

# VINCENT RABAUD

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**Education** UNIVERSITY OF CALIFORNIA, SAN DIEGO San Diego, CA  
Ph.D. in Computer Science.  
Expected Graduation: Nov. 08.  
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, Visual 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

## Research Experience

UNIVERSITY OF CALIFORNIA, SAN DIEGO La Jolla, CA  
January 2004–present  
Graduate Student Researcher, Department of Computer Science and Engineering.

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

CALIT2 La Jolla, CA  
June 2005–September 2005  
Intern, Visual Crowd Management, *RESCUE* Project.

UNIVERSITY OF CALIFORNIA, SAN DIEGO La Jolla, CA  
May 2003–December 2004  
Intern, Animal Behavior Analysis, *Smart Vivarium* Project.

CENTRE NATIONAL D'ETUDES SPATIALES (CNES) Toulouse, France  
Summer and Fall 2002  
Intern, Space Mechanics Department, French Space Agency.

OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES (ONERA) Toulouse, France  
Spring 2002  
Intern, Flight Mechanics Department.

DYNAFLOW-INC Jessup, MD  
Spring 2001  
Intern, Fluid Mechanics Modeling.

## Teaching Experience

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

La Jolla, CA

## Professional Activities

Reviewer: IEEE International Conference on Computer Vision, IEEE Conference on Computer Vision and Pattern Recognition, SIGGRAPH.

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

IEEE Student member, 2005-present

## Journal Articles

P. Dollár, V. Rabaud, G. Cottrell and S. Belongie, "Behavior Recognition via Sparse Spatio-Temporal Features," *IEEE Transaction on Pattern Analysis and Machine Intelligence* (**PAMI**, in preparation), 2008.

## Papers in Reviewed Proceedings

V. Rabaud and S. Belongie, "Hidden Title" , *European Conference on Computer Vision*, (**ECCV submission**), 2008.

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

## Software

*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).

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

**Skills**  
*Computing Platforms*: Unix, Solaris, Clusters (Rocks), Windows, OSX  
*Programming Languages*: Matlab, C++, C, Java, Fortran, Maple  
*Programming Libraries*: OpenCV, STL, OpenMP, PVM, MPI, GTK  
*Extra Interests*: GWT, MySQL, Python, Drupal  
*Languages*: English (fluent), Spanish (fluent), Portuguese (beginner), Italian (beginner)

### Relevant Coursework

Computer Vision I (Image Analysis, Radiometry, SFM)  
Computer Vision II (Multiple View Geometry)  
Computer Vision III (Object Recognition)  
Machine Learning  
Graphical Models

**References** **Prof. Serge Belongie**  
University of California, San Diego Computer Science & Engineering  
CSE-EBU3B 4118; 9500 Gilman Dr.; #0404 La Jolla, CA 92093-0404, USA  
sjb@cs.ucsd.edu

**Prof. David Kriegman**  
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CSE-EBU3B 4120; 9500 Gilman Dr.; #0404 La Jolla, CA 92093-0404, USA  
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**Prof. Sanjoy Dasgupta**  
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(further references available upon request)

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