THE ORGANISATION WHERE THE CANDIDATE IS EMPLOYED

Certified that Mr./Ms./Mrs. S.K. RAJEEV is employed as ASSOCIATE PROFESSOR (Designation) in the ELECTRONICS AND COMMUNICATIONAL ENGINEERING (Department/Division Name) of YOUNUS COLLEGE OF ENGINEERING AND TECHNOLOGY, KOLLAM (Institution/Industry Name).

We have no objection in forwarding his/her application for the Ph.D. Research Programme.

FOR FULL TIME:

The candidate will be sanctioned leave for the duration of the research programme and will be relieved from duty from _____ to _____ to undertake the full time research work in the University.

FOR PART TIME:

The candidate will be permitted to undertake part time study in the University/College and will be allowed to be present for discussions with the supervisor, attending course works, conduct of experiments and participations in seminars and related presentations. Further the required facilities at our organization will also be provided to the candidate for doing research.

Date: 22.06.2020

Signature of the Head of Organization with office seal
Younus College of Engineering

