Gerard Sanroma

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Technical and Personal skills

- **Science & Tech:** At home with Machine Learning and Computer Vision | Attentive to all steps of Data Science pipeline: acquisition, curation, modelling, validation and visualization | Fluent with different types of data: images, biological and video
- **Leadership:** Organization of the MRI group in the Rhineland Study | Supervision of 2 Ph.D students | Organizer of the Patch-MI Workshop at MICCAI 2017 and 2018
- **Communication & teamwork:** Inter-disciplinary collaboration with epidemiologists, clinicians, imaging physicists and IT-experts | Deliver regular presentations both at job and conferences | Flexibility and adaptability by having worked & lived in 5 different countries | Active in Twitter, Linkedin and Github
- **Software:** Python, Matlab, R, C, C++, Linux Bash, LaTeX, Scikit-learn, Numpy, Theano, Pandas, Git

Professional Experience

- **German Center for Neurodegenerative Diseases** — **Bonn (Germany)**
  Senior Research Fellow — *2017–Present*
  - Organize the MRI group in the Rhineland Study | Oversee all the steps in the MRI flow: acquisition, data management, computational resources and image processing / analysis | Inter-disciplinary collaboration with imaging physicists, epidemiologists, IT-experts and image analysis experts
  - Develop machine learning techniques to find associations between multi-modal brain MRI and neurodegenerative risk factors in the general population | Develop a Deep Learning pipeline for automatic detection of brain lesions
- **Universitat Pompeu Fabra** — **Barcelona (Spain)**
  Marie Curie Fellow — *2015–2017*
  - Develop general brain MRI analysis methods for different age groups
  - Clinical collaborations with 1) the Fetal Medicine Research Center to study fetal neurodevelopment and 2) the Alfa study to study early neurodegeneration in middle-aged individuals
  - Supervise the Ph.D. theses of Oualid M. Benkarim and Gerard Martí Juan
- **University of North Carolina** — **Chapel Hill (United States)**
  Research Fellow — *2013–2015*
  - Brain MRI segmentation with machine learning: low-rank matrix completion and support vector machines
- **Netherlands Organisation for Applied Scientific Research** — **The Hague (Netherlands)**
  Research Fellow — *2012–2013*
  - Analysis of video-data for automated threat detection | Collaboration in EU project ARENA for Security & Defence

Education

- **Ph.D Computer Science** — **Tarragona (Spain)**
  Universitat Rovira i Virgili — *2008–2012*
  - Title: Graph matching using position coordinates and local features for image analysis
- **M.Sc Computer Science** — **Tarragona (Spain)**
  Universitat Rovira i Virgili — *2006–2008*

Selected Publications

- SCCA-ref: Novel sparse canonical correlation analysis with reference to discover independent spatial associations between white matter hyperintensities and atrophy
  - *Machine Learning in Medical Imaging Workshop, 2018* (link)
- Learning Non-Linear Patch Embeddings with Neural Networks for Label Fusion
  - *Medical Image Analysis, 2017* (link)
- MSClique: discovering multiple structures in image pairs with the maximum weighted clique problem
  - *PLoS ONE, 2016* (link)
- A Transversal approach for patch-based label fusion via matrix completion
  - *Medical Image Analysis, 2015* (link)
- A unified approach to the recognition of complex actions from sequences of zone-crossings
  - *Image and Vision Computing, 2014* (link)

Complete list at link

Certificates, Awards & Mentions

- **Juan de la Cierva Fellowship (Declined)**
  Spanish Ministry of Economy and Finance *2017*
- **GPU Titan Pascal X**
  Nvidia *2016*
  Support a research project on deep learning for brain MRI segmentation
- **Research Certificate**
  Catalan University Quality Assurance Agency *2016*
- **Marie Curie Individual Fellowship**
  European Commission *2015*
- **Editor's Choice article**
  Image and Vision Computing Journal *2014*
  G. Sanroma, *et al.*: A unified approach to the recognition of complex actions from sequences of zone-crossings. Image and Vision Computing, 2014; 32(5):363-378

Service and Leadership

- **Workshop Organizer:** Patch-based Techniques in Medical Imaging at MICCAI 2017 and 2018
- **Guest Editor:** *Special Issue on Patch-based Techniques in Medical Imaging* in the Computerized Medical and Imaging Graphics Journal (link)

Languages

- **Spanish, Catalan**: Native
- **English**: Proficient
- **German, French**: Threshold