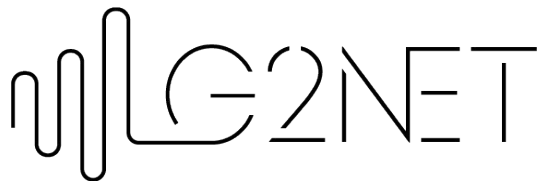


WG1

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COST ACTION CA17137
A NETWORK FOR GRAVITATIONAL
WAVES, GEOPHYSICS AND
MACHINE LEARNING

WG1: Machine Learning for Gravitational Wave astronomy

Group leaders: Michał Bejger (CAMK Warsaw) and Annalisa Appice (Uni Bari)

Dedicated e-mail list: mail.ego-gw.it/mailman/listinfo/wg1-g2net

50+ members with diverse skills:

- Classical machine learning
- Data-driven analysis
- Pattern recognition
- Digital signal processing
- Time series analysis
- Image analysis
- Software engineering
- Online learning
- Big data analytics
- Deep learning
- HPC/GPU computing
- Gravitational-wave astrophysics
- Numerical methods

4 broadly-defined tasks:

1. Access to the detectors data, and exploration of alternative representation of GW data
2. Detection and classification/characterization of the GW data
3. Denoising techniques for signal extraction
4. Parameter estimation for GW signals and instrumental glitches

Scientific input/output

- Regular (monthly) telecons (last Thursday of the month at 15 CET/CEST)
 - usually one progress report presentation & free discussion
(agendas & minutes: [09.21](#), [06.21](#), [05.21](#), [04.21](#), [03.21](#), [02.21](#), [01.21](#), [12.20](#), [11.20](#), [10.20](#), [07.20](#), [06.20](#), [05.20](#), [04.20](#), [03.20](#), [02.20](#), [01.20](#), [05.19](#), [04.19](#), [01.19](#))
- Overlap in goals and skills of other WGs → potential synergies
 - Kaggle competition (just finished! More to come soon...)
 - New competition by the Hannover-Jena group (some are members of G2Net), see <https://github.com/gwastro/ml-mock-data-challenge-1>
- So far [50+ publications \(according to NASA/ADS\)](#)

Problems!

- Low participation on regular teleconfs (~10 participants)
- Low activity in discussions outside the group meetings (in e-mails/slack),
- Not enough brainstorming (too many online meetings?)
- Low (=undetectable) activity of most of the task leaders (exception is task 1)
 - General feeling: people don't want to be responsible/ in charge, while retaining benefits of being inside the action

Solutions?

- Special benefits (better recognition?) for task leaders?
- More in-person interactions?
 - The tentative plan of an in-person meeting to be held in Valencia on January-February 2022 (depends on the COVID-19 situation, of course)
 - Next best thing: hackathon sessions? (works only if people have enough free time resources to spend)

Desired results of the WG1 activities

- **Final goal:** “production” solutions from G2NET community applied in GW astrophysics.
- Maintain the community after the end of the action.
- WG1-specific summary/review article with
 - what was done so far,
 - what are our plans and forecasts for the future.