

SURYANSH KUMAR

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EDUCATION

- The Australian National University**, Canberra. PhD in Computer Science, Sept 2015- Present.
Computer Vision and Robotics Group.
Supervisors: Dr. Yuchao Dai, Prof. Richard Hartley,
Chair of Panel: Prof. Hongdong Li.
- International Institute of Information Technology**, Hyderabad. M.S in Computer Science and Engineering, August 2013.
Robotics Research Centre.
GPA: 8.71 on 10.0 scale.

RESEARCH INTERESTS

- Computer Vision:** 3D Reconstruction, Non-Rigid Structure from Motion, Multiple View Geometry.
- Robot Vision:** Visual SLAM, Mobile Object Tracking & Segmentation.
- Statistical Learning:** Convex Optimization and Probabilistic Graphical Models.

PROFESSIONAL EXPERIENCE

- Certification on Machine Learning offered by Stanford University on Coursera.** License Number: FBXH2KPEU44M, 26th Nov. 2015.
Course Instructor: Prof. Andrew Ng.
- Uurmi Systems Pvt. Limited, Hyderabad.** Image Understanding Group, Consultant Engineer, July 2014 – June 2015.
Projects
 - Structure from Motion for rigid objects using Monocular Camera. Project Members: Laxit G, Bhavana G, Shanti S.
 - System for visual moving object segmentation, track archival and replay for UAV Videos. Project Members: Venkatesh B.S, Abhishek T, Shanti S.

RESEARCH EXPERIENCE

- Institut national de recherche en informatique et en automatique (INRIA)** Rhône-Alpes Grenoble, Research Intern, Sept 2013-Feb 2014.
Supervisors: Dr. Dizan Vasquez, Prof. Christian Laugier.
- International Institute of Information Technology (IIIT-H)** Hyderabad, Research Assistant, July 2011- August 2013.
Supervisor: Prof. K. Madhava Krishna.
- Indian Institute of Technology (IIT-H)** Hyderabad, Project Associate, July 2010-Dec. 2010.
Supervisor: Dr. P. Rajalakshmi.

AWARDS & ACHIEVEMENTS

- Recipient of "The Australian National University Higher Degree Research" Merit Scholarship Award.
- Recipient of "Best Innovative Group 2014", by Uurmi Systems Private Limited, India.
- Full-Time Funded Student by "Campus France", for research internship at INRIA, Grenoble-France.
- Full-Time Scholarship Student for MS program in IIIT-Hyderabad, India.
- Winner of "8085 Programming contest" and "Project Demonstration contest" organized at TITIKSHA 2008, SMVDU, J&K India.

PUBLICATIONS

- Suryansh Kumar, Yuchao Dai, Hongdong Li, "Multi-body Non-rigid Structure from Motion", International Conference on 3D Vision (**3DV**), IEEE, 2016, Stanford University, California, USA.
- 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.
- Dizan Vasquez, Yufeng Yu, Suryansh Kumar, Christian Laugier, "An open framework for human like autonomous driving using Inverse Reinforcement Learning", Vehicle Power and Propulsion Conference (**VPPC**), IEEE, 2014, Coimbra, Portugal (**Oral**).
- Sarthak Upadhyaya, Suryansh Kumar, K. Madhava Krishna, "CRF based Frontier Detection using Monocular Camera", Indian Conference on Computer Vision, Graphics and Image Processing (**ICVGIP**), ACM, 2014, IISc Bangalore, India (**Oral**).
- Sudhanshu Mittal, Siva Karthik M, Suryansh Kumar, K. Madhava Krishna, "Small Obstacle Discovery and Recognition using Actively Guided Robots", International Conference on Pattern Recognition (**ICPR**), IEEE, 2014, Stockholm, Sweden.
- Suryansh Kumar, Ayush Dewan, K. Madhava Krishna, "A Bayes filter based adaptive floor segmentation with homography and appearance cues", Indian Conference on Computer Vision, Graphics and Image Processing (**ICVGIP**) ACM, 2012, IIT-Bombay, India (**Oral**).
- Kotwal, S. B., Verma S., Suryansh, Sharma, A, "Region Based Collaborative Angle of Arrival Localization for Wireless Sensor Networks with Maximum Range Information", International Conference on Computational Intelligence and Communication Networks (**CICN**), 2010. IEEE, Bhopal, India.

SELECTED PROJECTS

- Non-Rigid Structure from Motion (Phase 1 Completed).**
Research Lab: Computer Vision and Robotics Lab, The Australian National University.
Project Advisor: Dr. Yuchao Dai, Prof. Hongdong Li.
- Structure from Motion for Rigid Objects using Monocular Camera. (Industrial Project)**
Research Lab: Image Understanding Group, Uurmi Systems.
Project Advisor: Laxit G., Dr. Shanti Swarup M.
- System for visual moving object segmentation, track archival and replay for UAV Video's. (Industrial Project)**
Research Lab: Image Understanding Group, Uurmi Systems.
Project Advisor: Dr. B.S Venkatesh, Dr. Abhishek T, Dr. Shanti Swarup M.

- [Fusing Appearance and Geometric Cues for Adaptive Floor Segmentation over Images. \(Lab. Project\)](#)
Research Lab: Robotics Research Centre, IIIT-H
Project Advisor: Prof. K Madhava Krishna.
- [Image Search Engine. \(Course Project\)](#)
Research Lab: Centre for Visual Information Technology (CVIT), IIIT-H
Project Advisor: Prof. C.V Jawahar, Prof. P.J Narayanan.
- [Virtual Lab for Mobile Robotics. \(MHRD India Project\)](#)
Financed by: The Ministry of Human Resources and Development, India.
Project Advisor: Prof. K. Madhava Krishna.

STUDENTS & INTERN SUPERVISED

- Siva Karthik M. ECE Dual Degree Student, Robotics Research Centre, IIIT-H.
- Sarthak Upadhaya. CSE, MS Student, Robotics Research Centre, IIIT-H.
- Bhavana G. Internship Student, Image Understanding Group, Uurmi Systems, Hyderabad.

PROGRAMMING & COMPUTING SKILLS

- **Programming Languages:** C, C++, Python, Java and Assembly.
- **Scripting Languages:** Matlab/Octave, Unix Shell Programming.
- **Libraries & APIs:** OpenCV, CERES, CVX, OpenGL, ROS, Eigen, STL (C++, Java), Qt, libsvm.
- **Systems & Tools:** Linux (Ubuntu, Fedora, Red-Hat), Dia, LATEX.

HOBBIES & OTHER SOCIAL ACTIVITIES

- **Volunteer Work:** Taught Mathematics to Secondary and Higher Secondary School Students, in H. Kharagpur, Munger, Bihar(A village in the north-eastern part of India).
- **Hobbies:** Singing, Photography, Travelling and Cooking.
- **Languages:** English, Hindi, Magahi & Telugu(fair, so-so).