

## P. Basura Chinath Fernando

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### Objective

Influential industrial innovation and next generation cutting-edge research in Computer Vision and Machine Learning.

### Current Position

- Research Fellow at the Australian National University Canberra and a researcher at the Australian Research Councils Centre of Excellence Robotic Vision.
- Project leader for Video representation project at the Australian Research Councils Centre of Excellence Robotic Vision.

### Education

- 2011 - 2015 : Ph.D Doctor in Electrical Engineering. PSI-VISICS, Electrical Engineering Dept, KU Leuven, Belgium (Supervisor Prof. Tinne Tuytelaars)
- 2009 - 2011 : M.Sc. Colour In Informatics and Media Technology, European Master, University Jean Monnet, Saint-Etienne, France
- 2003 - 2007 : B.Sc. (Hons), Computer Science and Engineering, University of Moratuwa, Sri Lanka, (Deans list, GPA 3.9)

### Research Interests

- Visual representation learning
- Visual recognition and analysis
- Pattern recognition and data mining
- Statistical machine learning
- Computer vision

### Research Experience

- Human action recognition (CVPR15, CVPR16, CVPR17, ICCV17, TPAMI)
- Deep learning (ICML16, CVPR16, CVPR17, ICCV17)
- Visual Pattern Mining (ECCV12, ICCV13, CVPR15, IJCV)
- Domain adaptation (ICCV13, CVIU, PRL)
- Transfer learning (ICCV13, CVIU, PRL)
- Mid-level feature learning (ECCV12, ICCV13, IJCV)
- Bi-level optimization (ICML16, CVPR16)
- Image captioning (ICCV15, ECCV16)
- Fine-grained object class categorization (ICCV13, IJCV)
- Action detection (CVPR17)
- Unsupervised feature learning (CVPR17)
- Supervised ranking (ICCV15)
- Feature fusion (CVPR12)
- Dictionary learning (Pattern Recognition)

## Research Projects

- Member of Australian Research Councils Centre of Excellence Robotic Vision - <http://roboticvision.org/>
- Member of EU-FP7 project AXES (2012-2015) - <http://www.axes-project.eu/>
- Member of BeeldCanon project (2011-2012) - <http://staff.science.uva.nl/~gavves/beeldcanon/html/>
- Contributor of ERC project Cognimund - <http://homes.esat.kuleuven.be/~tuytelaa/cognimund.html>
- Contributor of Pascal 2 Network of Excellence

## Work Experience

- Research Fellow, The ARC Centre of Excellence Robotic Vision, The Australian National University, Australia - 2015- 2018
- Research Assistant, Electrical Engineering Dept. (ESAT), KU Leuven, Belgium - 2011 - 2015
- Intern-ship at Laboratoire Hubert Curien, UMR CNRS, Saint-Etienne, France - 2011
- Senior Software Engineer, JKCS, Colombo, Sri Lanka - 2008-2009
- Senior Software Engineer, Virtusa, Colombo, Sri Lanka - 2008
- Software Engineer, Virtusa, Colombo, Sri Lanka - 2007
- Software Intern, Virtusa, Colombo, Sri Lanka - 2006

## Programming & Software Engineering Skills

Matlab, Octave, Python  
MatConvNet, Tensorflow  
OO Design and Software Architectures design.  
Java, Java EE

## Honours and Awards

Post doctoral research fellowship The Australian National University 2015-2018.  
PhD research fellowship KU Leuven, Belgium 2011-2015.  
Ranked First in European Master CIMET cohort 2009-2011.  
Erasmus Mundus Scholarship (42000 Euro) 2009-2011.  
Dean's list several times during 2003-2007 University of Moratuwa Sri Lanka.  
Mahapola Scholarship 2003-2007.

## Professional Activities

- Organizing CVPR 2017 workshop titled *Brave New Ideas for Motion and Spatio-Temporal Representations*.
- Organising ECCV 2016 workshop titled *Brave New Ideas For Motion Representations*.
- Program committee member of *Robotic Vision RVSS 2016 Summer School*.
- Co-chairing the CVPR 2016 oral and spotlight session on *Learning and CNN Architectures*.
- Reviewer for:

CVPR 2013, 2015, 2016, CVPR17 reviewer

ICCV 2013, ICCV17 reviewer

ECCV 2014, 2016 reviewer

NIPS 2016, 2017 reviewer

TPAMI: IEEE Transactions on Pattern Analysis and Machine Intelligence

IJCV: International Journal of Computer Vision

CVIU: Computer vision and image understanding journal  
PR: Pattern Recognition Journal  
PRL: Pattern Recognition Letters Journal  
Machine Learning Journal  
IEEE Transactions on Neural Networks and Learning Systems  
IEEE Transactions on Multimedia

### Teaching Activities

2016 Semester 1 : ENGN4528: Computer Vision at ANU  
2015 Spring : H09J2A: Pattern Recognition and Image Interpretation (TA) at KU Leuven  
2014 Spring : H09J2A: Pattern Recognition and Image Interpretation (TA) at KU Leuven  
2013 Spring : H09J2A: Pattern Recognition and Image Interpretation (TA) at KU Leuven

### Student Supervision

1. 2015-2018 - PhD thesis co-advisor - Rodrigo Santa Cruz (ANU)
2. 2016-2019 - PhD thesis co-advisor - Cristian Rodriguez Opazo (ANU)
3. 2016-2019 - PhD thesis co-advisor - Mohammad Sadegh Aliakbarian (ANU)
4. 2013 : Learning object categories from the web - Alberto Dominguez (Master thesis KU Leuven)

### Seminar/Talks

- May 24, 2016 - Rank pooling and variants for action and activity recognition - ACRV The Australian National University
- March 17, 2016 - Action and Activity Recognition Research at ANU - Australian Centre for Visual Technologies, The University of Adelaide, Australia
- July 15, 2015 - Effective Image and Video Representations - Australian Centre for Robotic Vision, The Australian National University, Australia
- March 30, 2015 - Image Representations for Improving Object Recognition - VISICS Lab, Leuven, Belgium
- Dec 12, 2013 - Unsupervised Visual Domain Adaptation Using Subspace Alignment - VISICS Lab, Leuven, Belgium
- May 15, 2012 - Discriminative Feature Fusion for Image Classification - VISICS Lab, Leuven, Belgium
- Nov 22, 2012 - Learning mid-level features for image retrieval - Hubert-Curien Lab, Saint Etienne, France
- Dec 04, 2012 - Learning mid-level features for classification and retrieval - Intelligent Systems Lab, Amsterdam
- Dec 12, 2013 - Mining Multiple Queries for Image Retrieval: On-the-fly learning of an Object-specific Mid-level Representation - VISICS Lab, Leuven, Belgium

### Publications

1. Fernando, B., Bilen, H., Gavves, E., & Gould, S. (2016). Self-Supervised Video Representation Learning With Odd-One-Out Networks. in 'IEEE International Conference on Computer Vision and Pattern Recognition **CVPR** 2017'.
2. Cruz, R. S., Fernando, B., Cherian, A., & Gould, S. (2017). DeepPermNet: Visual Permutation Learning. in 'IEEE International Conference on Computer Vision and Pattern Recognition **CVPR** 2017'.

3. Cherian, A., Fernando, B., Harandi, M., & Gould, S. (2017). Generalized rank pooling for activity recognition. in 'IEEE International Conference on Computer Vision and Pattern Recognition **CVPR** 2017'.
4. Anderson, P., Fernando, B., Johnson, M., & Gould, S. (2016). SPICE: Semantic Propositional Image Caption Evaluation, in 'European Conference on Computer Vision **ECCV** 2016'.
5. Fernando, B. & Gould, S. (2016) Learning End-to-end Video Classification with Rank-Pooling, in 'International Conference on Machine Learning **ICML** 2016'.
6. Bilen, H.; Fernando, B.; Gavves, E.; Vedaldi, A. & Gould, S. (2016), Dynamic Image Networks for Action Recognition, in 'IEEE International Conference on Computer Vision and Pattern Recognition **CVPR** 2016'.
7. Fernando, B.; Gavves, E.; Oramas, J.; Ghodrati, A. & Tuytelaars, T. (2016), 'Rank Pooling for Action Recognition', IEEE Transactions on Pattern Analysis and Machine Intelligence SI:CVPR15(1) **TPAMI**, 1-14.
8. Fernando, B.; Anderson, P.; Hutter, M. & Gould, S. (2016), Discriminative Hierarchical Rank Pooling for Activity Recognition, in 'IEEE International Conference on Computer Vision and Pattern Recognition **CVPR** 2016'.
9. Fernando, B.; Tommasi, T. & Tuytelaars, T. (2015), 'Location recognition over large time lags', Computer Vision and Image Understanding (**CVIU**) 139, 21–28.
10. Fernando, B.; Tommasi, T. & Tuytelaars, T. (2015), 'Joint cross-domain classification and subspace learning for unsupervised adaptation', Pattern Recognition Letters 65, 60–66.
11. Fernando, B.; Gavves, E.; Oramas, J.; Ghodrati, A. & Tuytelaars, T. (2015), Modeling video evolution for action recognition, in 'IEEE International Conference on Computer Vision and Pattern Recognition **CVPR** 2015'.
12. Fernando, B.; Gavves, E.; Muselet, D. & Tuytelaars, T. (2015), Learning to rank based on subsequences, in 'IEEE International Conference on Computer Vision **ICCV** 2015'.
13. Jia, X.; Gavves, S.; Fernando, B. & Tuytelaars, T. (2015), Guided long-short term memory for image caption generation, in 'IEEE International Conference on Computer Vision **ICCV** 2015'.
14. Rematas, K.; Fernando, B.; Dellaert, F. & Tuytelaars, T. (2015), Dataset Fingerprints: Exploring Image Collections Through Data Mining, in 'Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition **CVPR** 2015', pp. 4867–4875.
15. Fernando, B.; Fromont, E. & Tuytelaars, T. (2014), 'Mining mid-level features for image classification', International Journal of Computer Vision (**IJCV**) 108(3), 186–203.
16. Fernando, B.; Muselet, D.; Khan, R. & Tuytelaars, T. (2014), Color features for dating historical color images, in 'IEEE International Conference on Image Processing **ICIP** 2014'.
17. Gavves, E.; Fernando, B.; Snoek, C. G.; Smeulders, A. W. & Tuytelaars, T. (2014), 'Local alignments for fine-grained categorization', International Journal of Computer Vision (**IJCV**) 111(2), 191–212.
18. Aly, R.; Arandjelovic, R.; Chatfield, K.; Douze, M.; Fernando, B.; Harchaoui, Z.; McGuinness, K.; O'Conner, N. E.; Oneata, D.; Parkhi, O. M. & others (2013), The AXES submissions at TrecVid 2013, in 'TrecVid'.
19. Aly, R.; Arandjelovic, R.; Chatfield, K.; Douze, M.; Fernando, B.; Harchaoui, Z.; McGuinness, K.; O'Conner, N.; Oneata, D.; Parkhi, O. M. & others (2013), AXES at TRECVID 2013, in 'TRECVID', NIST, .
20. Fernando, B.; Habrard, A.; Sebban, M. & Tuytelaars, T. (2013), Unsupervised Visual Domain Adaptation Using Subspace Alignment, in 'IEEE International Conference on Computer Vision **ICCV** 2013'.
21. Fernando, B. & Tuytelaars, T. (2013), Mining Multiple Queries for Image Retrieval: On-the-fly learning of an Object-specific Mid-level Representation, in 'IEEE International Conference on Computer Vision **ICCV** 2013'.

22. Gavves, E.; Fernando, B.; Snoek, C.; Smeulders, A. & Tuytelaars, T. (2013), Fine-Grained Categorization by Alignments, in 'IEEE International Conference on Computer Vision **ICCV** 2013'.
23. Rematas, K.; Fernando, B.; Tommasi, T. & Tuytelaars, T. (2013), Does Evolution cause a Domain Shift?, in 'IEEE International Conference on Computer Vision ICCV 2013 Workshop VisDA'.
24. Aly, R.; McGuinness, K.; Chen, S.; O'Connor, N. E.; Chatfield, K.; Parkhi, O.; Arandjelovic, R.; Zisserman, A.; Fernando, B.; Tuytelaars, T. & others (2012), AXES at TRECVID 2012: KIS, INS, and MED, in 'TRECVID'.
25. Aly, R.; McGuinness, K.; Chen, S.; O'Connor, N.; Chatfield, K.; Parkhi, O.; Arandjelovic, R.; Zisserman, A.; Fernando, B.; Tuytelaars, T. & others (2012), AXES at TRECVID 2012, in 'TRECVID'.
26. Fernando, B.; Fromont, E.; Muselet, D. & Sebban, M. (2012), 'Supervised learning of Gaussian mixture models for visual vocabulary generation', *Pattern Recognition* 45(2), 897–907.
27. Fernando, B.; Fromont, E.; Muselet, D. & Sebban, M. (2012), Discriminative Feature Fusion for Image Classification, in 'IEEE International Conference on Computer Vision and Pattern Recognition **CVPR** 2012'.
28. Fernando, B.; Fromont, E. & Tuytelaars, T. (2012), Effective Use of Frequent Itemset Mining for Image Classification, in 'European Conference of Computer Vision 2012 ( **ECCV** 12)'.
29. Moreno, A.; Fernando, B.; Kani, B.; Saha, S. & Karaoglu, S. (2011), Color correction: a novel weighted Von Kries model based on memory colors, in 'Computational Color Imaging', Springer Berlin Heidelberg, , pp. 165–175.
30. Fernando, B.; Karaoglu, S. & Trmeau, A. (2010), Extreme Value Theory Based Text Binarization in Documents and Natural Scenes, in 'International Conference on Machine Vision'.
31. Fernando, B.; Fromont, E.; Muselet, D. & Sebban, M. (2010), Accurate Visual Word Construction using a Supervised Approach, in '25th International Conference of Image and Vision Computing New Zealand, New Zealand (2010)', pp. 1–7.
32. Karaoglu, S.; Fernando, B. & Trmeau, A. (2010), A novel algorithm for text detection and localization in natural scene images, in 'Digital Image Computing: Techniques and Applications (DICTA), 2010 International Conference on', pp. 635–642.

### **Personal Details**

Full name : PALAMANDADIGE BASURA CHINATH FERNANDO  
 Nationality : Sri Lankan