Gerard Sanroma-Guell, PhD

objective: to use my analytic skills to advance image and data analyses

experience

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

- organization and management 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
- design, develop and deploy 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 to maintain the core infrastructure of the study as well as to contribute with the scientific output

2014–2017 **research staff associate**, *Univ. Pompeu Fabra*, Barcelona (Spain).

- used deep learning and ensemble learning techniques to segment anatomical structures in the infant and fetal brains [1] being ranked among the top-8 methods (out of 21) in an international infant brain segmentation challenge [2, 3]
- led a collaboration with the fetal medicine research center that resulted 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 [4]
- organization and supervision skills by mentoring 2 PhD students

2012–2014 **research staff associate**, *Univ. of North Carolina*, Chapel Hill (USA).

- used machine learning and matrix completion techniques to segment anatomical brain MRI leading to the best results to date in an international segmentation challenge [5]

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

geometry 6+ 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)

+********** • gsanroma@gmail.com
gsanroma.github.io • Bonn (Germany)

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
customer	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] **G Sanroma**, *et al.*: Learning Non-Linear Patch Embeddings with Neural Networks for Label Fusion. Medical Image Analysis (2017) (code)

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

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

(see 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)

+********** • gsanroma@gmail.com
gsanroma.github.io • Bonn (Germany)