

ENGN2560 2019 : Computer Vision Course Project Papers

Low-level processing, edge contour detection:

- **Contour Flow: Middle-Level Motion Estimation by Combining Motion Segmentation and Contour Alignment**
https://www.cv-foundation.org/openaccess/content_iccv_2015/papers/Di_Contour_Flow_Middle-Level_ICCV_2015_paper.pdf
Code: Not available but implementable from scratch
- **Richer Convolutional Features for Edge Detection**
http://openaccess.thecvf.com/content_cvpr_2017/papers/Liu_Richer_Convolutional_Features_CVPR_2017_paper.pdf
Code: <https://github.com/yun-liu/rcf>
- **Sparse, Smart Contours to Represent and Edit Images**
<https://arxiv.org/pdf/1712.08232.pdf>
Code: The author replied and said that the code is not publicly available but a demo is
- **Iteratively parsing contour fragments for object detection**
<https://www.sciencedirect.com/science/article/pii/S0925231215015751>
Code: Not available
- **Semantic Edge Detection with Diverse Deep Supervision**
<https://arxiv.org/pdf/1804.02864.pdf>
Code: Not available, email sent to authors
- **Three Birds One Stone: A Unified Framework for Salient Object Segmentation, Edge Detection and Skeleton Extraction**
<https://arxiv.org/pdf/1803.09860.pdf>
Code: Not available, email sent to authors
- **Contour detection in unstructured 3D point clouds**
<https://www.ethz.ch/content/dam/ethz/special-interest/baug/igp/photogrammetry-re mote-sensing-dam/documents/pdf/timo-jan-cvpr2016.pdf>
Code: Not available, email sent to authors

- **Unsupervised Learning of Edges**
<https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=7780548>
 Code: https://github.com/happyharrycn/unsupervised_edges
- **Photo-Sketching: Inferring Contour Drawings from Images**
<https://arxiv.org/pdf/1901.00542.pdf>
 Code: <https://github.com/mtli/PhotoSketch>

Multiview Geometry, Visual Odometry:

- **A Photometrically Calibrated Benchmark For Monocular Visual Odometry**
<https://arxiv.org/pdf/1607.02555.pdf>
 Code: <https://vision.in.tum.de/data/datasets/mono-dataset>
- **A Brute-Force Algorithm for Reconstructing a Scene from Two Projections**
<https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=5995669>
 Code: Not available but implementable from scratch
- **Two View Geometry Estimation with Outliers**
<http://www.maths.lth.se/matematiklth/vision/publodb/reports/pdf/enqvist-kahl-bmvc-09.pdf>
 Code: <http://www.maths.lth.se/vision/downloads/>
- **Edge Enhanced Direct Visual Odometry**
<http://www.bmva.org/bmvc/2016/papers/paper035/paper035.pdf>
 Code: Not available
- **Edge SLAM: Edge points based monocular visual SLAM**
http://openaccess.thecvf.com/content_ICCV_2017_workshops/w35/html/Saha_Edge_SLAM_Edge_ICCV_2017_paper.html
 Code: Not available
- **3D Reconstruction of a Moving Point from a Series of 2D Projections**
https://kilthub.figshare.com/articles/3D_Reconstruction_of_a_Moving_Point_from_a_Series_of_2D_Projections/6549824/files/12028283.pdf
 Code: Not available

- Monocular Dense 3D Reconstruction of a Complex Dynamic Scene from Two Perspective Frames**
http://openaccess.thecvf.com/content_ICCV_2017/papers/Kumar_Monocular_Dense_3D_ICCV_2017_paper.pdf
 Code: Not available
- Scale Recovery for Monocular Visual Odometry Using Depth Estimated with Deep Convolutional Neural Fields**
http://openaccess.thecvf.com/content_ICCV_2017/papers/Yin_Scale_Recovery_for_ICCV_2017_paper.pdf
 Code: Not available
- Theory and Practice of Structure-from-Motion using Affine Correspondences**
http://openaccess.thecvf.com/content_cvpr_2016/papers/Raposo_Theory_and_Practice_CVPR_2016_paper.pdf
 Code: Not available
- Combining Edge Images and Depth Maps for Robust Visual Odometry**
<https://bmvc2017.london/programme-1>
 Code: <https://www.tugraz.at/index.php?id=22399>
- An Iterative 5-pt Algorithm for Fast and Robust Essential Matrix Estimation**
https://www.researchgate.net/profile/Lui_Vincent/publication/269250221_An_Iterative_5-pt_Algorithm_for_Fast_and_Robust_Essential_Matrix_Estimation/links/5a120bd7a6fdccc2d79b6955/An-Iterative-5-pt-Algorithm-for-Fast-and-Robust-Essential-Matrix-Estimation.pdf
 Code: Not available

Indexing:

- FANNG: Fast Approximate Nearest Neighbour Graphs (No Code, implementable)**
https://www.cv-foundation.org/openaccess/content_cvpr_2016/papers/Harwood_FANNG_Fast_Approximate_CVPR_2016_paper.pdf
 Code: Not available but implementable from scratch

- **Link and code: Fast indexing with graphs and compact regression codes**
http://openaccess.thecvf.com/content_cvpr_2018/papers/Douze_Link_and_Code_CVPR_2018_paper.pdf
 Code: https://github.com/facebookresearch/faiss/tree/master/benchs/link_and_code
 Support Library: <https://github.com/facebookresearch/faiss>
- **Efficient Indexing of Billion-Scale datasets of deep descriptors**
https://www.cv-foundation.org/openaccess/content_cvpr_2016/papers/Babenko_Efficient_Indexing_of_CVPR_2016_paper.pdf
 Code: <https://github.com/arbabenko/GNOIMI>
- **Factorized Binary Codes for Large-Scale Nearest Neighbor Search**
<http://www.bmva.org/bmvc/2016/papers/paper034/paper034.pdf>
 Code: Not available but implementable from scratch
- **Atoms of recognition in human and computer vision**
<https://www.pnas.org/content/113/10/2744>
 Code: Not available, turn into an image indexing problem, organize images in a graph

Feature Matching:

- **Structured Feature Similarity with Explicit Feature Map**
http://openaccess.thecvf.com/content_cvpr_2016/papers/Kobayashi_Structured_Feature_Similarity_CVPR_2016_paper.pdf
 Code: Not available but implementable from scratch

Image Based Localization, Retrieval:

- **Modelling Diffusion Process by Deep Neural Networks for Image Retrieval**
<http://bmvc2018.org/contents/papers/0861.pdf>
 Code: Not available but implementable from scratch

Scene Recognition:

- **Semantic Clustering for Robust Fine-Grained Scene Recognition**
<http://www.svcl.ucsd.edu/publications/conference/2016/SemanticClustering/0253.pdf>
 Dataset: <https://sites.google.com/view/mariangeorge/publications?authuser=0>
 Not available but implementable from scratch

Shape, Retrieval, Classification:

- **Non-Rigid 3D Shape Retrieval via Large Margin Nearest Neighbor Embedding**

https://link.springer.com/content/pdf/10.1007%2F978-3-319-46475-6_21.pdf

Code: https://github.com/tum-vision/csd_lmnn