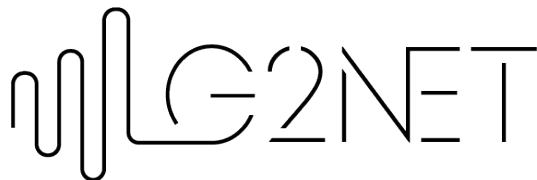


WG1

Michał Bejger
Annalisa Appice

11.04.2022



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 (first Monday of the month at 15 CET/CEST)
 - usually one progress report presentation & free discussion
 - agendas & minutes: [03.22](#), [02.22](#), [01.22](#), [12.21](#), [11.21](#), [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](#), [MLGWSC-1](#) (binary systems' inspirals, “CBC” sources)
 - Potentially a second Kaggle competition WG1-oriented in the works (“Continuous Waves”?)
- so far: [60+ publication \(according to NASA/ADS\)](#)
- **Final goal:** “production” solutions from G2NET community applied in GW astrophysics

Problems!

- Low participation on regular teleconfs (~10 participants)
- Low activity in discussions outside the group meetings (in e-mails/slack),
- Not enough brainstorming (in my opinion)
- 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?

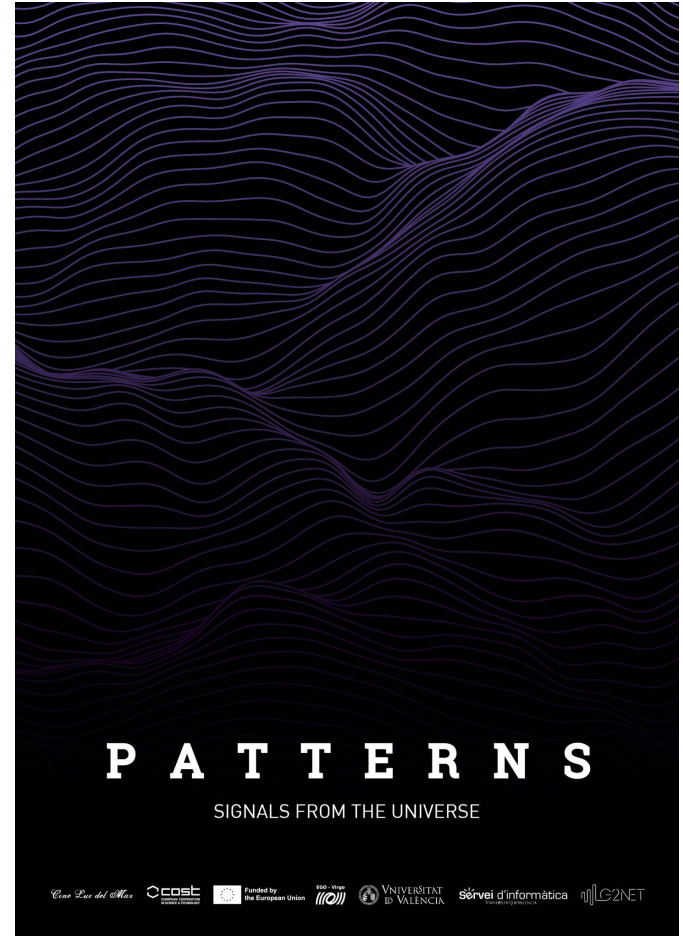
- Special benefits (better recognition?) for task leaders?
- More in-person interactions?
 - so far no real plans for the in-person meeting due to unpredictable nature of the pandemic
 - Next best thing: hackathon sessions? (works only if people have enough free time resources to spend)

Meeting agenda

- <https://indico.ego-gw.it/event/370/>
- 2.5 days of progress report sessions,
- Discussion sessions: Monday - WG1 in the G2Net paper, other days devoted to WG1 projects, collaboration & networking

G2Net movie:

- Tuesday April 12, 17:00, sala Darwin, Mainly addressed to students of the campus
- Wednesday April 13, 16:00, Marie Curie Auditorium (in English), mainly addressed to researchers.
- Discussion and round table after the screening :)



WG1 input in the G2Net-all paper

In the coming months we should finish the G2Net paper (to have it in a good shape before September).

We should

- discuss and finalize WG1 contributions,
- find underlying themes/topics in WG1 to formulate “outlook and perspectives” section main items,
- organize the contribution/per WG trying to give a general introduction to the first part,
- setup links among the WGX activities.

Discussion session: 11 Apr, Monday afternoon (16:15 - 18)