

A report on
One Week Faculty Development Program (Online)

on
Interdisciplinary Aspects in Modeling of Manufacturing Processes November 21-23 &
27-29, 2020



Organized by

Department of Mechanical Engineering

Dr. Babasaheb Ambedkar Technological University Lonere, Dist. Raigad, Pin-402103,
Maharashtra, www.dbatuonline.com

under the aegis of

TEQIP - III

in collaboration with

Department of Mechanical Engineering

Indian Institute of Technology, Bombay, Powai, Mumbai 400076

Program Coordinators

Dr. Suhas S. Joshi

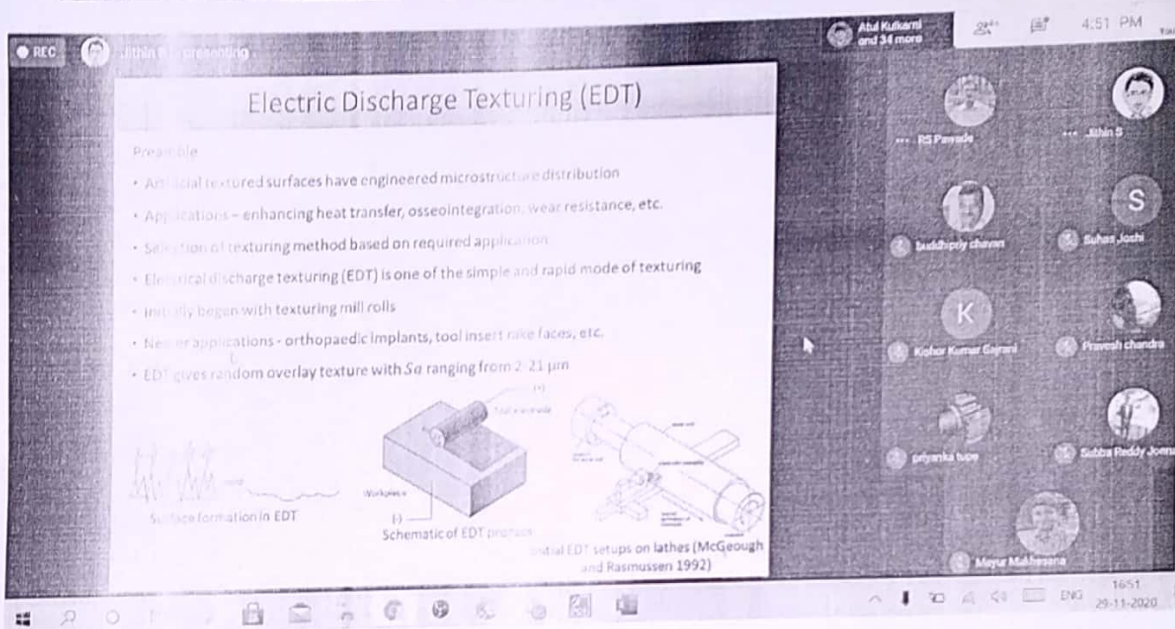
Professor, MED, IIT Powai, Mumbai, Email: ssjoshi@iitb.ac.in

Dr. Raju S. Pawade

Associate Professor, MED, DBATU, Lonere

Cell: 8698559938, Email: rspawade@dbatu.ac.in

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Tal. Mangaon, Dist. Raigad, (Maharashtra)




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PREPORT WORKSHOP ON WATER MANAGEMENT

It was organised by DEPARTMENT OF CIVIL ENGINEERING Rajiv Gandhi College of Engineering, Research & Technology, Chandrapur in association with Dr. Babasaheb Ambedkar Technological University, Lonere under TEQIP-III Scheme 31st JANUARY– 2nd FEBRUARY 2020.

The following sessions and activities were performed during the workshop.

Day-1: 31st JANUARY 2020 FIRST SESSION

Dr. R. S. Pawade, DBATU Lonere, spoke on Water Pollution- Causes, Effects & Prevention. He highlighted the importance of the topic & also explained various pollutants responsible for water pollution, Its effects, methods used to prevent the water pollution and the mandatory initiatives taken by the concerned authorities for prevention of water pollution.

Day-1: 31st JANUARY 2020 SECOND SESSION

Dr. Sanjay Danao, Director, Danao Green Tech Service, Pune, delivered the Key Note on theme of the Workshop. He outlined the various facets of Water Management. He explained in detail various sources of water & water cycle. At the end of the session, he conducted a group activity competition among the delegates based on water cycle.

Day-2: 01st February 2020 THIRD SESSION

Third session started with the presentation by the delegates on the group task assigned to them for competition in session-II. Presentation was judged by Dr. Sanjay Danav & Dr. A P Singh coordinator of the workshop. After presentation, session was addressed by Dr. Sanjay Danav. He spoke on "Water Quality". He highlighted the importance of various Water Quality Parameters, Procedure for Estimation & their Standards. Session ended with practical training about estimation of these water quality parameters at various locations in the campus

Day-2: 01st February 2020 FOURTH SESSION

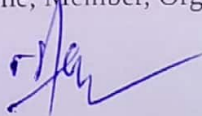
Mr. N. R. More, Danao Green Tech Service, Pune spoke on "Various Methods for Water Treatment". He highlighted the functioning of various water treatment technologies, their construction, suitability & removal efficiency of various water impurities. He also explained in detail about water treatment flow sheet for conventional water treatment plant & guidelines to select various treatment units for the same. Session ended with a group activity assignment for next session.

Day-3: 02nd February 2020 FIFTH SESSION

Mr. N. R. More continued by speaking on "Various Methods for Waste Water Treatment". He highlighted the difference between treatment of water & wastewater. He explained the functioning of various waste water treatment technologies, their construction, suitability & removal efficiency of various impurities from waste water. He also explained in detail about wastewater treatment flow sheet for conventional wastewater treatment plant & guideline to select various treatment units for the same. Next to this, DR. Sanjay Danao presented concluding remark on water management. The Session ended with group activity presentation of delegates.

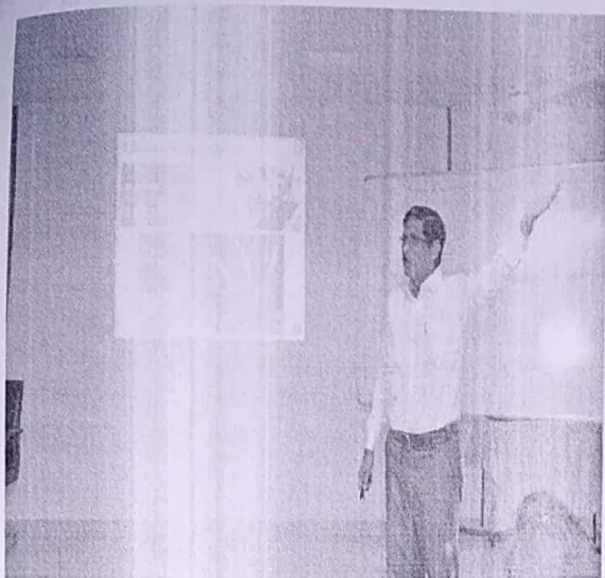
Day-3: 02nd February 2020 CONCLUDING SESSION

Concluding Session: The esteemed personality present on the Valedictory function are Dr. D.V. Bhope, Dean(IQAC), RCERT, Chandrapur, Dr. Sanjay Danao, Director, Danao Green Tech Service, Pune, Mr. N. R. More, Danao Green Tech Service, Pune, Dr. A.P. Singh, Coordinator of Workshop RCERT Chandrapur, Prof N. B. Warbhe, Member, Organising Committee.



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Dr. Sanjay Danao, Director, Danao Green Tech Service, Pune addressing the Participants in Session –II


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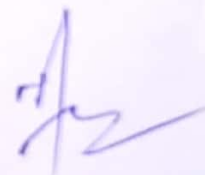
Mechanical Department

In the pursuit of searching new alternatives of energy resources in view of the ever increasing energy demand and fast depleting conventional energy resources, the role of Mechanical Engineers are profound and vital to achieve the target. The menace, green house gas emission and associated effects need to be curbed by eliminating the conventional energy resources.

In the last decade, the nonconventional energy resources, solar energy, tidal energy, wind energy and nuclear energy are recognized and authenticated as the alternate energy resources. However, these alternative energy resources offer their own changes to make them long term alternatives due to intermittent in nature. Radiation effects also put a question mark to use of Nuclear energy as the long term solution.

Hydrogen energy and fuel cells are the latest energy alternatives, considered to be quite promising long term alternatives. The technology is growing however; it is at tender stage and needs further research to put the wings to hydrogen technology. Role of Mechanical Engineers are very crucial and vital to propagate the research in the area of hydrogen energy, in general energy sector.

In view of this an expert talk was arranged in virtual mode by Dr Dadasaheb Shendage, Senior General Manager, H₂e Power system Pune on 23rd Aug 2020 at 11 am. He has talked about the ongoing research on hydrogen energy and its future implications and opportunities. Around 50 students have joined in virtually. Screen shot of the session attendees is shown here.



The session was quite interactive and has ignited the young mind and makes them aware the on going




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A

workshop Report

On

'College to corporate' soft skill workshop

Organized by



Department of Petrochemical Engineering

Dr. Babasaheb Ambedkar Technological University, Lonere

Under the aegis of TEQIP III

Duration: 3 days

Dates: 22nd to 24th March 2021

Venue: online

Target Audience: First year & Second Year B. Tech. Petrochemical Engineering Students.

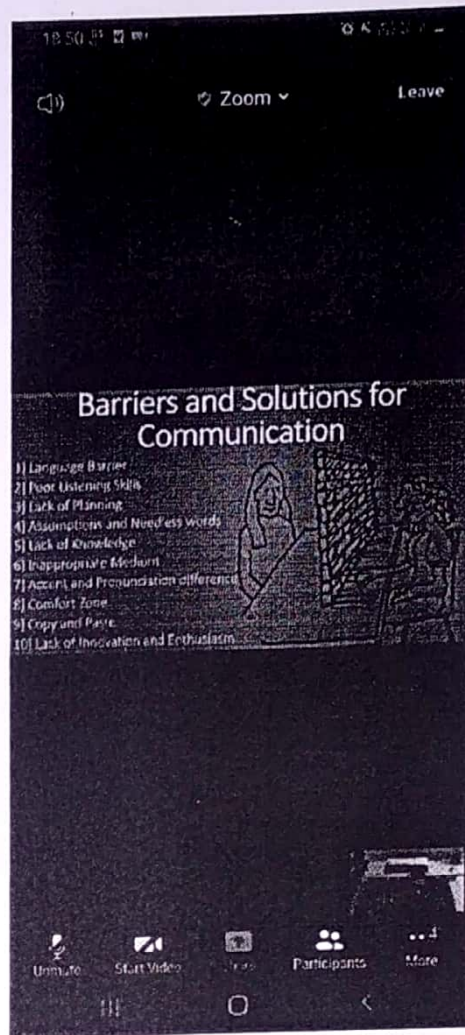
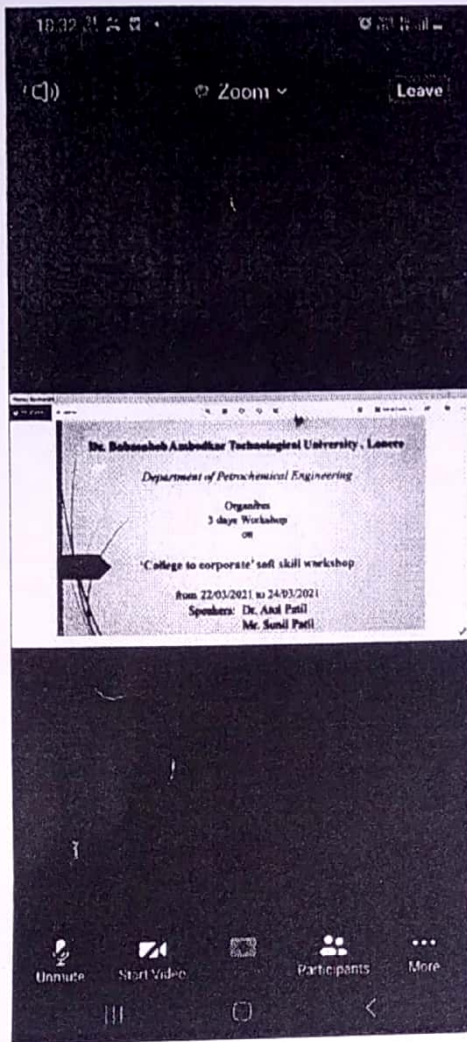
Speakers: Dr. Atul Patil & Mr. Sunil Patil

Workshop Co-ordinator: Dr. S. S. Metkar, Prof. P. S. Nande & Prof. Harshada Jadhav



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Workshop Photos:



Jadhav
 (Prof. Jadhav H.R.)
 Co-ordinators

S. S. Metkare
 (Dr. S. S. Metkare)
 Head of department.

S. S. Metkare
 Dr. S. S. Metkare
 Head,
 Department of Petrochemical Engineering
 Dr. Babasaheb Ambedkar Technological University
 Lonere-Raigad

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A

workshop Report

On

'Process Safety & Loss Prevention'

Organized by



Department of Petrochemical Engineering

Dr. Babasaheb Ambedkar Technological University, Lonere

Under the aegis of TEQIP III

Duration: 5 days

Dates: 17 to 21 February 2021

Venue: online

Target Audience: Third year and Final year B.Tech.
Petrochemical Engineering Students & faculties of the department

Speaker: Miss Jayshree Kumar Deshpande

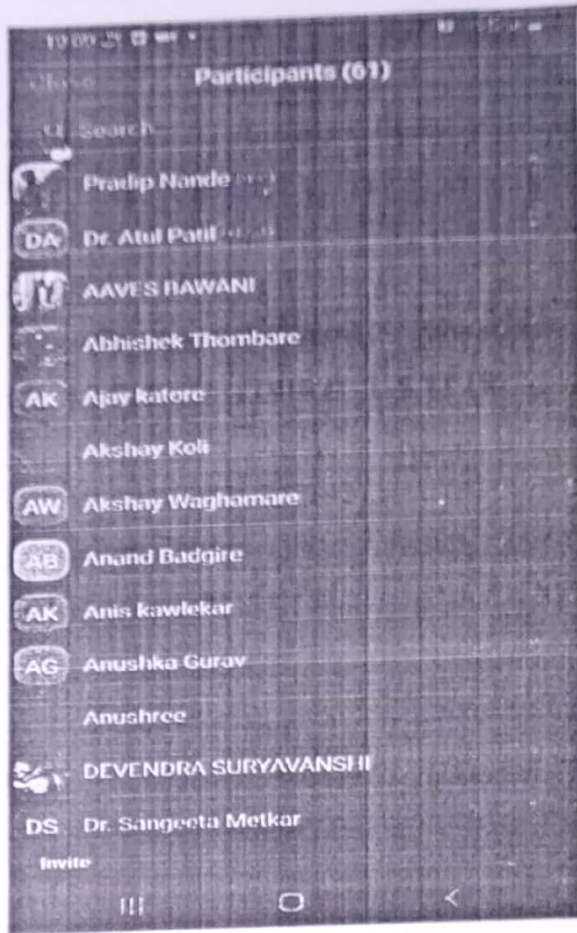
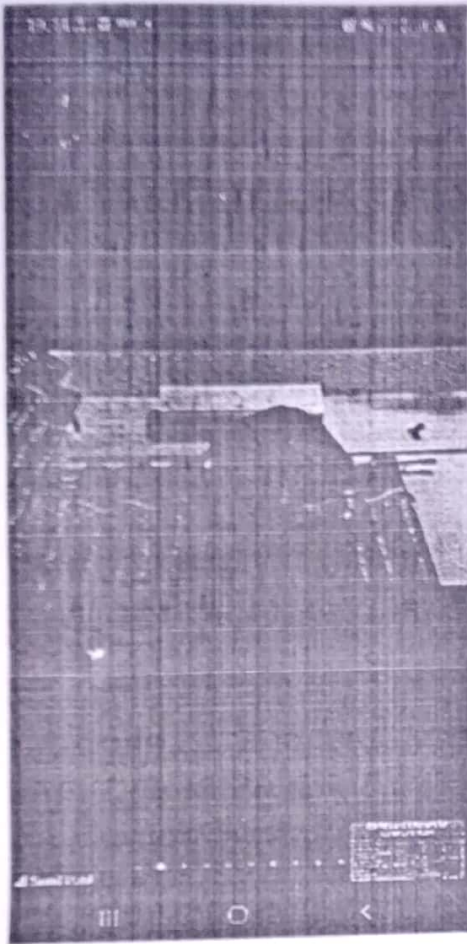
Workshop Co-ordinator: Dr. S. S. Metkar & Prof. L. Y. Rawoot

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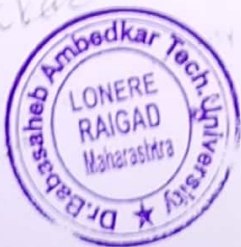
Co-ordinator

Jadhav

(Prof. Jadhav H.R.)

S. S. Metkar
Head of Department
(Dr. S. S. Metkar).

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Dr. S. S. Metkar
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A
Workshop Report
On
"Process Engineering"
Organized by



Department of Petrochemical Engineering
Dr. Babasaheb Ambedkar Technological University, Lonere
Under the aegis of TEQIP III

Duration: 5 days

Dates: 08th to 12th March 2021

Venue: Online

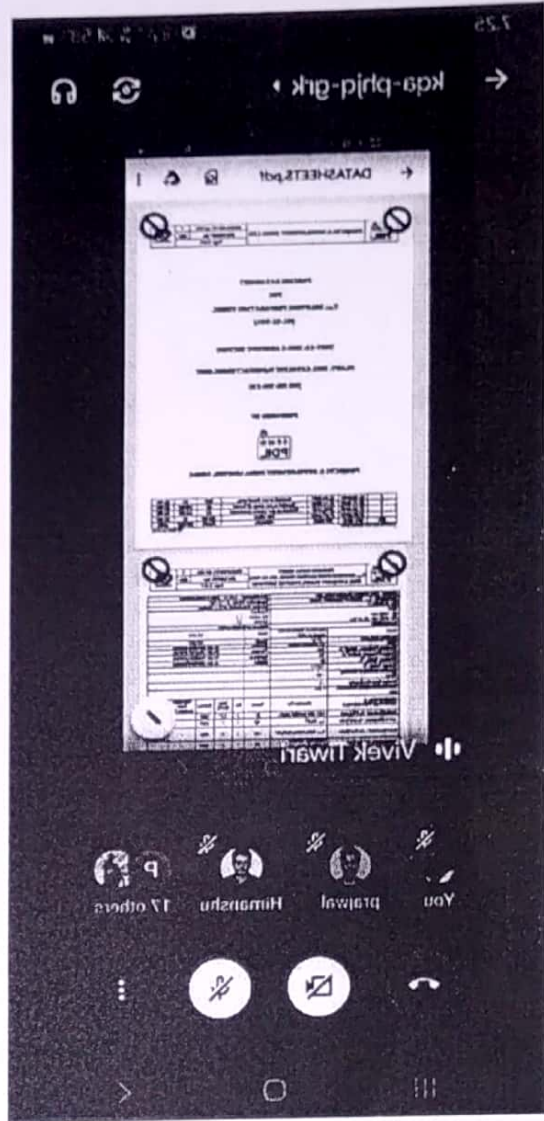
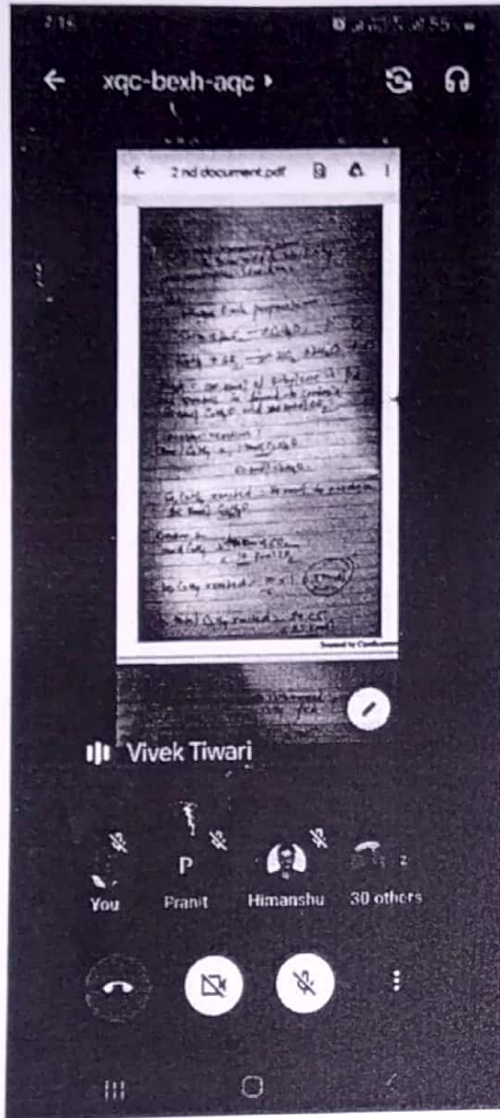
Target Audience: B. Tech. Petrochemical Engineering Students.

Speaker: Mr. Vjvek Tiwari, Partner & Director, Cproc Consultant

Coordinator: Dr. S. S. Metkar & Dr. D. M. Pawar

Page 1 of 7

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 Co-ordinator

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 (Dr. S. S. Metkar)
 (Head of dept.)

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 Department of Petrochemical Engineering
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 Lonere-Raigad

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Real-Time Cognitive Evaluation of Online Learners through Automatically Generated Questions

Ritu Gala^{1*}, Revathi Vijayaraghavan¹, Valmik Nikam¹, Arvind Kiwelekar²

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² Dept. Of Computer Engg, Dr. Babasaheb Ambedkar Technological University, Lonere,
Raigad – 402103, India

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Abstract. With the increased adoption of E-learning platforms, keeping online learners engaged throughout a lesson is challenging. One approach to tackle this challenge is to probe learners periodically by asking questions. The paper presents an approach to generate questions from a given video lecture automatically. The generated questions are aimed to evaluate learners' lower-level cognitive abilities. The approach automatically extracts text from video lectures to generate wh-kinds of questions. When learners respond with an answer, the proposed approach further evaluates the response and provides feedback. Besides enhancing learner's engagement, this approach's main benefits are that it frees instructors from designing questions to check the comprehension of a topic. Thus, instructors can spend this time productively on other activities

Keywords: E-learning, Automatic question generation, Cognitive evaluation, Video Processing, Natural Language Processing.

1 Introduction

There has been a shift in recent times from traditional classroom learning towards remote learning. This implies that students can enrol in courses from different universities without needing to be physically present on the universities' campuses. Open online video course portals like MIT OpenCourseWare, Coursera, edX and others have gained much popularity because of their high-quality video lectures, which a student can access at any time and from anywhere. To ensure that students have grasped the concepts explained in a video lecture, there is a need to assess students on various topics presented in a video lecture. Traditionally, a course instructor manually prepares a set of questions to evaluate the broad understanding of the material that has been taught. However, manually preparing questions is a time-consuming and cumbersome task. An instructor could use the time spent designing questions to prepare lecture material and presentations, which will be more fruitful and beneficial for the students and the course instructor himself.

The question designing task can be automated with advanced techniques from Natural Language Processing and Video Processing. Automatic question generation is the task

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18. Wankhede, Hansaraj S., and Arvind W. Kiwelekar. "Qualitative assessment of software engineering examination questions with bloom's taxonomy." *Indian Journal of Science and Technology* 9.6 (2016): 1-7.

Author Biography



Ritu Gala, is pursuing her Bachelor of Technology in Computer Engineering at Department of Computer Engineering and Information Technology, VJTI Mumbai. Her research interests include Artificial Intelligence, Deep Learning, Machine Learning, and Blockchain. She has worked as a research intern for Citispotter Limited and Fourth Frontier, and is currently working as a student researcher in VJTI Blockchain and AI Lab. She has worked as a summer analyst and gained industry experience in Goldman Sachs. Her personal webpage is at <https://www.linkedin.com/in/ritu-gala/>



Revathi Vijayaraghavan, Student of Bachelor of Technology (Computer Engineering) at Dept. of Computer Engg and IT, VJTI Mumbai. Her research interests include Machine Learning, Deep Learning, Computer Vision and Blockchain. She has participated in several Kaggle competitions, and stood in the top 15 for the COVID-19 Global Forecasting. She has also worked as a student researcher in the VJTI Blockchain and AI Lab, and has worked in the industry as a Technology Analyst for Morgan Stanley. During her time in the Blockchain and AI Lab, she has co-authored 3 research papers. Her personal webpage is at <https://revathivijay.github.io/revathi-vijay/>.



Dr V.B. Nikam, Associate Professor, Computer Engg & IT, VJTI Mumbai, has done Bachelor, Masters and PhD in Computer Engineering. He has 25yrs experience. He was felicitated with IBM TGMC-2010 DRONA award by IBM Academic initiatives. He is Senior Member (CSI), Senior Member (IEEE), and Senior Member (ACM). He worked on BARC ANUPAM Super-computer. He was invited to JAPAN for K-Supercomputer study tour in 2013. He has received a grant-in-aid from NVIDIA for CUDA Teaching and Research, 2013. Presently, He is PI and Coordinator, Faculty Development Center (Geo-informatics, Spatial Computing and BigData Analytics) funded by MHRD, Govt of India. He works in the area of Data Mining and Data Warehousing, Machine Learning, Geoinformatics, Big Data Analytics, Geo-Spatial Analytics, Cloud Computing, GPU/High Performance Computing. You may visit www.drnbnikam.in for details.



Arvind Kiwelekar is a Professor, Computer Engineering, at Dr Babasaheb Ambedkar Technological University Lonere. He completed his PhD from Indian Institute of Technology Bombay. His research interests include Software Architecture, Applied Artificial Intelligence and Ontology. He is actively engaged in conducting faculty development programs to train teachers on pedagogical theories, learning and teaching technologies, and providing training on emerging technologies such as Artificial Intelligence, Blockchain Technologies, Cognitive Modelling and Fog Computing. You may visit awk-group.net for more details.



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PREMIO AUIP 2020



Doctorado en Ciencias
de la
Electrónica

8.4.13- 92/045

16th April 2021

Prof. Dr. Arvind W Kiwelekar
Dr. Babasaheb Ambedkar Technological University
Lonere 402103 Raigad (MS)
India

Subject: Invitation to collaborate with joint research project

Dear Dr. Kiwelekar,

The goal of the collaboration is to realize several primary and secondary studies in the context of the universities and the software industry. You will be held in regular research committee meetings, provide advice and recommendations to research undertaken at our projects, and as an evaluator of Ph.D. candidates enrolled at our institutions.

The principal expected outcomes of this collaboration are achieving joint research publications and strengthen the cooperation among our institutions.

Looking forward to collaborating with you.

With best wishes,

Julio Arier Hurtado Alegría
Coordinador Doctorado en Ciencias de la Electrónica
Oficina 401 Ext. 2133 - Edificio de Ingenierías Sector Tulcán

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




International Conference on Intelligent Human Computer Interaction

IHCI 2020: Intelligent Human Computer Interaction pp 3–11

A Two-Systems Perspective for Computational Thinking

Arvind W. Kiwelekar , Swanand Navandar & Dharmendra K. Yadav

Conference paper | First Online: 06 February 2021

551 Accesses | **1** Citations

Part of the Lecture Notes in Computer Science book series (LNISA, volume 12615)

Abstract

Computational Thinking (CT) has emerged as one of the vital thinking skills in recent times, especially for Science, Technology, Engineering and Management (STEM) graduates. Educators are in search of underlying cognitive models against which CT can be analyzed and evaluated. This paper suggests adopting Kahneman's two-systems model as a framework to understand computational thought process.

Kahneman's two-systems model postulates that human thinking happens at two levels, i.e. fast and slow thinking. This paper illustrates through examples that CT activities can be represented and analyzed using Kahneman's two-systems model. The potential benefits


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or adopting Kahneman's two-systems perspective are that it helps us to fix the biases that cause errors in our reasoning. Further, it also provides a set of heuristics to speed up reasoning activities.

Keywords

Cognitive modelling Computational Thinking

Problem Solving

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References

1. Aho, A.V.: Computation and computational thinking. *Comput. J.* **55**(7), 832–835 (2012)
2. Behimehr, S., Jamali, H.R.: Cognitive biases and their effects on information behaviour of graduate


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Research Project under CRIP through TEQIP – III

Title of the Research Project : A Semi-Automatic Method for Segmentation of Tumors from MR Images of the Human Brain

Name of the Institute : Arvind Gavali College of Engineering, Satara, India

Principal Investigator : Dr. Gayatri S. Mirajkar
Email: gayatrimirajkar@gmail.com
Mobile: +91 9860361553

Co-Investigator : Dr. S. B. Deosarkar
Email: sbdeosarkar@dbatu.ac.in
Mobile: +91 9423140516

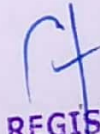
Abstract

The aim of the research project is to propose forth a unique approach for the segmentation of tumors from MR (Magnetic Resonance) images of the human brain. The type of images chosen are spin-spin relaxation time (T2), spin-lattice relaxation time (T1), and proton density (PD) MR images. MR images have been chosen for the analysis because they are unique in the sense of the wealth of information contained in them. MRI is considered as the most suitable method for the detection of tumors or lesions in the human brain as it provides an excellent contrast between different tissues. An experienced radiologist can gain much insight by viewing the individual images that a scanner produces. Also, an important aspect of the radiologists' work is to segment out a specific region or volume of interest from such radiological images to locate the abnormal region.

The simplest methods of visual or qualitative segmentation are manual in their application. Often, the human interpreter is only interested in a portion of the acquired image. Software tools are provided for sculpting away extraneous or obscuring regions of a 2D cross-section, or outlining and selecting regions to be returned for closer inspection. The problem with manual segmentation is that interoperator variability can be quite large since there is no restriction in choosing the boundary of the tumor. The MRI scanner produces a large number of images at one time for one patient and also because it is a very difficult and time-consuming process, the need remains for automatic methods of segmentation as manual inspection of every image with a high-degree of accuracy is not possible every time.

When imaging a patient with a known or suspected brain tumor, the goals of the radiologist are to identify the lesion, provide a reasonable differential diagnosis, and guide further therapeutic interventions. As therapeutic options evolve, an additional role has been to monitor treatment efficacy, and guide newer, minimally invasive, and targeted treatments with the goal of minimizing morbidity. Segmentation of MR images is needed to extract a specific region or volume of interest. To simplify this problem, a semi-automatic method of segmentation of tumors from MR images has been proposed.




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The research project achieves the following objectives:

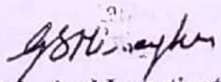
- The proposed algorithm achieves an effective segmentation of tumors from MR images of the human brain
- Effect of noise on the segmentation result is reduced significantly
- Effect of skull intensity during segmentation is significantly reduced.
- Construction of feature images from the selected significant images is achieved.
- Final segmented output is obtained as the tumor region and the surrounding edema from the obtained feature image

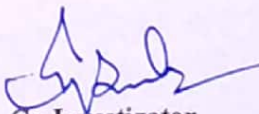
Outcomes Achieved:

- Purchase of MATLAB® version 9.7.0.1190202 (R2019b), dated 21st August, 2019
- Delivered expert lecture in AICTE sponsored Faculty Development Program on “Statistical Inference and Linear Algebra” conducted from 21st December to 25th December, 2019 at Dr. Babasaheb Ambedkar Technological University, Lonere, Raigad, India
- Conducted two days Faculty Development Program on, “Special Topics in Industry Applications,” on 7th and 8th, January 2020 at Arvind Gavali College of Engineering, Satara, India
- Attended the online workshop on, “Academic Book Writing and Related Topics,” organized by Springer Nature
- Proposal for Edited Book in the Book Series, “Advances in Smart Healthcare Technologies,” by CRC Press. The proposed topics include the most recent advances in healthcare encompassing a variety of fields such as Blockchain Technology, Augmented Reality, Virtual Reality, Deep Learning, etc.
- Planning to conduct TEQIP 3 sponsored Three days Faculty Development Program on “Innovations and Current Practices in Biomedical Signal and Image Analysis”

Place: Satara

Date: 15/10/2020


Principal Investigator
Dr. Gayatri S. Mirajkar
Professor
Electronics and Telecommunication Engineering
Arvind Gavali College of Engineering
At Panmalewadi, Post. Varye, Satara
Pin: 415015


Co-Investigator
Dr. S. B. Deosarkar
Dr. B. A. T. U.
Lonere, Raigad


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**Acceptance form for Collaborative Research
Innovation Project under TEQIP-III**

TEQIP-3

1. With reference to the Approval Letter (DBATU/REG/TEQIP-III-REG/2018-19-1446), I hereby accept to conduct research activity under the category:

- Summer/Winter Internship for UG/PG students (SWI) (for max 4 weeks)
- Competitive UG/PG Project (CP) (for max 1 year)
- Joint PhD/MTech Guidance (JG)
- Collaborative Research Innovation Project (CRIP)

2. The research project is not being supported by any other funding agency.

3. The terms and conditions related to the grant are acceptable to me.

4. The date of implementation of the project is 31/7/2019

Title of the Project: Recovery of glycerol from biodiesel production to enhance socio-economic feasibility leading to reduction in pollution & public health assurance.

Duration: From 30 July 2019 to 30 September 2020 under TEQIP III.

We are fully conversant with the 'Guidelines' put up on the DBATU website regarding conduct of the CRIP. We will execute the project strictly adhering to TEQIP III & Institute guidelines. We will submit financial report/attendance certificate/research report/copy of publications/audit report/utilization certificate duly signed by CA etc. as per the norms and guidelines within 30 days after the completion of the collaborative research.

Signature (PI) [Signature]
Name: Prof. V.S. Pahl
Date: 26/7/2019

Signature of Dept.-coordinator (DC) [Signature]
Name: Prof. V.S. Pahl
Date: 26/7/2019

Signature and Seal of the Principal/Director [Signature]
Name: Dr. D.V. Ghewade
Date: 26/7/2019

For use at DBATU-TEQIP III office

Signature (DBATU-TEQIP Office)

Signature IPD, TEQIP III

[Signature]

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TEQIP-III Programme

STATEMENT OF EXPENDITURE

Sanction Order/Letter : 29/05/2019 / DBATU/REG/TEQUIP-III/2018-19/448

Title of the Project: Recovery of Glycerol from Biodiesel production to enhance socio economical Feasibility Leading to Reduction in Pollution and Public Health Assurance.

Name of the Principal Investigator: Unmesh S. Patil

<u>Sanction No. and Date</u>	<u>Grant Sanctioned</u>	<u>Details of expenditure Incurred Item wise</u>	<u>Amount Sanctioned Rs. (In each head)</u>	<u>Amount expenditure Incurred RS</u>	<u>Duration of the Programme (with dates)</u>
774 (17/12/2020)	93000/-	1. Travel Grant	25000/-	5500/-	June 2019 to 31 March 2021
		2. Publication/Registration Fee	25000/-	Nil	
		3. Consultancy/ Testing and Analysis/ CA charges	25000/-	Nil	
		4. # Procurement of Hardware/Software	215000/-	259600/-	
		5. Consumables	10000/-	67012/-	
		Total		300000/-	
Grant Received		300000/-			


(1) Unmesh S. Patil
Name and Signature of
Principal Investigator

(2) Dr. D.V. Ghewade
Name and Signature of
Head of Institution with
Seal

(3) Dr Yogesh Mahajan
Name and Signature of co-Investigator

(4) Signature of Chartered
Name of Chartered Accountant:

Membership No:
Rubber
stamp: Full
Address:
Date:


REGISTRAR
Dr. Babasaheb Ambedkar Technological University,
LONERE 402 103,
Tal. Mangaon, Dist. Raigad, (Maharashtra)





महाराष्ट्र MAHARASHTRA

2019

VA 151677

प्रधान मुद्रांक कार्यालय, मुंबई
पंजीकरण क्र. 10000003
31 MAY 2019
सदस्य आधिकारी

श्री. सी. टी. आंबेकर

Memorandum of Understanding

This Memorandum of Understanding (MoU) is entered in to on this 27th day of Sept, 2019 between

Electronic Payment AND Services Private Limited a company incorporated and registered under the Companies Act, 1956/2013, having its registered office at Unit No. 302 & 303, 3rd floor, A-Wing, Supreme Business IT Park, Hiranandani Gardens, Powai, Mumbai-400076 (hereinafter referred to as EPS which expression shall unless repugnant to the context includes its permitted assigns and successors);

And

Dr. Babasaheb Ambedkar Technological University, having its head quarter at, Lonere Taluka, Mangaon, Dist. Raigad Maharashtra 402 103 (hereinafter referred to as Partner/University which expression shall unless repugnant to the context includes its permitted assigns and successors).



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Page 1 of 9
REGISTRAR
Dr. Babasaheb Ambedkar Technological University,
LONERE 402 103,
Tal. Mangaon, Dist. Raigad, (Maharashtra)

EXHIBIT A

1. EPS, to conduct an elective course/program related to payment systems through onsite lectures and pre-recorded videos to the Partner's Bachelor of Technology 3rd and 4th year students and other streams of University as mutually agreed.



REGISTRAR

**Dr. Babasaheb Ambedkar Technological University,
LONERE 402 103,
Tal. Mangaon, Dist. Raigad, (Maharashtra)**

