



Civil status

Married

Address

24 Chemin Charrière Blanche
bâtiment Frênes 4,
69130 Écully, France

Phone

+33 06 84 99 17 12

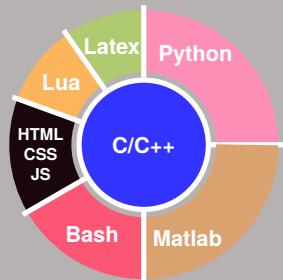
Mail

xiaofang.wang@ec-lyon.fr

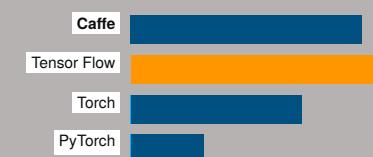
Web

Github: [Homepage](#)

Programming



Deep Learning Tool



OS Preference

Linux	★★★★★
ms OS	★★★★★
Windows	★★★★★

Languages

Chinese	★★★★★
English	★★★★★
French	★★★★★
Janpanese	★★★★★

Xiaofang WANG

Education

Sep. 2005 - June 2009 **BSc in Biomedical Engineering** Central South University, China
Biomedical engineers combine engineering principles focused on the interdisciplinarity of medical, biological sciences to design and create equipment, devices, computer systems, and software used in healthcare.
Title of the Thesis: "Medical Image processing". Grade A.

Sep. 2009 - June 2011 **Master in Biomedical Engineering** Central South University, China
Biomedical engineers combine engineering principles focused on the interdisciplinarity of medical, biological sciences to design and create equipment, devices, computer systems, and software used in healthcare.
Title of the Thesis: "Liver CT Image Segmentation based on Active Contour Models". Grade A.

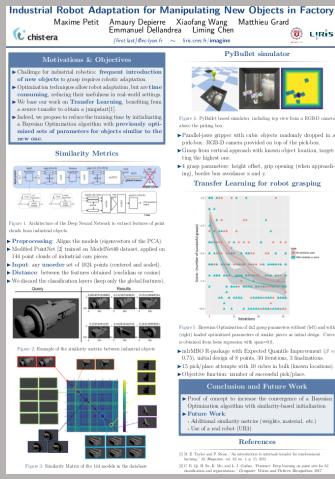
Sep. 2011 - Mar 2015 **PhDs in Computer Vision** Ecole Centrale Lyon, France
Computer vision is an interdisciplinary field that deals with how computers can be made for gaining high-level understanding from digital images or videos.
Title of the Thesis: "Unsupervised Image Segmentation Based on Graph Theory". Mention tres Horable.

Work Experience

- Sep. 2017 - Now **Post-doc** Ecole Centrale Lyon, France
Research topic: "3D CAD Object Recognition and Retrieval".
- Sep. 2015 - Aug. 2017 **Assistant researcher and lecturer** Ecole Centrale Lyon, France
Research topic: "Unsupervised Domain Adaptation"
- Apr. 2015 - Aug. 2015 **Post-doc** Ecole Centrale Lyon, France
Research topic: "Semantic Image Segmentation".

Teaching Activities

- 2015-2017 **Introduction to algorithms** Ecole Centrale Lyon, France
Key words: data structure, dynamic programming, shortest path
- 2015-2017 **Object-oriented programming** Ecole Centrale Lyon, France
Key words: class, graphic user interface, multi-threading
- 2015-2017 **Web and Database Project** Ecole Centrale Lyon, France
Key words: database, HTTP, HTML, Javascript, Web application
- 2017-2018 **Projet d'application de recherche** Ecole Centrale Lyon, France
Key words: 3D, database, recognition, retrieval



(a) Industrial Robot Adaptation for Manipulating New Objects in Factory

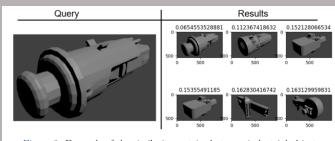
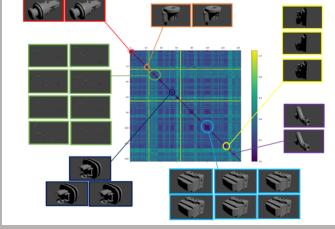


Figure 2: Example of the similarity metrics between industrial objects



(b) Object recognition and retrieval

ViSen

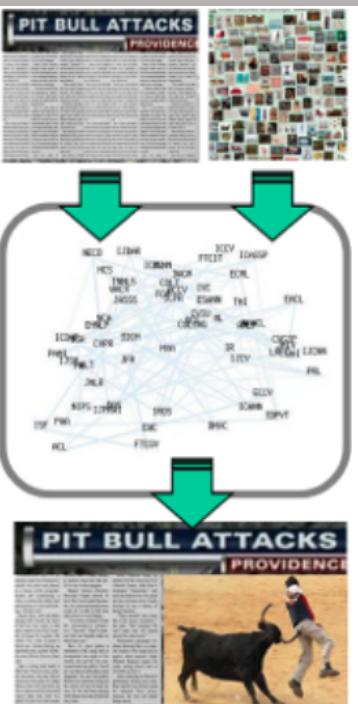


Figure 1: Tagging visual data with semantic descriptions

Projects

Aug. 16 - Now

PIKAFLEX

FUI project

This projet is to contribute to improving the performance of the task of sorting and placement of products in context of high diversity and high flexibility, a task often very tedious and repetitive that is transverse to all industrial manufacturing processes (foundry, chassis, machining, stamping, sheet metal, assembly), and a problem that we frequently find in companies with significant internal logistic flows such as parcel packaging or any type of manufacturing.

My job is to develop an automatic object recognition and retrieval method, I have develop different methods including:

- Data preparation: 1) collect and build a new dataset containing interested objects; 2) develop a new graphic user interface to label collected objects; 3) dataset process: clean, augment, align, centered... ; 4) dataset split; 5) convert data into images by blender or point clouds via Point Cloud Library; 6) convert RGBD image into 3D model based on deep learning method.
- Data learning: 1) train a learning algorithm based on deep neural networks on interested dataset, 2) develop a transfer learning algorithm to adapt the learning method for different targets datasets.
- Data visualization: 1) render images from 3D CAD data with blender, 2) represent them with deep features, 3) develop T-SNE method to understand the data representation.
- Similarities: 1) calculate the similarities between query model with target dataset, 2) develop evaluation method to quantify the results.

Jan. 2012 - Aug. 2016 **ViSen project**

EU CHIST-ERA D2K

The project **ViSen** is for Tagging visual data with semantic descriptions. My job is to develop methods that can predict a semantic representation of visual content. To approach this, I have developed several methods including:

- Two different image segmentation methods are developed based on : graph, normalized cut, graph-cut, superpixel, sparse representation
- Weakly supervised object detection and recognition: image segmentation, deformable part-based models, SVMs
- Semantic image segmentation: deep convolutional neural networks (AlexNet, VGG), conditional random field, superpixels.
- Large Scale Semi-supervised Object Detection: transfer learning

This representation will go beyond the detection of objects and scenes and will also recognize a wide range of object relations. WebPage

Honours & Awards

2008

National Endeavor Fellowship

Central South University,China

2013

Excellent Master's Dissertation

Central South University,China

2013,2014

Top 10% paper award

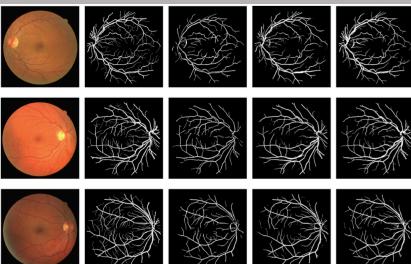
Accepted Paper Quality

IEEE International Conference on Image Processing (ICIP),
Paris, France 2014 and Melbourne, Australia 2014

Image Segmentation

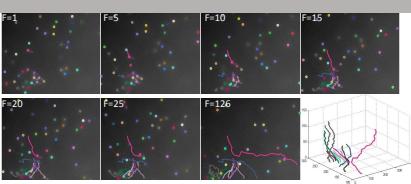


(a) Natural image segmentation

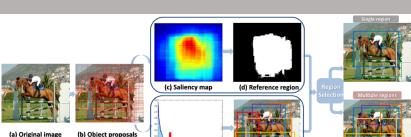


(b) Medical image segmentation

Object Tracking



Object Detection



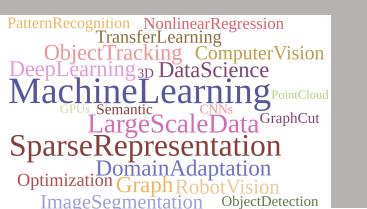
Domain Adaptation



Robot Vision



Summary



Specialities

graph theory

Image segmentation

natural and medical images

- Several methods are developed described in following papers:
- A Global/Local Affinity Graph for Image Segmentation. IEEE Transactions on Image Processing (TIP), vol. 24(4), pp.1399-1411, 2015.
 - Sparse Coding and Mid-Level Superpixel-Feature for L_0 -Graph Based Unsupervised Image Segmentation. Computer Analysis of Images and Patterns. Springer Berlin Heidelberg (CAIP), 2013.
 - Graph-based image segmentation using weighted color patch. IEEE International Conference on Image Processing, 2013
 - Level-set Method Based On Global and Local Regions For Image Segmentation. International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI) vol. 26(01), 2013.
 - Retinal vessels segmentation based on level set and region growing. Pattern Recognition(PR) vol.47(7), pp. 2437-2446,2014. Journal of Visual Communication and Image Representation (JVCI), 2016.

graph theory

Object tracking

Active colloids

One method is developed described in paper:

- Active Colloids Segmentation and Tracking. Pattern Recognition(PR) vol.60, pp. 177-188,2016

machine learning

Object detection and recognition

2D images

- Several methods are developed described in following papers:
- Large Scale Semi-supervised Object Detection Using Visual and Semantic Knowledge Transfer. Submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI), Minor revision
 - Weakly Supervised Learning of Deformable Part-Based Models for Object Detection via Region Proposals. IEEE Transactions on Multimedia (TMM), 2016.
 - Fusing Generic Objectness and Deformable Part-based Models for Weakly Supervised Object Detection. IEEE International Conference on Image Processing (ICIP), Paris, 2014.

transfer learning

Domain adaptation

Image classification

Several methods are developed described in following papers:

- Close Yet Distinctive Domain Adaptation. arXiv preprint arXiv:1704.04235.
- Robust Data Geometric Structure Aligned Close yet Discriminative Domain Adaptation. arXiv preprint arXiv:1705.08620, 2017.

deep CNNs

Semantic Image Segmentation

2D images

One method are developed combining deep convolutional neural network and superpixels

