



SURYANSH KUMAR

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CECS, ANU, ACT 2601, Canberra.
<https://suryanshkumar.github.io>



EDUCATION

- [AUSTRALIAN NATIONAL UNIVERSITY.](#) Sept. 2015 - Till date.
Ph.D. in Engineering and Computer Science. **Expt. Graduation March 2019**
Research Area: Computer Vision.
Supervisory Panel: Yuchao Dai, Hongdong Li, Richard Hartley.
- [IIIT-HYDERABAD.](#) July 2011 - July 2013.
M.S. in Computer Science and Engineering.
Research Area: Robot Vision.
Supervisor: K Madhava Krishna.

AWARDS AND ACHIEVEMENTS

- Awarded ANU Vice-Chancellor Grant.
- **Winner** of NRSfM Challenge at CVPR 2017, Prize awarded by Disney Research.
- Student funding to attend ICML 2017, Sydney Australia and ICCV 2017, Venice Italy.
- Student funding to attend Robot Vision Summer School 2016, Kiola, Australia.
- Recipient of “Australian National University Higher Degree Research” Merit Scholarship Award.
- Recipient of “Best Innovative Group 2014”, by Uurmi Systems Private Limited, India.
- Fully funded by Campus France to do research at INRIA, Grenoble-France.
- Full-Time Scholarship Student for MS program at IIIT-Hyderabad, India.
- Winner of “8085 Programming” and “Project Demonstration” contest at TITIKSHA 2008.

PUBLICATIONS

- [1] Suryansh Kumar, Yuchao Dai, Hongdong Li.
[Superpixel Soup: Monocular Dense 3D Reconstruction of a Complex Dynamic Scene.](#)
Transactions on Pattern and Machine Intelligence, 2018 (**T-PAMI**), IEEE, (Under Review).
- [2] Suryansh Kumar, Anoop Cherian, Yuchao Dai, Hongdong Li.
[Scalable Dense Non-rigid Structure from Motion: A Grassmannian Perspective.](#)
Conference on Computer Vision and Pattern Recognition (**CVPR**), IEEE, 2018, Utah, USA.
- [3] Suryansh Kumar, Yuchao Dai, Hongdong Li.
[Monocular Dense 3D Reconstruction of a Complex Dynamic Scene from Two Perspective Images.](#)
International Conference on Computer Vision (**ICCV**), IEEE, 2017, Venice, Italy.
- [4] Suryansh Kumar, Yuchao Dai, Hongdong Li.
[Spatio-Temporal Union of Subspaces for Multi-body Non-rigid Structure-from-Motion.](#)
Pattern Recognition Journal (**PR**), Elsevier, 2017.
(**Received Best Algorithm Award in NRSFM Challenge at CVPR 2017**)
- [5] Suryansh Kumar, Yuchao Dai, Hongdong Li.
[Multi-body Non-rigid Structure from Motion.](#)
International Conference on 3D Vision (**3DV**), IEEE, 2016, Stanford University, USA.
- [6] Suryansh Kumar, Siva Karthik M, K. Madhava Krishna.
[Markov Random Field based Small Obstacle discovery over Images.](#)
International Conference on Robotics and Automation (**ICRA**), IEEE, 2014, Hong Kong, China.
- [7] Suryansh Kumar, Ayush Dewan, K. Madhava Krishna.
[A Bayes filter based adaptive floor segmentation with homography and appearance cues.](#)
ICVGIP, ACM, 2012, IIT-Bombay, India. (**Oral Presentation**)

- [8] Sarthak Upadhyay, Suryansh Kumar, K. Madhava Krishna.
[CRF Based Frontier Detection using Monocular Camera.](#)
ICVGIP, ACM, 2014, IISc Bangalore, India. ([Oral Presentation](#))

RESEARCH INTERESTS

- [COMPUTER VISION](#): 3D Reconstruction, Depth Estimation and Motion Segmentation.
- [ROBOTICS](#): Camera Calibration, SLAM and Visual SLAM.
- [MATHEMATICS](#): Mathematical Optimisation, Compressed Sensing, Topological Manifolds.
- [MACHINE LEARNING](#): Deep Learning, Support Vector Machine, Probabilistic Graphical Models.
- [OTHERS](#): Discrete Differential Geometry.

PROFESSIONAL SERVICE

- [REVIEWER](#): 3DV 2017, ICRA 2018, CVPR 2018, 3DV 2018, IEEE C.I Magazine 2018.
- [TA, COMPUTER VISION COURSE.](#) (ENGN4528/6528) Feb. 2018 - July 2018.
Course Instructor: Hongdong Li.
- [TA, INDIVIDUAL ENGINEERING PROJECT COURSE.](#) (ENGN4200) Feb. 2017 - July 2017.
Course Instructor: Yuchao Dai.
- [TA, COMPUTER VISION COURSE.](#) (ENGN4528/6528) Feb. 2017 - July 2017.
Course Instructor: Jonghyuk Kim.
- [CONSULTANT-ENGINEER, ALGORITHM DEVELOPER.](#) July 2014 - July 2015.
Company: Uurmi Systems, Hyderabad, India.

RESEARCH EXPERIENCE

- [INRIA, e-MOTION, GRENOBLE-FRANCE.](#) Sept. 2013 - Feb. 2014.
Visiting Scientist.
Topic: Autonomous Driving
Advisors: Dizan Vasquez, Christian Laugier.
- [IIIT-HYDERABAD, INDIA.](#) Jan. 2011 - Aug. 2013.
Research Assistant.
Topic: Robot Vision
Supervisor: K Madhava Krishna.
- [IIT-HYDERABAD, INDIA.](#) Aug. 2010 - Dec. 2010.
Project Associate.
Topic: Pervasive Sensor Networks
Supervisor: P. Rajalakshmi.

ONLINE COURSE CERTIFICATION

- [Machine Learning](#)
Coursera, License No: FBXH2KPEU44M, Course Instructor: Andrew Ng.
- [Neural Networks and Deep Learning](#)
Coursera, License No: UJWL63E4KPB2, Course Instructor: Andrew Ng.
- [Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization](#)
Coursera, License No: PDVY9DCXEA7H, Course Instructor: Andrew Ng.

TECHNICAL SKILL SET

- **Programming Language:** C/C++, Python.
- **Scripting Language:** Matlab, Octave, Unix Shell Programming.
- **Libraries and APIs:** OpenCV, OpenGL, ROS, Eigen, STL, Numpy, Scipy, Pangolin.
- **Deep Neural Network Frameworks:** PyTorch, TensorFlow.
- **Web and Documentation:** HTML, CSS, \LaTeX .
- **Others:** Embedded C, Unix System Programming.

LANGUAGES

English, Hindi.

References are available on request