(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :26/02/2021

(21) Application No.202141008098 A
(43) Publication Date : 26/03/2021

(54) Title of the invention : OBJECT CLASSIFICATION AND IDENTIFICATION USING IMAGE SEGMENTATION.

(51) International classification	:G06K0009620000, G06K0009000000, G06N0003040000, G06K0009460000, G06N0003080000
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No	:NA
Filing Date	:NA
(87) International Publication No	: NA
(61) Patent of Addition to Application Number	:NA
Filing Date	:NA
(62) Divisional to Application Number	:NA
Filing Date	:NA

(71)**Name of Applicant :**
1)Dr. Chanamallu Srinivasa Rao (Professor)
Address of Applicant :JNTUK University College of Engineering, Vizianagaram, Andhra Pradesh, India. Address: D. No:2-11/2, Rayudu Palem, Kothuru Road, Kakinada, East Godavari District, Andhra Pradesh, India-533003 ,chsrao.ece@jntukucev.ac.in Andhra Pradesh India
2)Mr. Gulivindala Suresh (Assistant Professor)
3)Dr. N. V. Lalitha (Assistant Professor)
(72)**Name of Inventor :**
1)Dr. Chanamallu Srinivasa Rao (Professor)
2)Mr. Gulivindala Suresh (Assistant Professor)
3)Dr. N. V. Lalitha (Assistant Professor)

(57) Abstract :
Object Classification and Identification using Image Segmentation. ABSTRACT Our Invention Object Classification and Identification using Image Segmentation is a method represents a class of objects by first acquiring a set of positive training images of the class of objects and also A Matrix A is constructed from the set of positive training images. Each row in the matrix A corresponds to a vector of intensities of pixels of one positive training image. The invention is to a Correlated intensity are grouped into a set of segments of a feature mask image. Each segment includes a set of pixels with correlated intensities. From each segment, a subset of representative pixels is selected and A set of features is assigned to each pixel in each subset of representative pixels of each segment of the feature mask image to represent the class of objects. The invention is also including a Systems, methods, and computer-readable media for providing fast and accurate object detection and classification in images are described herein and a computing device can receive an input image. The invented technology also computing device can process the image and generate a convolutional feature map and the convolutional feature map can be processed through a Region Proposal Network (RPN) to generate proposals for candidate objects in the image. For examples: the computing device can process the convolutional feature map with the proposals through a Fast Region-Based Convolutional Neural Network (FRCN) proposal classifier to determine a class of each object in the image and a confidence score associated therewith.

No. of Pages : 28 No. of Claims : 6

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

(http://ipindia.nic.in/index.htm)

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

(http://ipindia.nic.in/index.htm)

Application Details	
APPLICATION NUMBER	202141008098
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	26/02/2021
APPLICANT NAME	1 . Dr. Chanamallu Srinivasa Rao (Professor) 2 . Mr. Gulivindala Suresh (Assistant Professor) 3 . Dr. N. V. Lalitha (Assistant Professor)
TITLE OF INVENTION	OBJECT CLASSIFICATION AND IDENTIFICATION USING IMAGE SEGMENTATION.
FIELD OF INVENTION	COMPUTER SCIENCE
E-MAIL (As Per Record)	suresh.gulivindala@gmail.com
ADDITIONAL-EMAIL (As Per Record)	lalithanarla.ece@gmail.com
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	26/03/2021

Application Status	
APPLICATION STATUS	**Awaiting Request for Examination**

View Documents

Filed → Published → RQ Filed → Under Examination → Disposed

In case of any discrepancy in status, kindly contact ipo-helpdesk@nic.in

Office of the Controller General of Patents, Designs & Trade Marks
Department of Industrial Policy & Promotion,
Ministry of Commerce & Industry,
Government of India

(http://ipindia.nic.in/index.htm)

INTELLECTUAL PROPERTY INDIA
PATENTS | DESIGNS | TRADE MARKS
GEOGRAPHICAL INDICATIONS

(http://ipindia.nic.in/index.htm)

Document Name	Created Date/Uploaded Date
202141008098-FORM-9 [22-03-2021(online)].pdf	22/03/2021
202141008098-COMPLETE SPECIFICATION [26-02-2021(online)].pdf	26/02/2021
202141008098-DRAWINGS [26-02-2021(online)].pdf	26/02/2021
202141008098-FORM 1 [26-02-2021(online)].pdf	26/02/2021
202141008098-SEQUENCE LISTING [26-02-2021(online)].txt	26/02/2021
202141008098-SEQUENCE LISTING(PDF) [26-02-2021(online)].pdf	26/02/2021

FORM 1 THE PATENTS ACT 1970(39 of 1970) & The Patents Rules, 2003 APPLICATION FOR GRANT OF PATENT (See sections 7, 54 & 135 and rule 20(1)	**(FOR OFFICE USE ONLY)** Application No: Filing Date Amount of Fees Paid: CBR NO: Signature:
1. APPLICANTS REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)	

2. **TYPE OF APPLICATION [Please tick (✓) at the appropriate category]**

Ordinary (✓)		Convention ( )		PCT-NP ()	
Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )	Divisional ( )	Patent of Addition ( )

3A. APPLICANT(S):

Name	**Country of Residence**	**Nationality**	**Address**
Dr. Chanamallu Srinivasa Rao (Professor)	INDIA	AN INDIAN NATIONAL	JNTUK University College of Engineering, Vizianagaram, Andhra Pradesh, India. Address: D. No:2-11/2, Rayudu Palem, Kothuru Road, Kakinada, East Godavari District, Andhra Pradesh, India-533003 ,chsrao.ece@jntukucev.ac.in
Mr. Gulivindala Suresh (Assistant Professor)	INDIA	AN INDIAN NATIONAL	GMR Institute of technology, GMR Nagar, RajamSrikakulum District, Andhra Pradesh, India. Address:-D.No: 3-241/5, Spinning Mill Colony-2, Lalacheruvu, Rajamahendhravaram, Andhra Pradesh, India-533106 **suresh.gulivindala@gmail.com**
Dr. N. V. Lalitha (Assistant Professor)	INDIA	AN INDIAN NATIONAL	GMR Institute of technology, GMR Nagar, RajamSrikakulum District, Andhra Pradesh, India. Address: -Pallavi-6, GMRIT Quarters, GMR Nagar, RajamSrikakulum District, Andhra Pradesh, India-532127 **lalithanarla.ece@gmail.com**

3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]

Natural Person (✓)	Other than Natural Person ()		
	Small Entity ( )	Startup ( )	Others ()

4. **INVENTOR(S): [Please tick (✓) at the appropriate category]**

Are all the inventor(s) same as the applicant(s) named above?	**Yes (✓)**	No ()

If "No", furnish the details of the inventor(s) **N.A**

Name	Nationality	Country of Residence	Address
NA	NA	NA	NA

5. TITLE OF THE INVENTION:

Object Classification and Identification using Image Segmentation.

6. AUTHORISED REGISTERED PATENT AGENT(S)		NA
ADDITIONAL PATENT AGENTS	NA	

7. ADDRESS FOR SERVICE OF APPLICANT/ PATENT AGENT(S) IN INDIA Dr. Chanamallu Srinivasa Rao (Professor) Address: JNTUK University College of Engineering, Vizianagaram, Andhra Pradesh, India. Address: D. No:2-11/2, Rayudu Palem, Kothuru Road, Kakinada, East Godavari District, Andhra Pradesh, India-533003 ,chsrao.ece@jntukucev.ac.in	chsrao.ece@jntukucev.ac.in

8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION: N.A

Country	App. Number	Filing Date	Name of the Applicant	Title of the Invention	IPC (as classified in the convention country)
NA	NA	NA	NA	NA	NA

9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT CO-OPERATION TREATY (PCT):

International application number	International filing date as allotted by the receiving office.
NA	NA

10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION: N.A

Original (first) application number	Date of filing of Original (first) application
N.A.	N.A.

11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT: N.A

Main application / patent Number	Date of filing of main application
N.A.	N.A.

12. DECLARATIONS:

(i) **Declaration by the Inventor:**

(**In case the applicant is an assignee**: the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

We, the above named inventor is the true & first inventor for this invention and declare that the applicant herein is my assignee or legal representative: **NA**

(ii) **Declaration by the applicant/s in the convention country:**

(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period)

I/~~We~~, the applicant(s) in the convention country declare that the applicant(s) herein is/~~are~~ my/~~our~~ assignee or legal representative. : **N.A.**

(iii) **Declaration by the applicants:**

We, the applicants hereby declare that: -

1. We are in possession of the above-mentioned invention.
2. The **Complete Specification** relating to the invention is filed with this application.
3. The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by us before the grant of patent to us: **N.A.**
4. There is no lawful ground of objection to the grant of the patent to me/ us.
5. We are the assignees or legal representatives of true and first inventors:
6. The application or each of the applications, particulars of which are given in Para – 8 was the first application in convention country/countries in respect of our invention: **N.A.**
7. We claim the priority from the above mentioned application filed in convention country/countries and state that no application for protection

in respect of the invention had been made in a convention country before that date by us or by any person from which we derive the title: **YES**

8. Our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Para-9: **N.A.**
9. The application is divided out of our application particulars of which is given in Para-10 and prays that this application may be treated as deemed to have been filed on N.A. Under sec.16 of the Act: **N.A.**
10. The said invention is an improvement in or modification of the invention particulars of which are given in Para-11: **N.A.**

FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) **Form 2**

Item	Details	Fee	Remarks
Complete specification) #	No. of pages:		
Claim(s)	No. of claims: No. of pages:		
Abstract	No. of pages:		
Drawing(s)	No. of drawings: No. of pages:		

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

1. Complete specification (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies) **N.A**
2. Sequence listing in electronic form **N.A**
3. Drawings (in conformation with the international application)/as amended before the International Preliminary Examination Authority (IPEA), as applicable (2 copies) **N.A**
4. Form 1, 2, 26-1750Rs.
5. Statement and Undertaking on Form-3
6. Declaration of Inventor ship on Form-5
7. Request for Publication Form9 -2750.Rs
8. Form18 Examination Request, 4400.Rs
9. Other Form according to need: 880,1600,2500,4000, …
10. Power of Authority
11. Other from 4 to 31 According to needed can fill.

Total fee Rs ……. /- **in ~~Cash~~/ Banker's Cheque /Bank Draft bearing No……**

Date……..on…….. Bank.

We hereby declare that to the best of my knowledge, information and belief the facts and matters stated herein are correct and I request that a patent may be granted to me for the said invention.

Dated :26/02/2021
Dr. Chanamallu Srinivasa Rao(Professor)
Mr. Gulivindala Suresh (Assistant Professor)
Dr. N. V. Lalitha (Assistant Professor)

To,
The Controller of Patent,
The Patent Office, at ……