

PERSONAL DETAILS	BC 367, IC Building Lausanne, Switzerland 1024	+41-787-330-059 krishkanth.92@gmail.com Male, DOB: 25 Oct, 1992
RESEARCH INTERESTS	Deep Learning, Computer Vision, Machine Learning, Signal Processing, Non Convex Optimization	
WEBPAGE	Google Scholar profile	
EDUCATION	<p>Ecole Polytechnique Federale de Lausanne Sep 2017 - Present <i>EDIC Fellowship Ph.D. Student</i></p> <p>Indian Institute of Technology Kharagpur Jun 2010 - May 2015 <i>M.Tech with specialization in Signal Processing and Instrumentation,</i> <i>B.Tech (Honours) in Electrical Engineering (5 year Dual Degree)</i> GPA: 8.89/10.0</p>	
PUBLICATIONS	<p>Conference</p> <p>Jonna S, Nakka KK, Sahay RR. “Deep learning based fence segmentation and removal from an image using a video sequence”. In <i>2nd International Workshop on Video Segmentation, ECCV 2016, Amsterdam, accepted as Oral Presentation [pdf]</i></p> <p>Jonna S, Nakka KK, Sahay RR. “My camera can see through fences: A deep learning approach for image de-fencing.” In <i>3rd IAPR Asian Conference on Pattern Recognition ACPR, 2015. [pdf]</i></p> <p>Ray N, Mukherjee S, Nakka KK, Acton ST, Blanker SS. “3D-to-2D mapping for user interactive segmentation of human leg muscles from MRI data.” In <i>Signal and Information Processing, GlobalSIP 2014, IEEE Global Conference on 2014 Dec 3 (pp. 50-54). IEEE. [pdf]</i></p> <p>Journal</p> <p>Jonna S, Nakka KK, Khasare VS, Sahay RR, Kankanhalli MS. “Detection and removal of fence occlusions in an image using a video of the static/dynamic scene”. <i>Journal of Optical Society of America(JOSA) A. 2016 Oct 1;33(10):1917-30. [pdf]</i></p>	
RESEARCH	<p>Computer Science Department, EPFL Sep 2017 - Present <i>Computer Vision Lab</i> <i>Advisors: Dr. Pascal Fua and Dr. Mathieu Salzmann</i></p> <ul style="list-style-type: none"> • Deep Structured Representation: To develop new deep architectures that leverage the representation power of structured descriptors such as Histogram BoW, VLAD, Fisher within an end-to-end learning formalism. 	
INDUSTRY EXPERIENCE	<p>Samsung R&D Institute Bangalore, Sep 2015 - Aug 2017 <i>Engineer, Advanced Technology Lab</i> <i>Under: Dr. Shankar M Venkatesan</i></p> <ul style="list-style-type: none"> • Adversarial Object Detector: Developed an scalable joint recognition-detection model with modified Mobile-net architecture. Conceptualized an adversary to the faster-RCNN object detector to intelligently block the features in convolution space. • All-in-One Face Model: Designed a memory-light all-in-one face faster R-CNN model to estimate bounding box, gender, fiducial points, recognition in a unified way. • Video Captioning: Enhanced performance of sequence-to-sequence captioning model through sharing the encoder-decoder with auxiliary objectives of Video-prediction and entailment model. 	

- **Deep In-painting:** Implemented a GAN model to semantic in-painting to generate the occluded regions with photo-realistic quality.
- **MRF Model:** Developed an algorithm that efficiently fuses the occluded data using multiple frames of captured video using appropriately formulated objective function. The project resulted in publications at leading conferences including Oral presentation at ECCV 2016 Workshops.
- **Reflection Removal:** Worked on removing reflections on window glasses from a video panned across the scene using depth parallax cue with inverse formulation

RESEARCH
INTERNSHIPS**Mitacs Globalink Research Internship, Canada**

May 2014 - July 2014

*Computing Science Department, University of Alberta**Under: Prof. Nilanjan Ray*

- **Content Based Image retrieval:** Evaluated large scale image retrieval methods. Developed an efficient and scalable image retrieval by encoding the local descriptors into L1 minimized sparse vector using an over-complete basis. Adopted product quantization theory to further optimize the retrieval time by decomposing into smaller sub-codebooks.

Philips Research Asia Bangalore

May 2013 - July 2013

*Healthcare Research Team**Under: Dr. Shankar M Venkatesan*

- **Fast Human Detection:** Worked on building a fast human detection system using cascade-of-classifiers. Implemented part based model using Adaboost as feature selection to speed up the computational time. Further, altered the rejection and acceptance policies of cascade to improve upon benchmark false positive rate by 8%.

Queensland Summer Research Program

Nov 2013 - Jan 2014

Advanced Imaging Lab, University of Queensland, Australia Under: Prof. Jeffrey Harmer

- Conducted experiments concerning the acquisition time in spectroscopy. Proposed an exponentially decaying non-uniform sampling scheme, which combined with max entropy resulted in faithful reconstruction of the frequency spectrum. The experiment running time is significantly shortened to < 15% of the time using a conventional linear sampling scheme, typically reduced to 6.6 minutes instead of 80 minutes.

TALKS

“Deep learning based fence segmentation and removal from an image using a video sequence”, **Oral presentation** at ECCV 2016 workshop on Video Segmentation, Amsterdam.

“My camera can see through fences: A deep learning approach for image de-fencing”, **Poster presentation** at ACPR 2015 - Kuala Lumpur, Xerox Research Colloquia 2016 - Bangalore.

“Sparse Coded features based Image retrieval, **Poster presentation** at Symposium conducted by University of Alberta, Edmonton.

PROJECTS

Statistical Signal processing course project: Determined time offset between audio and video in Online repositories of Youtube videos. Exploited spectrogram image features to detect bilabial consonants & built a classifier to predict lip closure instants, which together used to find offset.

Survey on Object Detection: Speed, memory and accuracy trade-offs of modern convolutional object detection systems. Investigated networks such as Mobile net, Squeeze net, Resnet Inception net on SSD, faster R-CNN, YOLO frameworks.