

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM  
KARNATAKA, INDIA



*This is to certify that*  
*Manjunatha D V*  
*has been conferred the Degree of*  
**Doctor of Philosophy**

*in*

Faculty of Electrical and Electronics Engineering Sciences

*for the thesis entitled*

Design of Motion Estimation Algorithm for Video Codec With  
VLSI Implementation

*in recognition of the fulfillment of requirements*  
*for the said degree*

PH 000432  
13

Given under the seal of the University

USN: 1NH08PEN01

  
PRINCIPAL

Alva's Institute of Enng. & Technology,  
Mijur, MOODBIDRI - 574 225, B.K.

BELGAUM  
DATE MAY 09 2015

PRINCIPAL  
Alva's Institute of Enng. & Technology,  
Mijur, MOODBIDRI - 574 225, B.K.

  
VICE CHANCELLOR

## Candidate Application Form

### APPLICATION FORM FOR Ph.D/M.Sc (Engg) by Research

<b>Step - 1</b>  <b>Candidate</b>	<b>Step - 2</b>  <b>Supervisor</b>	<b>Step - 3</b>  <b>Co-Supervisor</b>	<b>Step - 4</b>  <b>Submit Form</b>
--------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------

 Student Name: **ARJUN SUNIL RAO** | Status: | App.#: **2463** | USN: **4AL18PEC01**

### Candidate Details

In this page provide details related to candidate

**Registration Type**

Fresh Registration

**Full Name**

ARJUN SUNIL RAO

**Date of Birth**

08-Oct-1992

**Gender**

Male

**Nationality**

Indian

**Mobile No.**

8123847327

**Aadhaar No.**

576655624181

**Email Address**

arjunsr92@gmail.com

**Father/Husband Name**

Sunil R Rao

**Correspondence Address**

 Arjun S Rao  
 S/o Sunil R Rao  
 Arjun House,  
 Opp. Pinto complex,  
 Near Prathvi Nursing home

**Photo**

1. Please note, image with file size more than 1MB will not be considered
2. Only JPG file extensions are allowed
3. Upload photo with width=200 and height=200 pixels



Choose File No file chosen

**Type**

Full Time

**Program**

Ph.D

**Faculty**

Engineering

**Category**

GM

**Details, if physically challenged**

Nil

**Academic Qualification**

Program	Course Details	Type	Exam	Passing Year
UG	<b>Degree</b> B.E <input type="text" value="if other"/>	Full Time	<b>% of Marks</b> 67.50 Or <b>CGPA</b>	2014
	<b>Specialization</b> Electronics & Communication Engg.			
	<b>University Name</b> Visvesvaraya Technological University			
PG	<b>Degree</b> M.Tech <input type="text" value="if other"/>	Full Time	<b>% of Marks</b> 76.55 Or <b>CGPA</b>	2016
	<b>Specialization</b> Solid State Electronics			
	<b>University Name</b> Visvesvaraya Technological University			

Program	Course Details	Type	Exam	Passing Year
Other	Degree <input type="text"/> Specialization <input type="text"/> University Name <input type="text"/>	<input type="text"/>	% of Marks <input type="text"/> Or CGPA <input type="text"/>	<input type="text"/>

Total Number of experience in years

Total Number of

Industry

Teaching

Research

Research Papers

Patents

Awards

0

0

1

0

0

0

Tentative title of the proposed research topic

Design, Fabrication and Characterization of micro Direct Methanol Fuel Cell.

**Research Center Details**

College Name

ALVAS INST. OF ENGG. AND TECHNOLOGY,MOODABIDRI,MOOD/

Department/Programme Stream Applied for

Electronics and Communication

Preferred region to attend entrance test

Bangalore

Is Change of University?

No

**Application Processing Fee Details**

Date Paid

D.D/Transaction Ref.No

Name of the Bank

Academic Year

10-Oct-2017

132007

Canara Bank

2017

**Exemption from VTU Entrance Test**

(Please note, you will be excluded from the entrance test if you fill the information for this section and failing to produce proper documents at the time of interview may result in rejection of Ph.D registration.)

Are you faculty selected under QIP/FIP?

No

Have you qualified in following tests?

VTU-ETR

(Leave blank is none)

M.Phil Degree or equivalent as recognized by the University?

(Leave blank is none)

Seat Number

BL16PHEL029

(must if you are qualified in any test)

The below table is showing you the number of documents you need to upload. Please make sure they are scanned after all mandatory seal and signatures.

**Important instructions to follow**

- Please prefix the file name with the corresponding document number (like this: 2\_All\_Degree\_Certificates.pdf) by referring table below
- On your computer, put all files in a folder named "MyProfile" and "zip" it
- Please make sure the zipped file should not be bigger than 50MB
- Only after properly performing all above instructions, choose the zip file and click "Save".

 No file chosen

Currently Uploaded: 2463\_10102017063513PM\_My Profile.zip

Upload the attested scanned copies of the following in the order specified below.

## Candidate Application Form

### APPLICATION FORM FOR Ph.D/M.Sc (Engg) by Research

<b>Step - 1</b>  <b>Candidate</b>	<b>Step - 2</b>  <b>Supervisor</b>	<b>Step - 3</b>  <b>Co-Supervisor</b>	<b>Step - 4</b>  <b>Submit Form</b>
--------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------

Student Name: **NIJU RAJAN** | Status: | App.#: **5954** | Hall Ticket: **ETR185954** | USN: **4AL19PEC01**

### Candidate Details

In this page provide details related to candidate

#### Registration Type

Fresh Registration

#### Full Name

NIJU RAJAN

#### Date of Birth

03-Jan-1984

#### Gender

Female

#### Nationality

Indian

#### Mobile No.

9844709321

#### Aadhaar No.

637517735700

#### Email Address

nijurajan@rediffmail.com

#### Father/Husband Name

PRAN V R

#### Correspondence Address

#301, A- Block, NET Staff Quarters, NET Campus, Nitte-574110

#### Photo

1. Please note, image with file size more than 1MB will not be considered
2. Only JPG file extensions are allowed
3. Upload photo with width=200 and height=200 pixels



Choose File No file chosen

#### Type

Part Time

#### Program

Ph.D

#### Faculty

Engineering

#### Category

GM

#### Details, if physically challenged

#### Academic Qualification

Program	Course Details	Type	Exam	Passing Year
UG	Degree B.Tech <input type="text" value="if other"/>	Full Time	% of Marks 62.00	2006
	Specialization Electronics & Communication Engg.		Or CGPA	
	University Name University Of Kerala			
PG	Degree M.Tech <input type="text" value="if other"/>	Full Time	% of Marks 72.00	2013
	Specialization Microelectronics And Control Systems		Or CGPA	
	University Name Visvesvaraya Technological University, Belagavi			

Program	Course Details	Type	Exam	Passing Year
Other	Degree Specialization University Name		% of Marks Or CGPA	

Total Number of experience in years			Total Number of		
Industry	Teaching	Research	Research Papers	Patents	Awards
0	11	0	9	0	0

**Tentative title of the proposed research topic**

Design and Development of 2D nanostructured metal oxide gas sensors

**Research Center Details**

College Name: ALVAS INST. OF ENGG. AND TECHNOLOGY, MOODABIDRI, MOOD/

Department/Programme Stream Applied for: Electronics and Communication

Preferred region to attend entrance test: Mysuru

Is Change of University?: No

**Application Processing Fee Details**

Date Paid: 29-Jun-2018

D.D/Transaction Ref.No: 694491

Name of the Bank: SYNDICATE BANK, NITTE

Academic Year: 2018

**Exemption from VTU Entrance Test**

(Please note, you will be excluded from the entrance test if you fill the information for this section and failing to produce proper documents at the time of interview may result in rejection of Ph.D registration.)

<p><b>Are you faculty selected under QIP/FIP?</b></p> <p>No</p>	<p><b>Have you qualified in following tests?</b></p> <p>SLET/GATE/CAT/JRE/UGC-NET/VTU-ETR</p> <p>(Leave blank is none)</p>	<p><b>M.Phil Degree or equivalent as recognized by the University?</b></p> <p>(Leave blank is none)</p>
	<p><b>Seat Number</b></p> <p>(must if you are qualified in any test)</p>	

The below table is showing you the number of documents you need to upload. Please make sure they are scanned after all mandatory seal and signatures.

- Important instructions to follow**
- Please prefix the file name with the corresponding document number (like this: 2\_All\_Degree\_Certificates.pdf) by referring table below
  - On your computer, put all files in a folder named "MyProfile" and "zip" it
  - Please make sure the zipped file should not be bigger than 50MB
  - Only after properly performing all above instructions, choose the zip file and click "Save".

Choose File No file chosen

Currently Uploaded: 5954\_05072018121603PM\_My Profile.zip

Upload the attested scanned copies of the following in the order specified below.

## VTU, Belagavi Student Details

Manage student details under your supervision or co-guidance who are enrolled under VTU, Belagavi University.

Professor Name: **D.V.MANJUNATHA** | College Name: **ALVAS INST. OF ENGG. AND TECHNOLOGY,MOODABIDRI,MOODABIDRI**

<b>Candidate Name</b>	<b>USN (Give hall-ticket number if no USN)</b>	<b>Specialization</b>			
<input type="text"/>	<input type="text"/>	<input type="text"/>			
<b>Guiding Type</b>	<b>Program</b>	<b>Caste</b>	<b>Registered on</b>	<b>Thesis Submitted</b>	<b>"Final" Viva Finished</b>
Supervisor ▾	Ph.D ▾	GM ▾	02-Nov-2023	No ▾	No ▾
<a href="#">&lt; Back to Professor Profile</a>					<input type="button" value="Save"/> <input type="button" value="Clear"/>

Total: 4

Student Details	Guide Type	Program	Caste	Registered On	Thesis Submitted	
<b>VEERABHADRASWAMY K M (USN: 1MV16PEJ03)</b> VTU, Belagavi VLSI, MEMS	Supervisor	Ph.D	GM	27-Jan-2016	No	<a href="#">Modify</a>   <a href="#">Delete</a>
<b>SUSHANTH ANIL LOBO (USN: BL16PHEL386)</b> VTU, Belagavi VLSI, MEMS	Supervisor	Ph.D	GM	09-Aug-2017	No	<a href="#">Modify</a>   <a href="#">Delete</a>
<b>ARJUN SUNIL RAO (USN: 4AL18PEC01)</b> VTU, Belagavi MEMS	Supervisor	Ph.D	GM	12-Apr-2018	Yes Final viva Finished	<a href="#">Modify</a>   <a href="#">Delete</a>
<b>Narsimha Rao M (USN: 4AL20PEC01)</b> VTU, Belagavi Electronics & Communication (VLSI)	Supervisor	Ph.D	GM	20-Jun-2023	No	<a href="#">Modify</a>   <a href="#">Delete</a>

### Theses Tracked in Examiner & Researcher

Please note: Adding below shown USN entires in the-above table is required for proper student category (caste) based counts. Going forward, system will automatically manage current status (thesis submitted or final viva finished) for those entries. Other USNs that are NOT tracked in the "Ph.D Examiner (phdthesis.vtu.ac.in)" system require your manual status updates (thesis submitted or final viva finished) to avoid future candidate selections due to supervisor's eligibility criteria.

Student Details	Guide Type	Program	Caste	Registered On	Thesis Submitted
<b>Arjun Sunil Rao (USN: 4AL18PEC01)</b> VTU, Belagavi Electronics and Communication	Supervisor	Ph.D	GM	21-Apr-2018	Yes Final viva Finished
<b>NIJU RAJAN (USN: 4AL19PEC01)</b> VTU, Belagavi Electronics and Communication	Supervisor	Ph.D	GM	29-Jun-2018	No



**Visvesvaraya Technological University**  
Jnana Sangama, Belagavi 590018

FORM-2	<b>PERMISSION LETTER OF Pre-COMPREHENSIVE</b>
Name of Research Centre/College:	ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY
Research Topic:	DESIGN AND IMPLEMENTATION OF MEMS PRESSURE SENSOR FOR HIGH SENSITIVITY APPLICATIONS

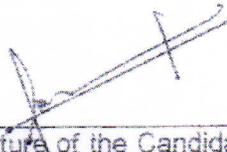
Sl. No	Doctoral Committee Composition	Name and Designation	College/Organization, Address, e-mail, Mobile	Signature
1	Head of Institute/Nominee (Chairperson)	DR. PETER FERNANDES PRINCIPAL	ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY MOODBIDRI, MANGALORE PH: 9845050268 Email: pfernandes@alva.ac.in Specialization: Materials Engineering	
2	Head of Research Centre/Department (Member)	DR. D V MANJUNATHA HOD	ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY MOODBIDRI, MANGALORE PH: dvmanjunatha@gmail.com Email: 9945549896 Specialization: VLSI/Video, MEMS	
3	Domain Expert-1 (External)-(Member)	DR. VEENA DEVI SHASTRIMATH V PROFESSOR	NMAM INSTITUTE OF TECHNOLOGY POST NITTE, KARKALA TALUK PH: 9448427779 Email: vdevi@nmam.ac.in Specialization: Remote Sensing (Pressure sensors)	
4	Domain Expert-2 (External/Internal-(Member)	DR. JAYARAMA A PROFESSOR	ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY MOODBIDRI, MANGALORE PH: jrmarasalike@gmail.com Email: 9611945201 Specialization: Nonlinear optic materials, MEMS	
5	Research Supervisor (Member Convener)	DR. D V MANJUNATHA HOD	ALVA'S INSTITUTE OF ENGINEERING AND TECHNOLOGY MOODBIDRI, MANGALORE PH: dvmanjunatha@gmail.com Email: 9945549896 Specialization: VLSI/Video, MEMS	
6	Co- Supervisor (Member Convener)	NA	NA	

\* Write NA wherever not applicable

The above doctoral committee has reviewed the work of Research Scholar SUSHANTH ANIL LOBO with USN JALITPEAD1 and he has completed all his course work and as per VTU Regulation-2017 (Ph.D-17.1)

Hence we seek permission from Registrar for conduction of comprehensive Viva voce.

Please permit the same.

  
\_\_\_\_\_  
Signature of the Candidate

  
\_\_\_\_\_  
Signature of the Guide

--NA--

\_\_\_\_\_  
Signature of the Co-Guide

  
\_\_\_\_\_  
Signature of the Head of Research Centre  
Dept. of ~~Electrical & Computer Engineering~~  
Alva's Institute of Engg. & Technology  
Mysar, MOOGBIDRI - 574 225, D.K

  
\_\_\_\_\_  
Signature of the Principal  
PRINCIPAL

Alva's Institute of Engg. & Technology,  
Mysar, MOOGBIDRI - 574 225, D.K

- 2 MAR 2022  
PERMITTED

Registrar (Evaluation):



Registrar (Evaluation)  
Visvesvaraya Technological University  
BELAGAVI - 18.





# Visvesvaraya Technological University

"Jnana Sangama", Belagavi - 590 018, Karnataka state.

Dr. K. E. Prakash, B.E.M.E., Ph.D.  
Registrar

Phone: (0831) 2405468

Fax : (0831) 2405467

Ref.: VTU/Aca/2015-2016/A7/EL-9221

Date:

27 JAN 2016

## OFFICE ORDER

Sub : Registration of Ph.D./M.Sc.(Engg.) by Research from June 2015  
Ref : Your application for the Ph.D. /M.Sc.(Engg.) by Research.

By the recommendations of the Admission Committee, you are hereby provisionally permitted to register for pursuing research work with the following details:

1. Name : **Veerabhadraswamy K M**
2. Programme : **Ph.D.**
3. Full time /Part time : **Part Time**
4. Research Centre : **ECE**
5. College/Institute : **SMVIT, Bengaluru**
6. Supervisor : **Dr. Manjunath D V**
7. Co-Supervisor :
8. Research Topic : **"Design of Background Subtraction Algorithm for Moving Object Detection and Tracking with VLSI Implementation"**
9. Approved Course work  

Sl.No.	Group	Course work
1.	14PHDRM	Research Methodology
2.	14PHDEC001	VLSI Design and Embedded Systems
3.	14PHDEC005	Digital System Design
4.	14PHDEE005	Micro Electronics and Control Systems

This permission for registration is subject to fulfilling the following conditions

1. Letter of acceptance for the Provisional admission, duly forwarded by the Guide/ Co-guide and Head of Research Centre on or before 10<sup>th</sup> Feb 2016.
2. An undertaking to abide by the rules and regulations of the University.
3. DD of ₹ 4000/- drawn in favour of the Finance Officer VTU, Belagavi of towards requisite registration fee.

**Note:** This Provisional Registration is subject to fulfilling the conditions specified in the Clause PHID14.9 of the Regulations (Amended) Governing the Degree of Doctor of Philosophy (Ph.D. 2014)

  
Registrar

To,

The candidate

- Copy to,
1. The Research Centre /VTURRC
  2. The Supervisor/Co-Supervisor



(ದಿ ೧೫ ನೆಯ ಅಧಿನಿಯಮ ೧೯೯೪ ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ ರಾಜ್ಯ ವಿಶ್ವವಿದ್ಯಾಲಯ)  
 "ಪ್ರಜ್ಞೆ ಸಂಗಮ", ಬೆಳಗಾವಿ-೫೯೦೦೧೮, ಕರ್ನಾಟಕ, ಭಾರತ

## Visvesvaraya Technological University

(State University of Government of Karnataka Established as per the VTU Act, 1994)

"Inana Sangama" Belagavi-590018, Karnataka, India

Prof. A. S. Deshpande, B.E., M.Tech., Ph.D.  
 REGISTRAR

Phone: (0831) 2498100  
 Fax : (0831) 2405467

VTU/BGM/Aca/Ph.D./2020-21/878

Date: December 31, 2021

### Provisional Registration Letter for Ph.D. Degree Programme (Office Order)

**Sub: Provisional Ph.D. Registration reg...**

- Ref:** 1. Notification No. VTU/BGM/Aca/Ph.D./2020-21/847 dated 07-11-2020.  
 2. Candidate's ETR Application No. : 7857  
 3. Hon'ble Vice Chancellor's Order dated 14-12-2021.

Pursuant to the recommendations of the Admission Committee and approval of Honourable Vice Chancellor, you have been selected for provisional admission to pursue Ph.D. programme under Visvesvaraya Technological University, Belagavi.

The details pertaining to the registration are given below:

Sl.No.	Particulars	
1	Name of the Candidate	NARASIMHARAO M
2	University Seat Number (USN)	4AL20PEC01
3	Admission Category of Research Programme (Full Time/Part Time)	Ph.D - Part Time
4	Faculty under which the degree will be awarded	FACULTY OF ELECTRICAL AND ELECTRONICS ENGINEERING SCIENCES
5	Name of the Research Center	ALVA S INSTITUTE OF ENGINEERING AND TECHNOLOGY MOODBIDRI
6	Specialization	ELECTRONICS AND COMMUNICATION ENGINEERING
7	Proposed Research Topic / Area.	Design of multiplier unit using Vedic sutras with fault free adder using GDI technology
8	Name and address of the Research Supervisor.	D V MANJUNATHA Professor - ELECTRONICS AND COMMUNICATION ENGINEERING ALVA S INSTITUTE OF ENGINEERING AND TECHNOLOGY MOODBIDRI

The Research Scholars shall strictly follow the norms of the University with regard to the Regulations Governing the Degree of Doctor of Philosophy (Ph.D.) / M.S. (Research) - 2020 and any other amendments effected from time to time.



Registrar

To,

1. NARASIMHARAO MAMRITASAI INSTITUTE OF SCIENCE AND TECHNOLOGY, VIJAYAWADA, KANCHIKACHERLA