Gerard Sanroma, PhD

objective: to use my analytic skills to lead data analyses

experience

2017–present **research staff associate**, *German Center for Neurodegenerative Diseases*, Bonn.

- organization and service skills by managing the MRI data flow of the Rhineland Study from acquisition to feature extraction making available quality-assured measures of brain structure and function to the scientists of the study
- analytical and methodological skills by designing, developing and deploying deep-learning-based tools for automatic quantification of cerebral anatomy and lesions, thus contributing to the pool of structural brain measures of the study
- day-to-day inter-disciplinary collaboration with imaging physicists, epidemiologists, IT-experts and image analysis experts

2015–2017 **research staff associate**, *Univ. Pompeu Fabra*, Barcelona (Spain).

- methodological and problem-solving skills by using ensemble learning techniques to segment anatomical structures in the infant and fetal brains [1] that was ranked among the top-8 methods (out of 21) in an international infant brain segmentation challenge [2]
- led a collaboration with the fetal medicine research center resulting in the discovery of markers of abnormal brain development (using the above-mentioned tool) in fetuses with isolated mild ventriculomegaly, a condition with difficult prognosis [3]
- organization and supervision skills by mentoring 2 PhD students

2013–2015 **research staff associate**, *Univ. of North Carolina*, Chapel Hill (USA).

- analytical and methodological skills by using matrix completion techniques to segment anatomical brain MRI leading to the best results to date in an international segmentation challenge [4]

2012–2013 **research staff associate**, *Netherlands Organisation for Applied Scientific Research*, The Hague (Netherlands).

- drive and learning abilities to use stochastic grammars and hidden markov models to automatically detect threats from video [5] and to act as representative of my organization in an international collaborative project on threat detection

skills and tools

data analysis 5+ years experience in supervised / unsupervised machine learning, deep learning, boosting, ensemble methods, kernel methods, manifold learning, bayesian statistics

data formats 10+ experience in multiple data formats including images (natural images and neuroimaging), video and biomedical

programming 10+ years experience in python, c++, matlab, linux bash, git

tools 3+ years experience in jupyter-notebooks, scikit-learn, theano, pandas, numpy, nipype, matplotlib, seaborn, LaTeX, github

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geometry	5+ years experience in shape analysis, point pattern matching, graph matching
communication	delivered many presentations to technical audiences in international conferences (see list) as well as to layman audiences (see example)
leadership	coordinate the MRI data flow in the Rhineland Study, from acquisition to feature extraction and quality control. Supervise 2 PhD students
writing	published >30 peer-reviewed papers (see list) and maintain a personal blog
collaboration	accustomed to multi-disciplinary environments and to engage in clinical collaborations
organization	organized international workshops on medical image processing years 2017 and 2018
learning	great flexibility to step-out of my comfort zone and learn new things

education

2008–2012 **PhD computer science (cum laude)**, *Univ. Rovira i Virgili*, Tarragona (Spain).
Graph matching using position coordinates and local features for image analysis

2006–2008 **MSc computer science**, *Univ. Rovira i Virgili*, Tarragona (Spain).

selected publications

[1] **G Sanroma**, *et al.*: Learning to combine complementary segmentation methods for fetal and 6-month infant brain MRI segmentation Computerized Medical Imaging and Graphics (2018)

[2] L Wang, **G Sanroma**, *et al.*: Benchmark on Automatic 6-month-old Infant Brain Segmentation Algorithms: The iSeg-2017 Challenge. IEEE Transactions on Medical Imaging (2019)

[3] OM Benkarim, **G Sanroma**, *et al.*: Cortical folding alterations in fetuses with isolated non-severe ventriculomegaly. NeuroImage Clinical (2018)

[4] **G Sanroma**, *et al.*: A Transversal approach for patch-based label fusion via matrix completion. Medical Image Analysis (2015)

[5] **G Sanroma**, *et al.*: A unified approach to the recognition of complex actions from sequences of zone-crossings. Image and Vision Computing (2014) **editor's choice article**

(see here for a complete list)

languages

native	**catalan, spanish**
proficient	**english**
intermediate	**german**
basic	**french**

hobbies

- learn german, social media (twitter, linkedin), fly drones, read (news, novels), sports (swim, hike, bike)

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