



Insight Natural Vision Processing like Engineering for Machine Vision

Sadique Shaikh MD^{1*}, Rafik Shaikh²

¹Institute of Management & Science (IMS), M.S, India

²G.H.R.I.B.M, M.S, India

***Corresponding Author:** Sadique Shaikh Md, Institute of Management & Science (IMS) India.

E-mail: sids_nsk@rediffmail.com

Received: 7 April, 2018; **Accepted:** 20 April, 2018; **Published:** 27 April, 2018

Abstract:

Artificial Vision or Computer vision or machine vision are the terms which maximum authors defined as Vision for calibration, inspection, error detection and correction, quality check or anything else all process electronically and engineering based on Natural human which is unique. Hence with this sense simply term is Vision Engineering, because Artificial, Computer or Machine all designed electronically with similarities. I have shown in my modeling with help of two models how we can engineer it.

Keywords: Machine Vision; Artificial Vision; BAVE; VDM

Introduction

Robotics/Machine Vision	
Humanoid domain	Industry Domain
High Human like Cognition	High Precision industrial Automation, Productivity

Source: Prof. Md. Sadique Shaikh & Prof. Rafik Shaikh

Above drawing exhibits model to clear ambiguity in terms what I want to clear and not majority think. Generally Industrial Robotics and Automation engineer and

researchers without taking a time of second can guess it Machine vision to increase productivity, precision and robotic automation etc., but what I am trying to discuss here in my modeling its completely to build artificial vision with exactly human like visual cognition and perception for Humanoid Robotics and Cyborg Human intellect. Humanoid itself now days broad research domain where several sub domains available to conduct excellent research. Now days I seem majority people working on NLP, Wavelet, Images processing and robotic emotion etc without paying attention on equal important research domain

Artificial/machine vision in other words can say “Humanoid vision”.

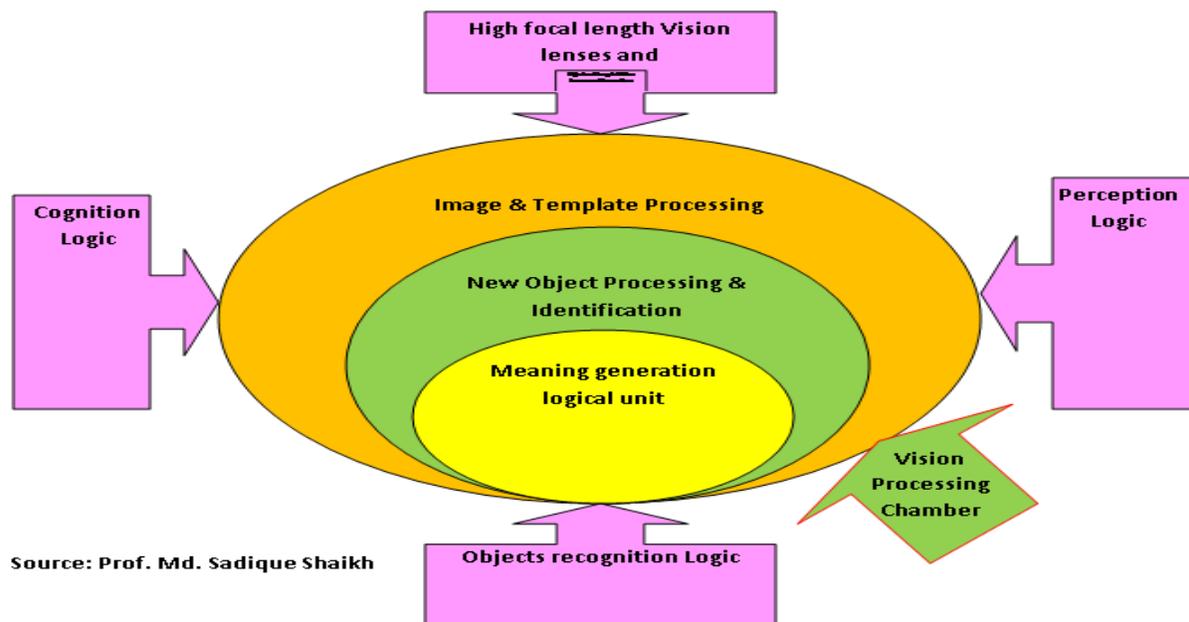
Modeling

Basic Artificial Vision Engineering (BAVE) Model

This is my first proposed model with the intention to discuss how effectively basic artificial vision often called Robotic vision possible to engineer and implement. I exhibit four important parameters here in which three logics design and vision input design as High Focal Length Vision Lenses and Sensation engineering, in this criterion all high precision excellent wavelength lambda based optics and high focal length optical lenses with ultra-high resolution need to engineer with retina like features sensors and electronic engineering. After this we must need to move with paying great attention on three logics as Cognition logic here needs to analyze all biological cognition of mankind to fit in electronic or optoelectronic engineering.

The second one is Perception logic is related to how to behave with input vision with creating object or structure to make choices, like, dislikes and decision along with vision processing chamber. The third one is object recognition unit, here all the sensed vision with assistance of whole assembly make meaning and identified input vision objects.

All these units work for central “Vision Processing Chamber” and based on three tiers as Meaning generation logic unit as I already mentioned work with one design and three different logic to interpret exact and accurate meaning of identified object with giving name and total recall all its features. Sometime new object freshly input at that time new object identification and processing layer will work and first time create all its data and identify several time the object in future with reusing it. to assist both layers is Image and Template processing layer the function of this layer as when object recognizing at that time provide saved template to match or in case of new object input create its template to reuse for next time when same vision input occur again in future.



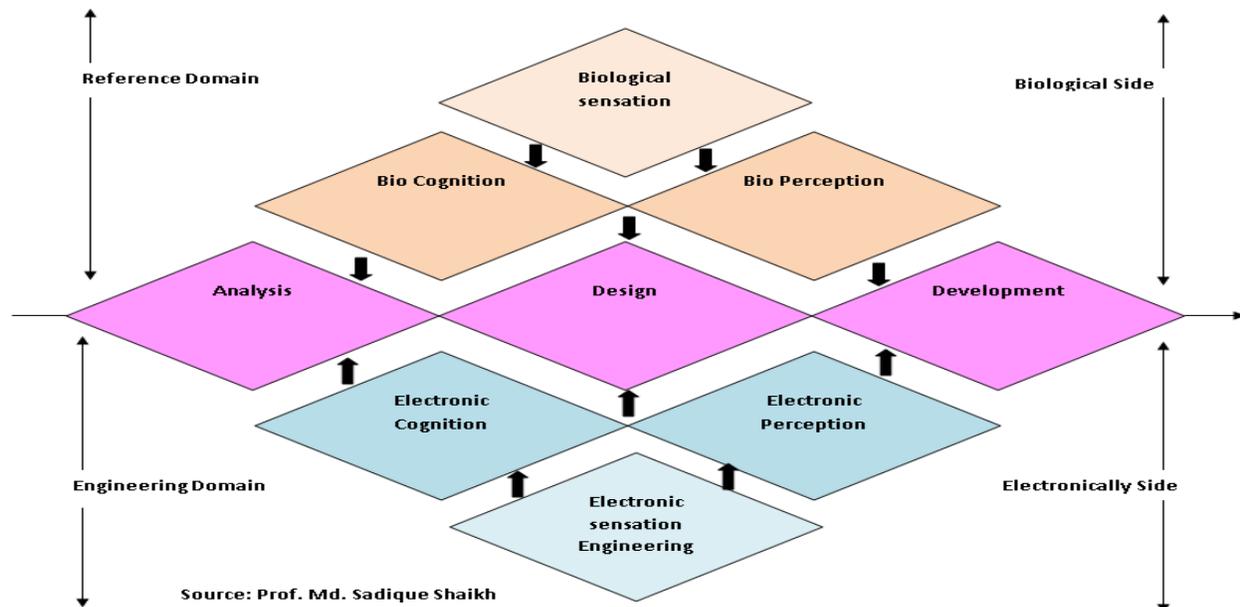
This is my first proposed model with the intention to discuss how effectively basic artificial vision often called Robotic vision possible to engineer and implement. I exhibit four important parameters here in which three logics design and vision input design as High Focal Length Vision Lenses and Sensation engineering, in this criterion all high precision excellent wavelength λ based optics and high focal length optical lenses with ultra-high resolution need to engineer with retina like features sensors and electronic engineering. After this we must need to move with paying great attention on three logics as Cognition logic here needs to analyze all biological cognition of mankind to fit in electronic or optoelectronic engineering.

The second one is Perception logic is related to how to behave with input vision with creating object or structure to make choices, like, dislikes and decision along with vision processing chamber. The third one is object recognition unit, here all the sensed vision with assistance of whole assembly make meaning and identified input vision objects. All these units work for central "Vision Processing Chamber" and based on three tiers as Meaning generation logic unit as I already mentioned work with one design

and three different logic to interpret exact and accurate meaning of identified object with giving name and total recall all its features. Sometime new object freshly input at that time new object identification and processing layer will work and first time create all its data and identify several time the object in future with reusing it. to assist both layers is Image and Template processing layer the function of this layer as when object recognizing at that time provide saved template to mach or in case of new object input crate its template to reuse for next time when same vision input occur again in future.

Vision Design Mapping (VDM) Model

This model is wonderful and lucid display how Natural biological vision map to engineer artificial/Machine vision. Hence model split into three segments as Design line at center, Reference domain at top and Engineering domain at bottom. The center domain is actual Artificial Vision Development phases as similar to software engineering having three phases as "Analysis of Artificial/Machine Vision, Designing of Artificial/Machine vision and Development of Artificial/Machine vision".



But the main vision mapping parts are Reference domain to Engineering domain as tends to “Biological side to Electronically side” of vision development from Natural to artificial one. The center point of Vision Design Mapping Model to make analysis from biological reference domain and using it as reference engineer electronically and for this need to map “Biological sensation” which further distributed as “Bio Cognition” and “Bio Perception” as discussed in first model can map and engineer as “Electronic sensation engineering” which further distributed as “Electronic Cognition” and “Electronic Perception”.

Conclusion

Artificial Intelligence, Bionic, Cyborg and Humanoid are the evidences of successful advanced engineering in the domain and machine/artificial vision are the most important common component for all, without it these all seems to be blind. Thus artificial/machine vision engineering like natural vision processing wise abilities are essential and vital which I tried to discuss with help of two models “Basic Artificial Vision Engineering (BAVE) Model” in which I discussed what are the basic engineering requirements to implement Artificial/Machine vision and “Vision Design Mapping (VDM) Model” which discussed how

Natural vision mapped to engineer Artificial/Machine vision.

References:

1. NSF/EC Understanding on Co-operation in Information Technologies - Strategic Research Workshops IST-1999-12077
2. Md. Sadique Shaikh (2013) Analysis and modeling of Strong A.I to engineer BIONIC brain for humanoid robotics application. American Journal of Embedded System and Applications, Published by Science Publishing Group; 1(2): 27-36.
3. Md. Sadique Shaikh (2017) Ultra Artificial Intelligence (UAI): Redefining AI fir New Research Dimension. Advanced Robotics & Automation (ARA), OMICS International, London; 6(2) 1-3.
4. Md. Sadique Shaikh (2017) Fundamental Engineering for Brain-Computer Interfacing (BCI): Initiative for Neuron-Command Operating Devices. Computational Biology and Bioinformatics (CBB), SciencePG; 5(4): 50-56.
5. Md. Sadique Shaikh (2018) Defining ultra artificial intelligence (UAI) implementation using bionic (biological-like-electronics) brain engineering insight. MOJ App Bio Biomech; 2(2): 127–128.
6. Md Sadique Shaikh. Insight Artificial to Cyborg Intelligence Modeling. Arch Ind Engg; 1(1): 1- 5.

Citation: Sadique Shaikh, et.al. (2018) “Insight Natural Vision Processing like Engineering for Machine Vision”. J Dyn Mach; 1(1): 1-4.

DOI: [10.31829/2690-0963/dom2018-1\(1\)-102](https://doi.org/10.31829/2690-0963/dom2018-1(1)-102)

Copyright: © 2018 Sadique Shaikh, Rafik Shaikh. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.