

# Sanket Lokegaonkar

## Education

- 2016–2018 **Virginia Tech**,  
*Master of Science in Computer Science*, focusing on Computer Vision Research.  
 Relevant Courses: Advanced Machine Learning, Advanced Computer Vision, Multiprocessor Programming, Data Mining: Large Graphs/Networks.
- 2011–2015 **University of Mumbai**,  
*Bachelor of Engineering in Computer Engineering*.  
 Relevant Courses: Analysis of Algorithms & Design, Artificial Intelligence, Computer Vision, Distributed Systems, Computer Organization & Architecture.

## Experience

- July 2018 **Software Engineer**, *Bloomberg L.P.*
- Ongoing
- Developed a real-time distributed rules and workflow engine in Spark/Storm (supporting complex temporal rules) to monitor and filter out millions of transactions per minute.
  - Working on algorithmic trading/post-trading analytics workflows in Bloomberg Terminal
- Feb 2017 - **Research Assistant**, *Virginia Tech Vision & Learning Lab*,  
 May 2018 GUIDE: Prof. Jia-Bin Huang.
- Developed a new continual learning method to alleviate catastrophic forgetting in incremental pixel-wise/dense labeling problems.
  - Developed the photogrammetry and iterative 3D point-cloud reconstruction workflow for Source Form, a tool to generate/print 3D models from subjective textual user input.
- May 2017 - **Research Assistant**, *Discovery Analytics Center/Virginia Tech Transportation Institute*,  
 Aug 2017 GUIDE: Prof. Naren Ramakrishnan.
- Analyzed and developed methods to detect driver fatigue/drowsiness and identify distracted drivers, using dash-cam video and car sensors. Analysis explored different approaches viz statistical time-series modeling, recurrent architectures for sensor data modeling, face-tracking and classification using 3D convolutions.
- June 2015 - **Research & Development Intern**, *Dept. of Computer Science, Indian Institute of Technology Bombay*,  
 May 2016 GUIDE: Prof. Ganesh Ramakrishnan.
- Developed a domain-agnostic framework for building and evolving a domain-specific taxonomy, given an initial set of well-organized data points viz expert curated collection. The framework will build and evolve the taxonomy with high precision and recall, but with minimal assistance from a domain expert.
  - Core contributor to the development of web application and mobile application (Lokavidya) focusing on content aggregation, collaborative content creation and dissemination of informational multimedia content.

## Publications

- May 2018 **Continual Learning for Deep Dense Prediction**, *Masters Thesis: Dept of Computer Science, Virginia Tech*,  
 GUIDE: Prof. Jia-Bin Huang.  
 Algorithm to learn continually over a series of dense prediction/segmentation tasks based on the combination of constraining weights and posterior distribution.
- May 2019 **SourceForm: All-In-One Crowdsourced Object Generator**, *SIGGRAPH'19 Studio Workshop*.  
 Integrated tool to aggregate crowdsourced images, filter based on user search, generate watertight models using photogrammetry and 3D print the generated model.
- Dec 2018 **Identifying Distracted and Drowsy Drivers Using Naturalistic Driving Data**, *IEEE International Conference on Big Data (IEEE BigData 18)*.

June 2016 **Building Complementary Domain Taxonomies using Query Enrichment**, *IJCAI: Workshop on Cognitive Knowledge Acquisition and Applications* .

Algorithm to generate and evolve a dual-faceted domain taxonomy, with the help of a well organized domain corpus.

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## Projects

Spring 2017 **Unsupervised Pixel-level Domain Adaptation for Semantic Segmentation.**

- Proposed a novel approach of solving domain adaptation for semantic segmentation by using Conditional GANs to transfer styles across domains and reduce domain-distribution mismatch. Code available in Pytorch.

Spring 2017 **QBOne: A Virtual Environment for Improving Quarterback Decisionmaking.**

- Designed and developed the first prototype for American football quarterback simulation/training environment in a camera-tracked design space of  $40 \times 40$ m.

Fall 2016 **Deep Reinforcement Learning in Multi-agent Soccer** .

- Developed Deep Q-Network with Opponent Modeling for learning collaborative deep agents in a multi-agent soccer environment.

Fall 2018 **Recommending games, communities and estimating gameplay time in a gaming social network : a case study of Steam.**

- Developed and proposed constrained joint matrix factorization approach for game and user recommendation engine on Steam gaming dataset. Extended the algorithm for MapReduce Framework.

Fall 2016 **libConvex.**

- MATLAB library implementing multiple optimization algorithms: Line Search Methods, Trust-Region Methods, Conjugate Gradient, Quasi-Newton, Parameteric Least Squares, Sequential Quadratic Programming for equality constraints.

Spring 2015 **Semantic Search on Distributed Databases** .

- Designed and developed a modular, fault-tolerant distributed search system supporting load distribution across nodes and dynamic management of nodes in Java. Supports semantic queries by using state-of-the-art NLP parsers from Stanford NLP.

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## Skills

Languages C/C++, Python, Java , Javascript, MATLAB , SQL,  $\text{\LaTeX}$

Frameworks Tensorflow, Pytorch, Keras, Hadoop, Solr/Lucene , Apache Spark, Redis

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## Extra Curriculars

- Instructor and TA for CS:3714 Mobile Software Development
- Attended Machine Learning Summer School 2015 focusing on Convex/Non-convex Optimization, IIT Bombay, India.
- Contributed in CS teaching workshops for children in Rural India