

## VINCENT RABAUD

### Education

UNIVERSITY OF CALIFORNIA, SAN DIEGO San Diego, CA, USA  
Ph.D. in Computer Science, 2009  
Dissertation: *Manifold Learning Techniques for Non-Rigid Structure from Motion*.  
Advisor: Serge Belongie.  
Research Interests: Structure from Motion, Multiview Geometry, Panorama, Image Manifold Learning, Tracking, Behavior Analysis, Optimization, Visual Captchas, Perception.

SUPAERO Toulouse, France  
M.S. in Aeronautical and Space Engineering, Space Imagery Major, 2003.

ECOLE POLYTECHNIQUE Paris, France  
B.S./M.S. in Applied Math, Fluid Mechanics and Parallel Computing, 2001.

### Work Experience

ALDEBARAN Paris, France  
09/2014–  
SW/HW link director

ALDEBARAN Paris, France  
04/2013–09/2013  
Perception Team Manager, Object Recognition (2d/3d), Human Interaction.

OPENCV FOUNDATION  
06/2012–  
Co-Founder and Member of the Board.

WILLOW GARAGE Menlo Park, CA, USA  
01/2011–03/2013  
Research Engineer, Object Recognition (2d/3d), OpenCV developement and management, SLAM, ROS infrastructure.

VIDEOSURF San Mateo, CA, USA  
03/2009–01/2011  
Software Engineer, Face Recognition, Video Summary, Video Pipeline Optimizations.

UNIVERSITY OF CALIFORNIA, SAN DIEGO La Jolla, CA, USA  
01/2004–03/2009  
Graduate Student Researcher, Department of Computer Science and Engineering.

CENTER FOR INTERDISCIPLINARY SCIENCE FOR ART, ARCHITECTURE AND ARCHAEOLOGY (CISA3) La Jolla, CA, USA  
06/2007–09/2007  
Intern, Painting Panoramas, High Resolution Mosaics.

CALIT2 La Jolla, CA, USA  
06/2005–09/2005  
Intern, Visual Crowd Management, *RESCUE* Project.

UNIVERSITY OF CALIFORNIA, SAN DIEGO La Jolla, CA, USA  
05/2003–12/2004  
Intern, Animal Behavior Analysis, *Smart Vivarium* Project.

CENTRE NATIONAL D'ETUDES SPATIALES (CNES) Toulouse, France  
06/2002–12/2002

Intern, Space Mechanics Department, French Space Agency.

OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES  
(ONERA) Toulouse, France  
03/2002–06/2002

Intern, Flight Mechanics Department.

DYNAFLOW-INC Jessup, MD  
04/2001–06/2001  
Intern, Fluid Mechanics Modeling.

## Teaching Experience

UNIVERSITY OF CALIFORNIA, SAN DIEGO La Jolla, CA, USA  
CSE252C, *Object Recognition*, Fall 2007: Teaching Assistant  
CSE166, *Image Processing*, Fall 2007: Teaching Assistant

## Professional Activities

Co-founder and member of the board of the OpenCV foundation.

Mentor and organizer of Google Summer of Code for OpenCV from 2011 to 2015.

Reviewer: IEEE International Conference on Computer Vision, IEEE Conference on Computer Vision and Pattern Recognition, SIGGRAPH, IEEE Transaction on Pattern Analysis and Machine Intelligence, International Journal of Computer Vision

Organizer of Pixel-Cafe, the weekly vision and graphics seminar at UCSD.

IEEE member, 2005-present

## Skills

*Skills:* Vision (SfM, web video analysis, image retrieval, object recognition), Robotics, Management

*Programming Languages:* C++, Python

*Programming Libraries:* OpenCV, ROS, Boost, OpenMP, TBB, PVM, MPI

*Extra Interests:* Android, Drupal, Matlab, Javascript, PHP, MySQL, Fortran

*Languages:* French (native), English (fluent), Spanish (fluent), Portuguese (beginner), Italian (beginner)

## Software

*ROS packages:* maintainer/developer of 60+ ROS packages and involved in the core development.

*Recognition Kitchen:* set of tools to develop and execute object recognition.

*Surveillance Video Entertainment System*, (SVEN): real-time tracking of pedestrians incorporating appearance description, face detection and facial expression analysis.

*Painting Panorama:* fast and memory efficient panorama software for very high resolution images of paintings. Incorporates sparse bundle adjustment, sift and camera auto calibration.

*Vincent's Structure from Motion Toolbox for Matlab:* toolbox including many common structure from motion algorithms (e.g. rigid, non-rigid, bundle adjustment, visualization).

## Journal Articles

A. Ziegler, E. Christiansen, V. Rabaud, S. Belongie, D. Kriegman, "In submission", *IEEE Transaction on Pattern Analysis and Machine Intelligence (PAMI, in preparation)*, 2013.

## Papers in Reviewed Proceedings

- A. Ziegler, E. Christiansen, V. Rabaud, S. Belongie, D. Kriegman, “Match-time covariance for descriptors”, **BMVC**, 2013.
- S. Leutenegger, P. T. Furgale, V. Rabaud, M. Chli, K. Konolige and R. Siegwart, “Keyframe-Based Visual-Inertial SLAM using Nonlinear Optimization. ”, (**RSS**), 2013.
- M. Dimashova, I. Lysenkov, V. Rabaud, V. Eruhimov “Tabletop Object Scanning with an RGB-D Sensor” , 3rd Workshop on Semantic Perception, **ICRA**, 2013.
- I. Lysenkov, V. Rabaud, “Pose Estimation of Rigid Transparent Objects in Transparent Clutter” , **ICRA**, 2013.
- E. Rublee, V. Rabaud, K. Konolige and G. Bradski, “ORB: an efficient alternative to SIFT or SURF” , *IEEE International Conference in Computer Vision*, (**ICCV**), 2011.
- V. Rabaud and S. Belongie, “Linear Embeddings in Non-Rigid Structure from Motion” , *IEEE Conference on Computer Vision and Pattern Recognition*, (**CVPR**), 2009.
- V. Rabaud and S. Belongie, “Re-Thinking Non-Rigid Structure From Motion” , *IEEE Conference on Computer Vision and Pattern Recognition*, (**CVPR**), 2008.
- S. Steinbach, V. Rabaud and S. Belongie, “Soylent Grid: it’s made of People !” , *Interactive Computer Vision, in conjunction with ICCV*, (**ICV**), 2007.
- P. Dollár, V. Rabaud and S. Belongie, “Non-Isometric Manifold Learning: Analysis and an Algorithm” , *International Conference on Machine Learning*, (**ICML**), 2007.
- P. Dollár, V. Rabaud and S. Belongie, “Learning to Traverse Image Manifolds” , *Neural Information Processing Systems*, (**NIPS**), 2006.
- V. Rabaud and S. Belongie, “Counting Crowded Moving Objects,” , *IEEE Conference on Computer Vision and Pattern Recognition*, (**CVPR**), 2006, pp. 705- 711, vol. 1.
- P. Dollár, V. Rabaud, G. Cottrell and S. Belongie, “Behavior Recognition via Sparse Spatio-Temporal Features,” *Joint International Workshop on Visual Surveillance and Performance Evaluation of Tracking and Surveillance*, (**VS-PETS**), 2005.
- S. Belongie, K. Branson, P. Dollár, and V. Rabaud, “Monitoring Animal Behavior in the Smart Vivarium,” *International Conference on Methods and Techniques in Behavioral Research*, 2005.
- V. Rabaud and S. Belongie, “Big Little Icons,” *IEEE Workshop on Computer Vision Applications for the Visually Impaired, in conjunction with CVPR*, (**CVAVI**), 2005.
- K. Branson, V. Rabaud and S. Belongie, “Three Brown Mice: See How They Run,” *Joint International Workshop on Visual Surveillance and Performance Evaluation of Tracking and Surveillance*, (**VSPETS**), 2003, pp. 78-85.
- V. Rabaud and B. Deguine “A Geometrical Approach To Determine Blackout Windows At Launch,” *AAS/AIAA Space Flight Mechanics Meeting*, Ponce, Puerto Rico, (**AAS**), 2003, 03-187

## Video

M. Maschion, V. Rabaud and S. Belongie, *Computer Vision: Fact and Fiction*, Instructional DVD, 2005.

## References

**Prof. Serge Belongie**  
Cornell University  
111 Eighth Avenue #302, New York, NY 10011, USA  
sjb344@cornell.edu

**Dr. Gary Bradski**

Magic Leap  
gbradski@magicleap.com

**Dr. Kurt Konolige**

Google, Inc.  
kkonolige@google.com

**Dr. Brian Gerkey**

Open Source Robotics Foundation  
419 N Shoreline Blvd, Mountain View, CA 94043, USA  
gerkey@osrfoundation.org

**Prof. David Kriegman**

University of California, San Diego Computer Science & Engineering  
CSE-EBU3B 4120; 9500 Gilman Dr.; #0404 La Jolla, CA 92093-0404, USA  
kriegman@cs.ucsd.edu

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