Research Collaborators:

Dr. Yeni Herdiyeni
(Principal Investigator)

Dr. Irman Hermadi
(Dept. of Computer Science)

Ir. Julio Adisantoso, M.Kom
(Dept. of Computer Science)

Mayanda Mega S., M.Kom
(Dept. of Computer Science)

Dr. Medria Hardhienata
(Dept. of Computer Science)

Prof. Aunu Rauf
(Dept. of Plant Protection)

Prof. Ervizal A.M. Zuhud
(Dept. of Forest Resources Conservation and Ecotourism)

Prof. Lilik B Prasetyo
(Dept. of Forest Resources Conservation and Ecotourism)

Dr. Etih Sudarnika M
(Dept. of Infectious Diseases and Veterinary Public Health)

Dr. Elis Nina Herliyana
(Dept. of Silviculture)

Prof. Stéphane Douady
(University of Paris Diderot, France)

Prof. Kohei Arai
(Saga University, Japan)

Prof. Hiroshi Okumura
(Saga University, Japan)

Research Group Profile

http://cs.ipb.ac.id/~cv

Computer Vision for Life Sciences

Department of Computer Science - Faculty of Mathematics and Natural Sciences
Bogor Agricultural University
2016

Computer Vision for Life Sciences Research Group

Computer Vision for Life Sciences

Computer Vision for Life Sciences (CVLS) is a research group in Department of Computer Sciences, Faculty of Mathematics and Natural Sciences, Bogor Agricultural University (Institut Pertanian Bogor - IPB). The intention of this group is to provide sufficient background on the state of the art of the computer vision and applied in wide range of areas in life sciences, especially for agriculture and biodiversity. The CVLS focuses on developing computer vision application for life sciences at three level of biodiversity i.e. genetics diversity, species diversity and ecosystem diversity.

Research Collaborations

We have been fruitful research collaboration for conducting interdisciplinary research on biodiversity and integrated pest management for pest and diseases monitoring with Department of Forest Resources Conservation and Ecotourism – Faculty of Forestry IPB, Department of Plant Protection - Faculty of Agriculture, Department of Infectious Diseases and Veterinary Public Health - Faculty of Veterinary Medicine IPB. Also, we have been international research collaboration with University of Paris Diderot, France and Saga University, Japan. In September 2016, we just signed MoU with pulp and paper company (PT. Arara Abadi) for conducting research on diseases monitoring in forest industry.

Research Projects

Developing of Smart Internet of Things (IoT) for monitoring Integrated Pest Management System (IPM) based on Computer Vision Technology at PT. Arara Abadi (Pulp and Paper Company)

Duration: 2017 - 2019

Description: This research projects is research collaboration between university (IPB), company (PT. Arara Abadi) and goverment (Forest Research and Development Agency of Ministry of Forestry). The objective of this research projects are to develop smart Internet of Thing (IoT) based on computer vision for diseases monitoring at Acacia forest of PT. Arara Abadi.

Research collaborators: Dr. Yeni Herdiyeni, Dr. Budi Tjahyono, Dr. Elis N Herliyana, Dr. Lilik B Prasetyo, Ir. Julio Adisantoso, Dr. Maman Turjaman, Bayo Alhusaeri Siregar, S.P, M.Si

Research Funding: Ministry of research, technology and higher education, Republic of Indonesia, PT. Arara Abadi (Research scheme: Program Insinas Riset Pratama Konsorsium)

The impact of Environmental Change on Infectious Diseases: Assessment and Monitoring Malaria in West Bangka, Province of Bangka Belitung

Duration: 2017 - 2019

Description: This research projects is international research collaboration between IPB and Saga University, Japan which consists of researchers from computer science, forestry, geophysics and meteorology, infectious diseases and veterinary public health, environmental and ecological research. In this research we will study the impact of environmental change for assessing and monitoring malaria risk in West Bangka, Bangka Belitung province.

Research Collaborators: Dr. Yeni Herdiyeni, Prof. Lilik B Prasetyo, Dr. Etih Sudarnika, Prof. Kohei Arai, Prof. Hiroshi Okumura, Dr. Rahmat Hidayat, Dr. YudiSetiawan.

Research Funding: Ministry of research, technology and higher education, Republic of Indonesia (Research scheme: International Research Collaboration and Scientific Publication)

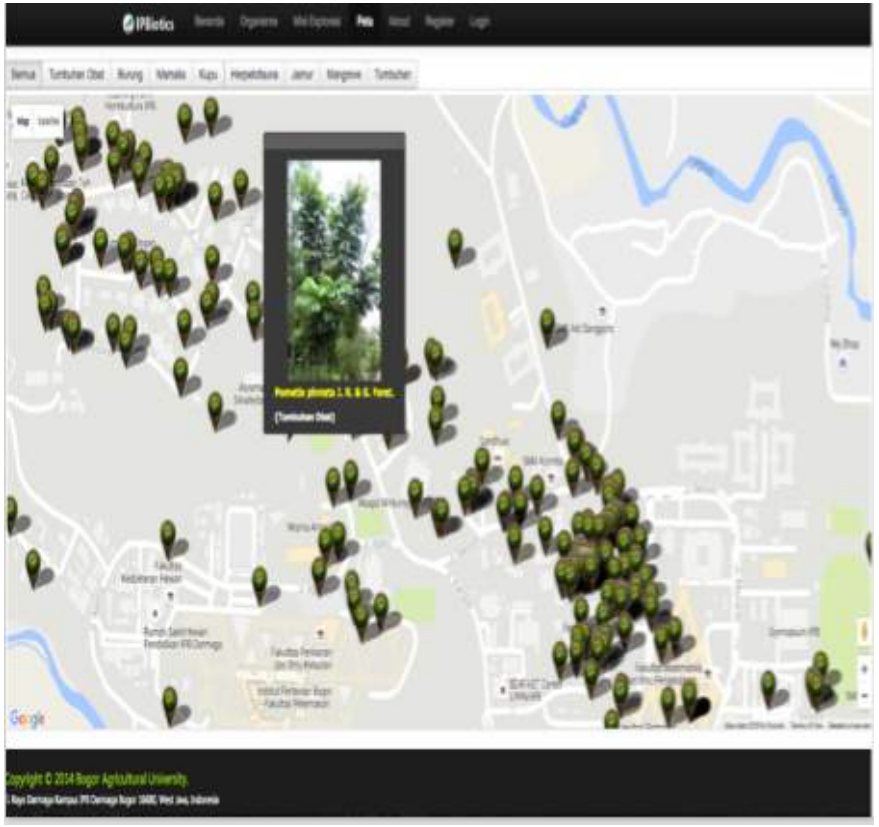
Development of Medicinal Plant Leaf Identification system Based on Leaf Biometric Characters to Support Plant Conservation in Indonesia

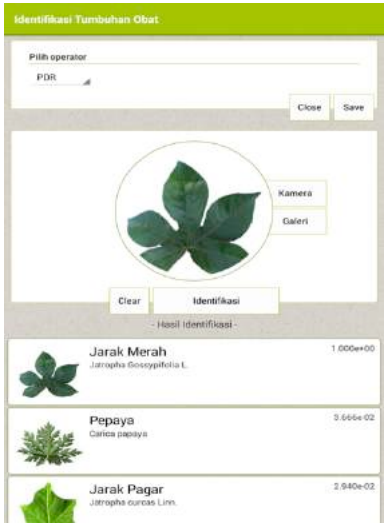
Duration: 2014 - 2016

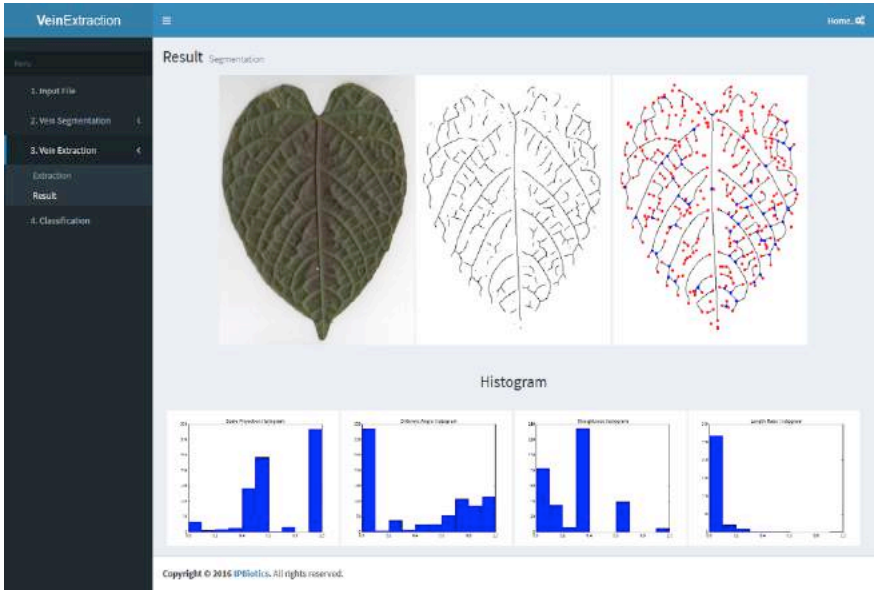
The aim of this projects was to develop computer vision application for extracting geometrical morphometrics of medicinal leaf based on digital image processing. The objectives of this research were (1) developing computer-aided medicinal plant identification based on geometrical features; (2) developing computer-aided medicinal plant identification based on leaf contour and leaf vein character; (3) developing content-based image retrieval (CBIR) application for species identification. This project is international research collaboration with University of Paris Diderot, France.

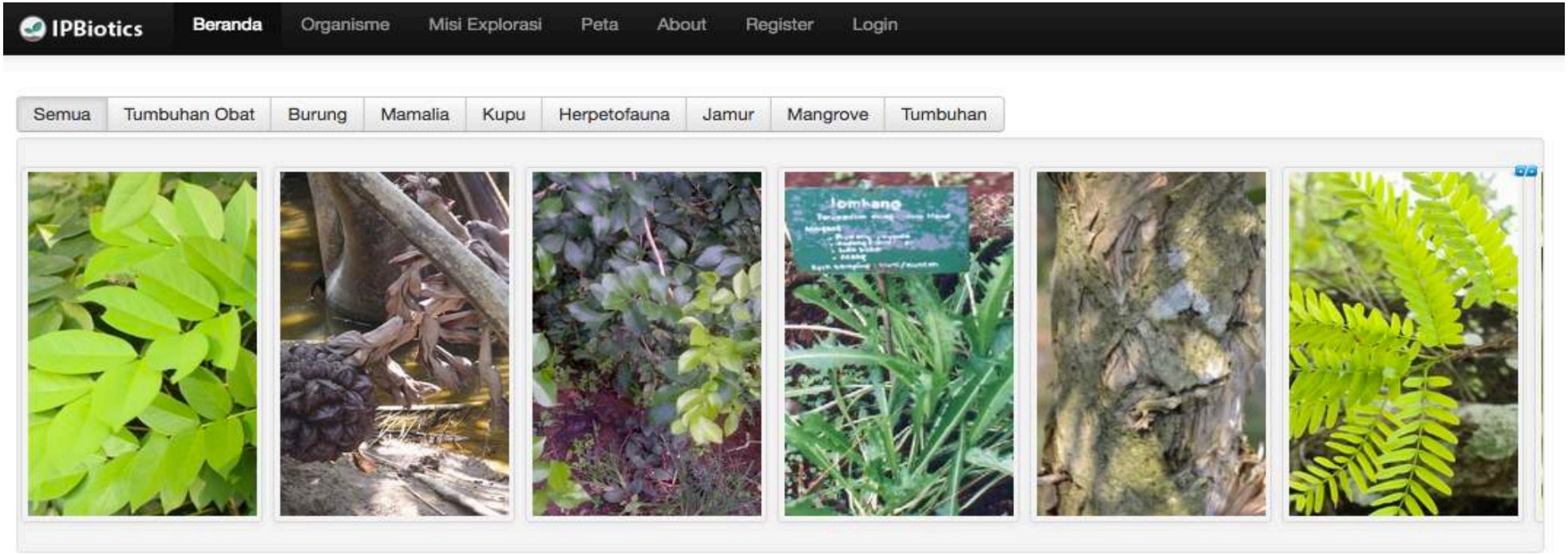
Research collaborators: Dr. Yeni Herdiyeni, Prof. Stephane Douady, Prof. Ervizal A.M Zuhud, Dr. Irman Hermadi and Ir. Julio Adisantoso, M.Komp

Research Funding: Ministry of research, technology and higher education, Republic of Indonesia (Research scheme: International Research Collaboration and Scientific Publication)









Developing IPBiotics
(IPB Biodiversity Informatics)

Duration: 2013 - 2015

Description: This study developed a system of IPB's biodiversity informatics (IPBiotics) for managing Indonesian biodiversity information. The research activities were biodiversity exploration, database development and developing web and mobile application for exploration, species distribution and identification.

Research collaborators: Dr. Yeni Herdiyeni (Dept of Computer Science), Prof. Dr. Ervizal A.M Zuhud (Faculty of forestry), Dr. Agus Hikmat (Faculty of forestry), Dr. Abdul Haris Mustafa (Faculty of Forestry)

Research Funding: Ministry of research, technology and higher education, Republic of Indonesia (Research scheme: IPB Superior Research)

Development of Computer Vision Technology to Support Integrated Pest Management in Paddy Plantation

Duration: 2013 - 2014

Description: The aim of this research project was to develop computer vision application for identifying rice diseases based on leaf digital image processing.

We analyzed four rice diseases: bacterial leaf blight (Xanthomonas oryzae), blast (Pyricularia oryzae), brown spot, (Helminthosporium sp.) and tungro virus.

This project was research collaboration between Dept of Computer Science IPB and Dept of Plant Protection IPB.

Research Collaborators: Dr. Yeni Herdiyeni, Prof. Aunu Rauf, Dr. Kikin Mutaqin, Auzi Asfarian, M.Kom

Research Funding: Ministry of research, technology and higher education, Republic of Indonesia (Research scheme: IPB Superior Research)

International Research and Academic Collaboration

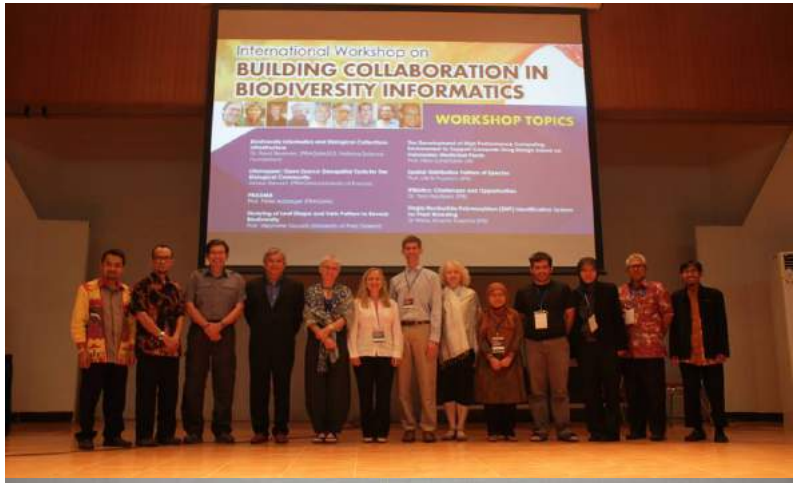
1. International Partnership Program (IPP) between IPB and Saga University, Japan. The activities of IPP programs are research partnership and lecture partnership.

2. Special Lecture. Special lecture is one of IPP activities between Dept of Computer Science IPB and Saga University, Japan. The purpose of special lecture is to strengthen research collaboration by presenting the research experience and teaching the course. This activity was held in IPB and Saga University, Japan.

3. International Workshop on Building Collaboration in Biodiversity Informatics. This workshop was held in 2015 in IPB. The objective of this workshop was to develop potential collaboration in Biodiversity Informatics between IPB, University of Paris Diderot and PRAGMA (The Pacific Rim Application and Grid Middleware Assembly)

4. Training managing biodiversity data (PRAGMA Bio-Data Carpentry). This training was held 6 October 2015 in Dept of Computer Science IPB

5. International Workshop on Linking Agriculture Practices and Computer Vision Technology. This workshop was held on 4 December 2013, collaboration between IPB and Saga University, Japan.



Research Member (undergraduate):

1. Agitha Minasari
2. Alvian Supriadi
3. Bayu Santoso
4. Gishella E. Rondonuwu
5. Gusti Bimo Marlawanto
6. Hana Hanifah
7. Irfan Elfakar
8. Luthfiyah Musayyadati
9. Miftah Faqih
10. Muhammad Irfan Fadhilah
11. Muhammad Ilham Jamaludin
12. Nino Tannio
13. Nurwasilah
14. Sella Monica
15. Tentri Oktaviani
16. Tri Setio

Research Member (graduate):

1. Ambarwari Agus
2. Anissa Siti Rahma
3. Budi Arif Dermawan
4. Firman Prawiradisastra
5. Putri Ayu Pramesti
6. Sahid Amie Enoy Hudjimartsu
7. Uray Ristian Basuni

Computer Vision for Life Sciences Research Group

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