



Josiane Zerubia has been a permanent research scientist at INRIA since 1989 and Director of Research since July 1995 (DR Exceptional Class since 2023; DR 1st Class from 2002 to 2022). She was head of the PASTIS remote sensing laboratory (INRIA Sophia-Antipolis) from mid-1995 to 1997 and of the ARIANA research group (INRIA/CNRS/University of Nice), which worked on inverse problems in remote sensing and biological imaging, from 1998 to 2011. From 2012 to 2016, she was head of AYIN research group (INRIA-SAM) dedicated to models of spatio-temporal structure for high-resolution image processing with a focus on remote sensing and skincare imaging. She is head of AYANA exploratory research group since 2020. AYANA is an interdisciplinary project using knowledge in stochastic modeling, image processing, artificial intelligence, remote sensing and embedded electronics/computing.

She was professor (PR1) at SUPAERO (ISAE) in Toulouse from 1999 to 2020. She received a Doctor Honoris Causa degree from the University of Szeged in Hungary in 2020, and 3 times the Excellence Award from University of Nice (now UniCA) in 2020, 2019 and 2016.

She supervised or co-supervised 63 Master students, 37 PhDs and 27 post-docs. She was external examiner for PhD degrees at Purdue Univ. (West-Lafayette, USA), Heriot Watt Univ. (Edinburgh, GB), Univ. of Iceland (Reykjavik, Iceland), University of Lisbon (Portugal), Univ. of Manouba (Tunis, Tunisia), Sup Telecom (Tunis, Tunisia), University of Rabat (Morocco), and for more than 30 PhDs in France including one at the University of the French West Indies.

Before that, she was with the Signal and Image Processing Institute of the University of Southern California (USC) in Los-Angeles as a postdoc (1988-1989). She also worked as a researcher for the LASSY (University of Nice/CNRS) from 1984 to 1988 and in the Research Laboratory of Hewlett Packard in France and in Palo-Alto (CA) from 1982 to 1984. She received the MSc degree from the Department of Electrical Engineering at ENSIEG, INP Grenoble, France in 1981, the Doctor of Engineering degree, her PhD and her 'Habilitation', in 1986, 1988, and 1994 respectively, all from the University of Nice, France.

She is a Fellow of the IEEE (2003-), the EURASIP (2019-) and the IAPR (2020-), and IEEE Distinguished Lecturer of the SP Society (2016-2017) and of the GRS Society (2025-2027).

She was associate editor of IEEE Trans. on IP from 1998 to 2002, area editor of IEEE

Trans. on IP from 2003 to 2006, guest co-editor of a special issue of IEEE Trans. on PAMI in 2003, member of the editorial board of IJCV from 2004 to March 2013 and member-at-large of the Board of Governors of the IEEE SP Society from 2002 to 2004. She was also associate editor of the on-line resource “Earthzine” (IEEE CEO and GEOSS) from 2006 to mid-2018. She was a member of the editorial board of the French Society for Photogrammetry and Remote Sensing (SFPT) from 1998 to 2020, and member-at-large of the Board of Governors of the SFPT from 2014 to 2020. She was a member of the IEEE Signal Processing Magazine Senior editorial board from September 2018 to January 2022. She was member-at-large of the Awards Board of the IEEE SP Society from 2020 to 2022. Finally, she was a member of the Best Paper Award Committee for EURASIP JIVP in 2021 and also member of the IAPR Fellow committee in 2021 and 2022.

She has been a member of the editorial board of the Foundation and Trends in Signal Processing since 2007 and of the IEEE WISP Committee since 2024.

She was general co-chair of the EarthVision workshop at IEEE CVPR 2015 (Boston, USA) and a member of the organizing committee and plenary talk co-chair of IEEE-EURASIP EUSIPCO 2015 (Nice, France). She was part of the organizing committees of the EarthVision workshop (co-chair) at IEEE CVPR 2017 (Honolulu, USA) and GRETSI 2017 symposium (Juan-les-Pins, France). She was scientific advisor and co-organizer of ISPRS 2020 (virtual), 2021 (virtual) and 2022 congress (Nice, France) and technical co-chair of IEEE-EURASIP EUSIPCO 2021 (virtual, Dublin, Ireland).

She is general co-chair of SSRM’26 winter school on Remote Sensing and Microscopy Image Processing at IIT Bombay, India.

Her main research interest is in image processing and remote sensing using probabilistic models. She also works on parameter estimation, statistical learning, optimization techniques, and artificial intelligence.

See <http://www-sop.inria.fr/members/Josiane.Zerubia/index-eng.html> for more detail.

Title 1: Learning Point Process models for object detection in remote sensing

Abstract 1: In this talk, we propose a joint Point Process and CNN based method for object detection in satellite image processing.

The Point Process allows building a lightweight interaction model, while the CNN allows to efficiently extract meaningful information from the image in a context where interaction priors can complement the limited visual information. More specifically, we present matching parameter estimation and result scoring procedures, that allow to take into account object interaction.

The method provides good results on benchmark data, along with a degree of interpretability of the output.

Keywords 1: Object Detection, Point Process, Convolutional Neural Network, Energy Based Model, Remote Sensing

Title 2: Fully convolutional and feedforward networks for the semantic segmentation of remotely sensed images.

Abstract 2: In this talk, we present a novel semantic segmentation method of very high resolution remotely sensed images based on fully convolutional networks (FCNs) and feedforward neural networks (FFNNs). The proposed model aims to exploit the intrinsic multiscale information extracted at different convolutional blocks in an FCN by the integration of FFNNs, thus incorporating information at different scales. The purpose is to obtain accurate classification results with realistic data sets characterized by sparse ground truth (GT) data by taking benefit from multiscale and long-range spatial information. The final loss function is computed as a linear combination of the weighted cross-entropy losses of the FFNNs and of the FCN. The modeling of spatial-contextual information is further addressed by the introduction of an additional loss term which allows to integrate spatial information between neighboring pixels. The experimental validation is conducted with the ISPRS 2D Semantic Labeling Challenge data set over the city of Vaihingen. The proposed approach obtains higher average classification results than the state-of-the-art techniques, especially in the case of scarce, suboptimal GTs.

Keywords 2: CNN, FCN, feedforward networks, semantic segmentation, multiresolution satellite images