Pratik Kalshetti

C-230, Hostel 14, IIT Bombay
Powai, Mumbai - 400076, India

www.cse.iitb.ac.in/~pratikm
pratikm@cse.iitb.ac.in

Education

M.Tech.+Ph.D. Dual Degree (CPI: 9/10)	Computer Science and Engineering	IIT Bombay	2016 - present
Thesis: Hand Pose and Shape Tracking			
B.Tech. (CPI: 8.32/10)	Computer Science and Engineering	IIT Jodhpur	2012 - 2016

Achievements

- Third place in ACM Student Research Competition at SIGGRAPH 2019, Los Angeles.
- Awarded TCS Research Scholar Fellowship 2019.
- Winner Qualcomm Innovation Fellowship India 2017.
- Second place in Inter IIT Tech Meet 2014.

Publications

Journal

- Pratik Kalshetti, Manas Bundele, Parag Rahangdale, Dinesh Jangra, Chiranjoy Chattopadhyay et al. 2017. An interactive medical image segmentation framework using iterative refinement. In *Computers in Biology and Medicine* 83 (2017), 22-33. https://doi.org/10.1016/j.compbiomed.2017.02.002 (Accorded Honors status!)

Conference

- Pratik Kalshetti, Parag Chaudhuri. 2019. Unsupervised incremental learning for hand shape and pose estimation. In *ACM SIGGRAPH 2019 Posters*, 96. https://doi.org/10.1145/3306214.3338553

Projects

Fit Mesh to PointCloud *Computer Graphics, Computer Vision, Optimization*

Iterative model-fitting as energy minimization using Levenberg-Marquardt and subdivision surfaces. Jointly optimize over model parameters and correspondences between observed data points and model surface.
`https://github.com/pmkalshetti/fit_mesh_to_pointcloud`
`C++ (Eigen, Open3D, OpenSubdiv)`

Point Cloud Sampling *Graph Theory, Signal Processing*

Sample point cloud using graph signal processing by preserving application-dependent features.
`https://github.com/pmkalshetti/fast_point_cloud_sampling`
`C++ (OpenMP, pybind11), Python (Scipy)`

Object Detection *Deep Learning, Image Processing*

First implementation of YOLOv2 in Tensorflow with Eager Execution API from scratch.
`https://github.com/pmkalshetti/object_detection_old`
`Python (Tensorflow, OpenCV, Scipy)`

Relevant Courses

Maths	Probability and Statistics, Linear Algebra, Optimization
Core CS	Data Structures and Algorithms, Computer Organization, Operating Systems, Networks
Advanced	Machine Learning, Computer Vision, Computer Graphics, Geometry Processing

Other Activities

- Open source contribution to Tensorflow (uses *DatasetBuilder*.)
- Student Volunteer at *SIGGRAPH 2018*, Vancouver.
- Presented a poster at *Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) 2016*, Guwahati.