VINCENT RABAUD

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Education

UNIVERSITY OF CALIFORNIA, SAN DIEGO — San Diego, CA
Ph.D. in Computer Science.
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

WILLOW GARAGE — Menlo Park, CA
January 2011–present
Research Engineer, Object Recognition (2d/3d), OpenCV developement and management, SLAM, ROS infrastructure,

VIDEOSURF — San Mateo, CA
March 2009–January 2011
Software Engineer, Face Recognition, Video Summary, Video Pipeline Optimizations.

UNIVERSITY OF CALIFORNIA, SAN DIEGO — La Jolla, CA
January 2004–March 2009
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 La Jolla, CA
CSE252C, *Object Recognition*, Fall 2007: Teaching Assistant
CSE166, *Image Processing*, Fall 2007: Teaching Assistant

Professional Activities

Treasurer and member of the board of the OpenCV foundation.

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

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

E. Christiansen, V. Rabaud, S. Belongie, "Hidden title", *IEEE International Conference in Computer Vision*, (**ICCV, in preparation**), 2013.

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, "Visual SLAM for small Unmanned Aerial Vehicles", (**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

Software

ROS packages: maintainer of 30 ROS packages and involved in many others.

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).

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: C++, Python, Matlab, Javascript, Fortran
Programming Libraries: OpenCV, ROS, Boost, OpenMP, TBB, GStreamer, PVM, MPI, GTK
Extra Interests: Android, Drupal, PHP, MySQL
Languages: French (native), English (fluent), Spanish (fluent), Portuguese (beginner), Italian (beginner)

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

Dr. Gary Bradski
Willow Garage, Inc.
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911 Industrial Ave, Palo Alto, CA 94303, USA
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Open Source Robotics Foundation
419 N Shoreline Blvd, Mountain View, CA 94043, USA
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Prof. David Kriegman
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