

# Siddhant A. Ranade

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## Research Interests

Computer Vision: 3D reconstruction, registration, human pose estimation; 3D Geometry; Computer Graphics; Deep Learning

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## Academic/Research Experience

### Applied Scientist Intern

Lab126, Amazon

Summer - Fall 2019

Sunnyvale, CA

- Topic: "Monocular 3D Human Pose Estimation"
- Mentor: Amit Agrawal
- Developed a weakly supervised approach to 3D human pose estimation from a single camera. Our approach outputs the pose parameters of a realistic human body model.

### Research Internship

Creative Intelligence Lab, Adobe Research

Summer 2017

Seattle, WA

- Topic: "Learning Material-Aware Local Descriptors for 3D Shapes"
- Supervisor: Vladimir Kim
- Used a neural network to learn material-aware descriptors from view-based representations of 3D points for point-wise material classification or material-aware retrieval.

### B.Tech. Project (BTP) – "Material Prediction for Untextured 3D Models from 2D Images"

2016-17

- Supervisor: Prof. Siddhartha Chaudhuri
- Worked on an algorithm to annotate untextured 3D shapes with material labels, exploiting a joint embedding of shapes and images.
- Involves the use of a convolutional neural network.

### Undergraduate Research

Centre for Machine Perception, Faculty of Electrical Engineering, Czech Technical University

Summer 2016

Prague

- Topic: "Segmentation of Drosophila Eggs from Microscopy Scans using Convolutional Neural Networks"
- Supervisor: Prof. Jan Kybic
- Trained a fully convolutional network (U-Net) consisting of a contracting path (for feature detection) followed by an expanding path (for localization), from scratch, to segment fluorescence microscopy scans.
- Achieved accurate results using just 75 training images.

### Supervised Research Project (URA 01) – "Generalised Time-Frequency Transforms"

Autumn 2015

- Supervisor: Prof. Vikram Gadre
- Looked at generalisations of the fractional Fourier transform, specifically from the perspective of its eigenfunctions: the Hermite-Gaussian functions.

### Teaching Associate, EE210X: Signals and Systems, IITBombayX

2014 – 2017

- Work involved creating course content (video demos, discussion videos, quiz problems, lecture notes), and monitoring the discussion forums for 7 offerings of the Massively Open Online Course (MOOC) on edX and IITBombayX, taught by Prof. Vikram Gadre.
  - Also worked as a coordinator for the entire team consisting of about 20 Teaching Associates.
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## Education

### School of Computing, The University of Utah

GPA: 3.92/4.00 (as of Spring 2018)

PhD in Computer Science

2017 – Present

- Supervisors: Prof. Srikumar Ramalingam and Prof. Ladislav Kavan
- Department Fellowship in 2017-18.
- Teaching Mentor for the course Computer Graphics, taught by Prof. Ladislav Kavan in Fall 2018.

### Indian Institute of Technology Bombay

Major GPA: 8.86/10.0 • Minor: 10.0 • CS: 9.8 • EE: 10.0

B.Tech in Engineering Physics with a minor in Computer Science

2013 – 2017

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## Publications

- [1] H. Lin, M. Averkiou, E. Kalogerakis, B. Kovacs, **S. Ranade**, V. Kim, S. Chaudhuri, and K. Bala, "Learning Material-Aware Local Descriptors for 3D Shapes," *3DV*, 2018.
  - [2] **S. Ranade** and S. Ramalingam, "Novel Single View Constraints for Manhattan 3D Line Reconstruction," *3DV*, 2018.
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## Technical Skills

- **Programming Languages:** C, C++, Python, MATLAB, Scilab, Bash, PHP
  - **Libraries:** PyTorch, TensorFlow, Caffe, OpenGL, OpenCV, LibIGL, Eigen, Gurobi
  - **Others:** Basic knowledge of cryptography
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## Professional Activities

- **Reviewer:** The Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP 2018)
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## Academic Achievements

- **Department Fellowship, School of Computing, 2017-18, University of Utah**
  - **Undergraduate Research Award (URA 01), 2015-16, IIT Bombay**
  - **Secured All India Rank 1090 (99.9 percentile) in JEE-Advanced 2013** with a score of 106/120 in Physics.
  - **Recipient of the prestigious KVPY (Kishore Vaigyanik Protsahan Yojana) fellowship** in 2013.
  - **Offered INSPIRE Scholarship** for securing a position in top 1%ile in +2 exam.
  - **Gold Medal in the Mathematics Olympiad, Dept. of Mathematics, IITB** in 2013.
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## Extra-Curricular Activities

### Mentor, Department Academic Mentorship Program, Engineering Physics IITB

- Part of a team of 13 mentors helping academically weak students in the department.
- Involved in organising information/help sessions about minor, honors programs, projects, internships, etc.

### Organization/Volunteering

- Selected to be a Student Volunteer for the **International Physics Olympiad (IPhO)**, Mumbai, 2015. Worked with a team of 25 people to make the event a success. Interacted with team leaders (professors) from 85 countries over 10 days.

### Sports

- First place at the Table Tennis Intramurals, University of Utah, 2018.
- First place at the Table Tennis General Championship (GC) (inter-hostel tournament) in 2015.
- Gold medal in Table Tennis (team event) at the Kendriya Vidyalaya Sangathan Regional Sports Meet, 2010.
- Participated in the KVS Regional Sports Meet in Swimming in 2007

### Music

- Proficiency in singing (Hindustani Classical Music).
  - Currently learning to play the piano.
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## References

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