
# Project Update

# Welcome!

15th Annual GNU Radio Conference

# Josh Morman

GNURadio
THE FREE & OPEN SOFTWARE RADIO ECOSYSTEM

President, member of the board

Long time user, contributor, developer, maintainer

**jmorman@gnuradio.org**

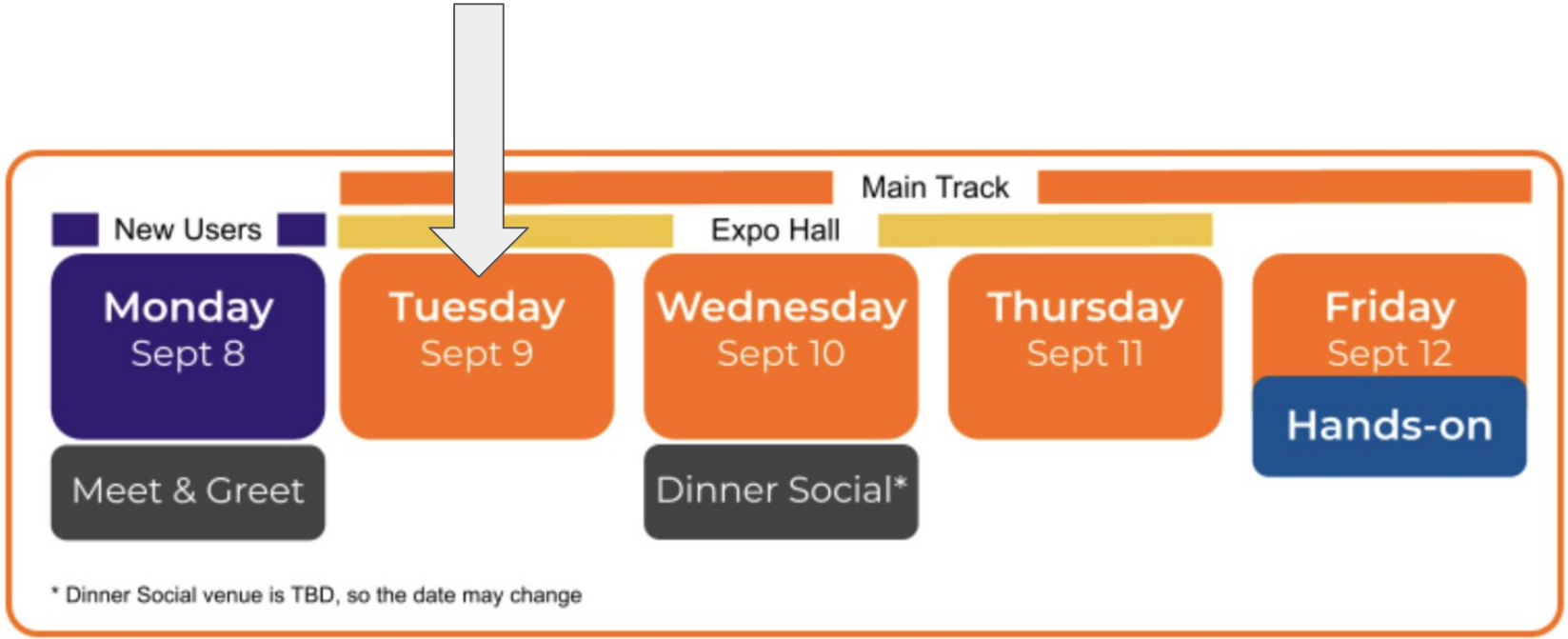
PERATON LABS

Senior Manager, Research Science

Signal processing algorithm and code development for SDR applications

**jmorman@peratonlabs.com**

# Week at a glance



# Useful Information

**SSID: AOTWA-EVENTS**

**Password: Events#2026!**

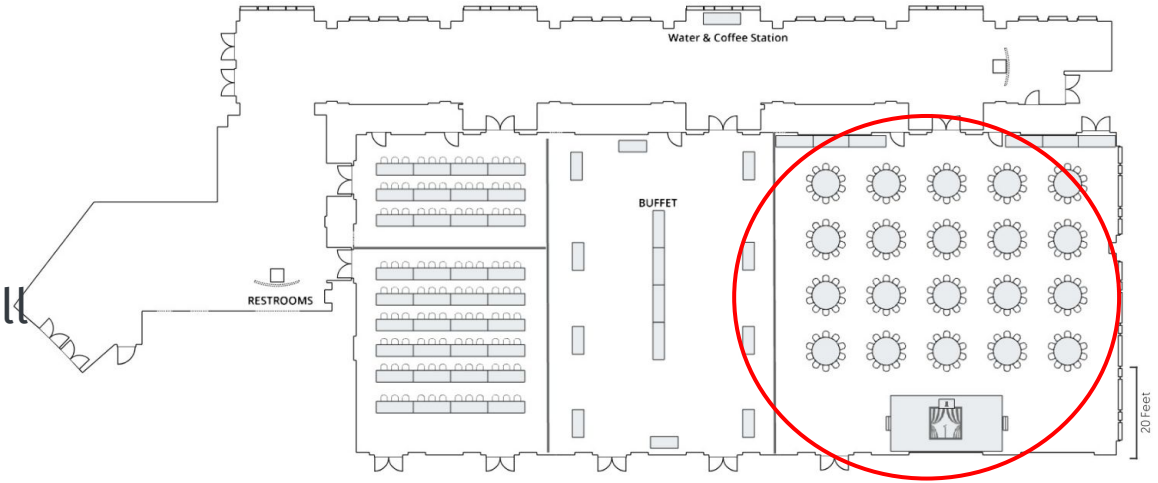
Food and beverages

AM and PM breaks (snacks, coffee)

Lunch each day at noon

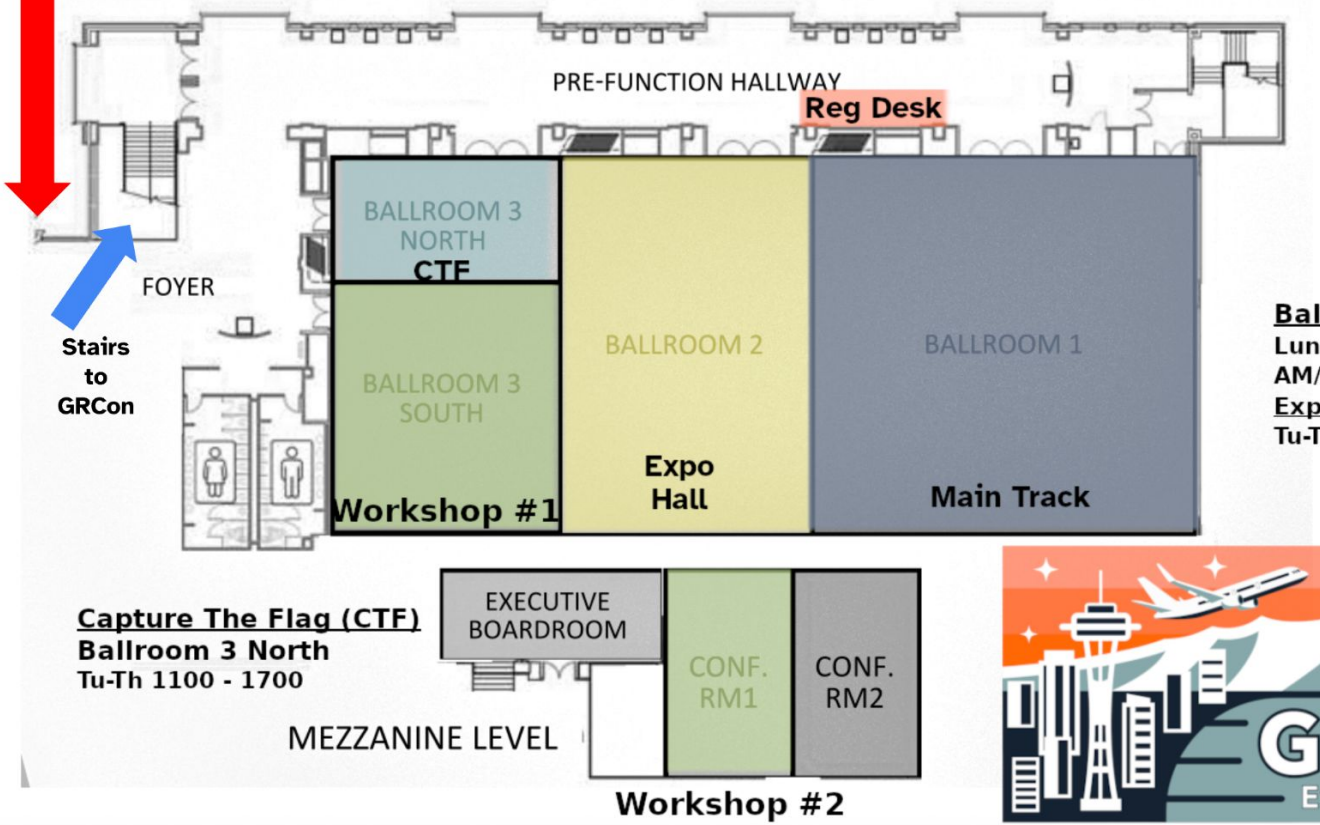
Social events - Monday and Wednesday

Breaks and Lunch in Expo Hall (Ballroom C)



**Edward D Hanson Conference Center**

Street Entrance from Hewitt Avenue




**Registration Desk**
M 0900 - 1700
Tu-F 0815 - 1700

**Ballroom 2**
Lunch
AM/PM Breaks

**Expo Hall**
Tu-Th 1045 - 1700

**Capture The Flag (CTF)**
**Ballroom 3 North**
Tu-Th 1100 - 1700

GRCon25
Everett, Washington

# Chat Server

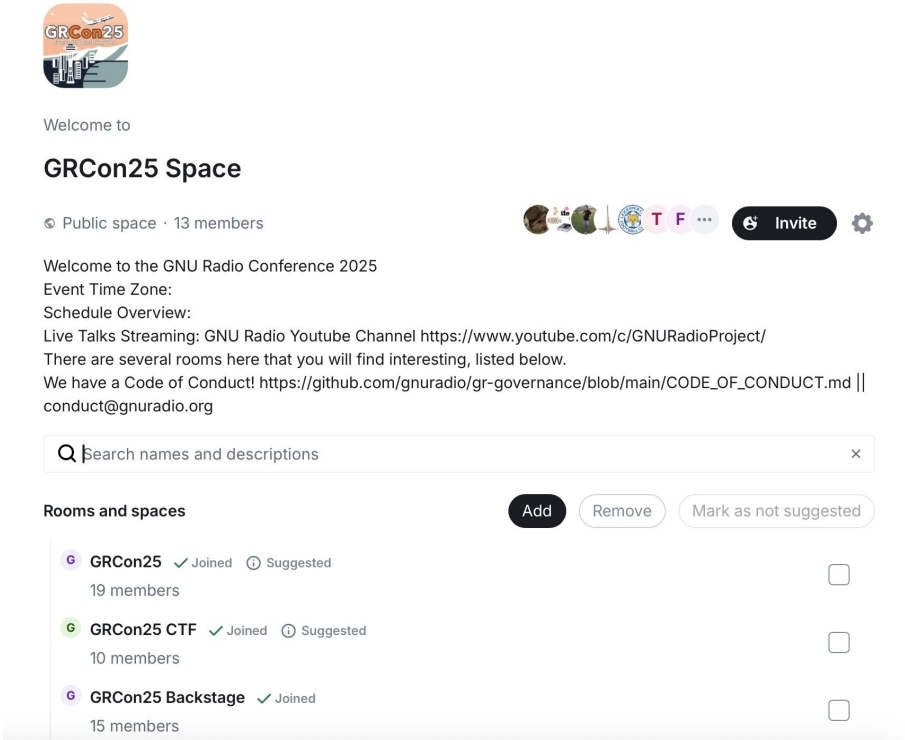
Join the Matrix!

https://chat.gnuradio.org

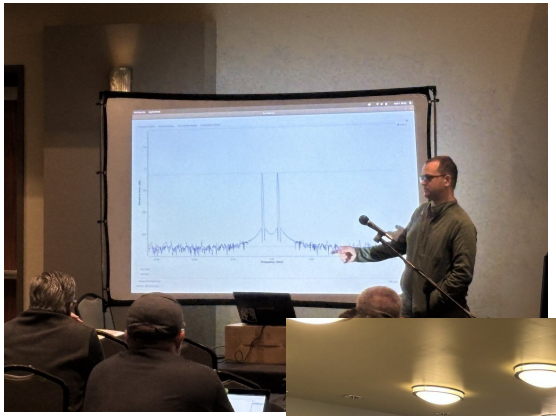
Discussions and info during the event

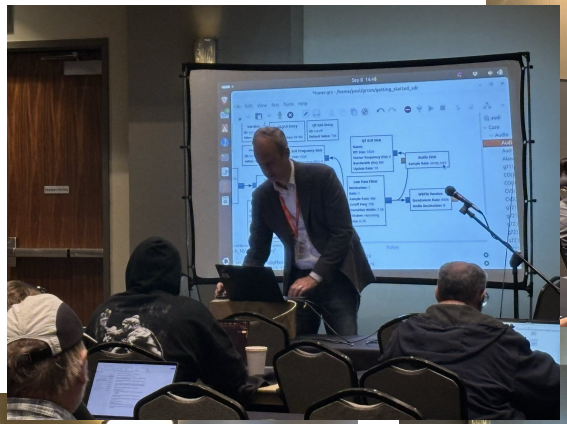
Chat and development year round!

GRCon25 Public Space



# New User Day





# Keynotes and Invited Speakers

Joshua Smith

Adam Anderson

Thomas Rondeau

Bradley Kuhn

Jesse Alexander

Paul Clark

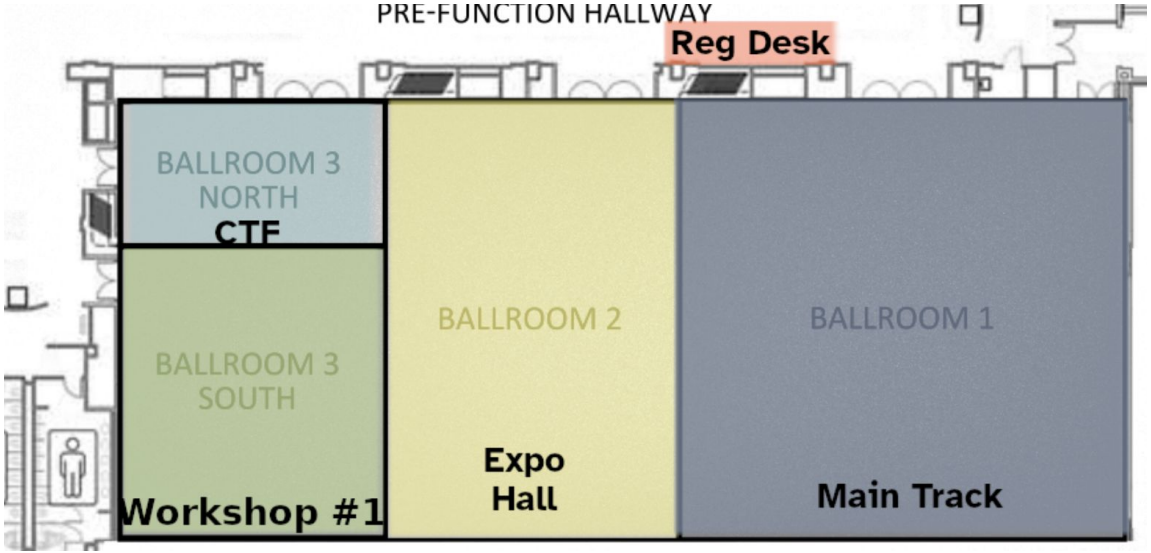
Dan Boschen

# Capture the Flag

CTF Room - Conf Room

**https://ctf-2025.gnuradio.org/**

@livethisdream



# HAM Radio Exams

Thursday 1PM, Workshop Room

gnuradio.org/grcon25

Brought to us by Western Washington Ham Training Team

Info at the Registration Desk

## Amateur Radio License Exams

### Amateur Radio License Exams (In-Person Only)

During GRCon25 we will be hosting Amateur Radio license exams for those interested in obtaining or upgrading their licenses **(In-Person Only)**. Check out ARRL's overview for more details about Licenses.

Amateur Radio License Exams will be offered on **Thursday Sept. 11 at 1:00 PM**.

There are study guides and trial exam tests available for *free* online:

- Dan Romanchik No-Nonsense Study Guides
- ARRL trial license testing ARRL Exam Review

### Details About the Exams

#### Exams Available

All three exam levels are available: Technician, General, and Extra. Applicants may take any exam(s) they have prepared for, in any order. A lower license class exam does not have to be passed in order to take a higher license class exam. For example, the Technician Class exam does not have to be passed to take the General Class exam. **But**, both would have to be passed to be eligible for a General Class license.

Exams are closed book. No books, notes, or any other materials are allowed.

Applicants who are not successful may be allowed, at the discretion of the VEs, to retest at the same session if they were very close to passing, and there is time for another exam. Many applicants have found it helpful to take any of the on-line exams that are available, more than once, to determine whether they were ready to take their license exam (see above).

#### FCC Registration Number (FRN)

The FCC requires you to use a Federal Registration Number (FRN). The FRN is a unique number the FCC uses to identify you. Your Social Security number is required by the FCC when you obtain an FRN, but the FRN is used after that for your transactions with the FCC.

**An FRN can be obtained** here. It is highly recommended that you get an FRN **before** coming to the exam session as this speeds up the process at the session. If you need assistance obtaining an FRN, a VE may be able to help you at your exam session (time permitting), and you will need access to your email at the session to do that.

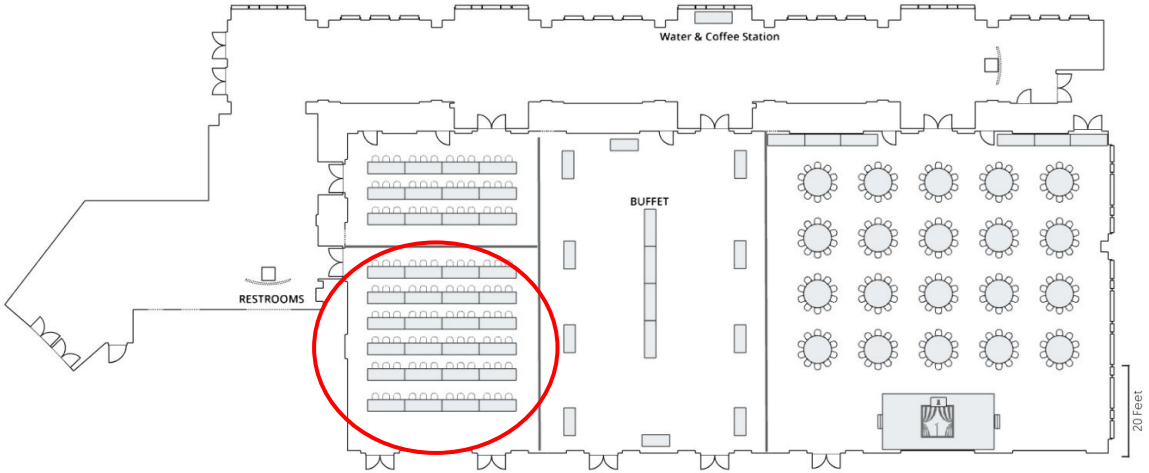
# Lightning Talks

https://forms.gle/gcHiqPgM1gbhwz2K8

5 minute talks

Interesting project, or idea

# Workshops




AND Conf Room 1 - DOWNSTAIRS

Dan Boschen
Invited Workshop

# Join us for the USRP Birthday Party!


## Celebrating 20 years!

Wednesday, September 10th
6-8pm at Carleton Farm

Sponsored by:

EMERSON

# Carleton Farm

**630 Sunnyside Blvd SE, Lake Stevens, WA 98258**

Dinner + Drinks + Games + Prizes

# Our Organizers

Samantha Palazzolo - Lead

Neil Rogers - Technical Chair

Toby Flynn

Seth Hitefield - A/V

Andrej Rode

Chuck - AE4CT

Steve Stroh

Tina Stroh

Marcus Müller

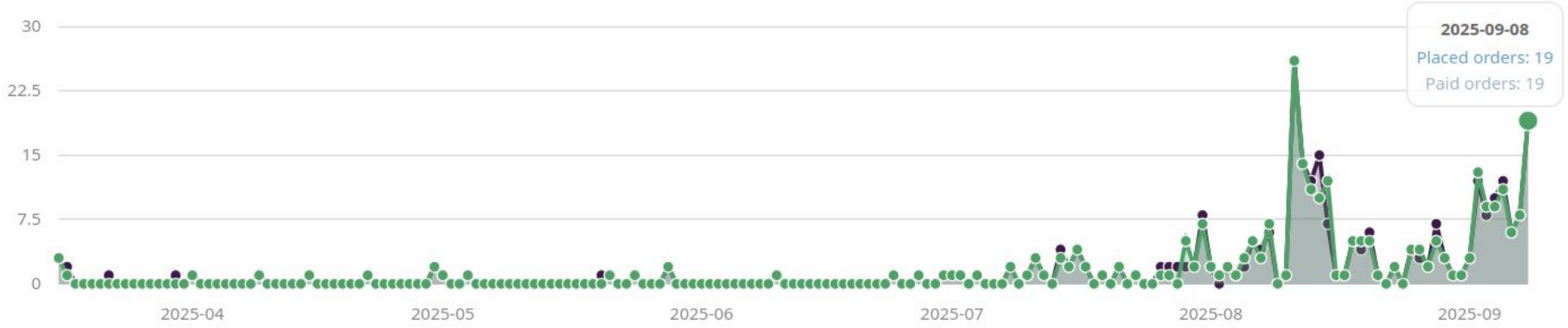
Neel Pandeya

Michael West

Josh Morman

# Helping with the conference

Thank you to everyone who registered early!




GRCon26 Planning Session Friday!

# Our Sponsors

DIAMOND

AARONIA AG
WWW.AARONIA.DE

EMERSON

ANYSIGNAL

# Our Sponsors

GOLD

# Our Sponsors

# GNU Radio

THE FREE & OPEN SOFTWARE RADIO ECOSYSTEM

# What is the GNU Radio Project?

The codebase of the core, VOLK, and SigMF

The dozens of supporting projects and infrastructure

The active contributors

The ecosystem of modules, applications, and interfaces

This conference, EU GNU Radio Days, other events

You - everyone that is interested in making open source software radio even better

# Where is GNU Radio Used

Wireless Communications

RADAR

4G/5G/6G

Radio Astronomy

Spectrum Monitoring

IOT and Sensors

Space Comms

Particle Accelerators

Education

Amateur Radio

Physics Research

Security Research

Public Safety

Citizen Science

Transportation

Recreation (CtF)

Weather

Medical

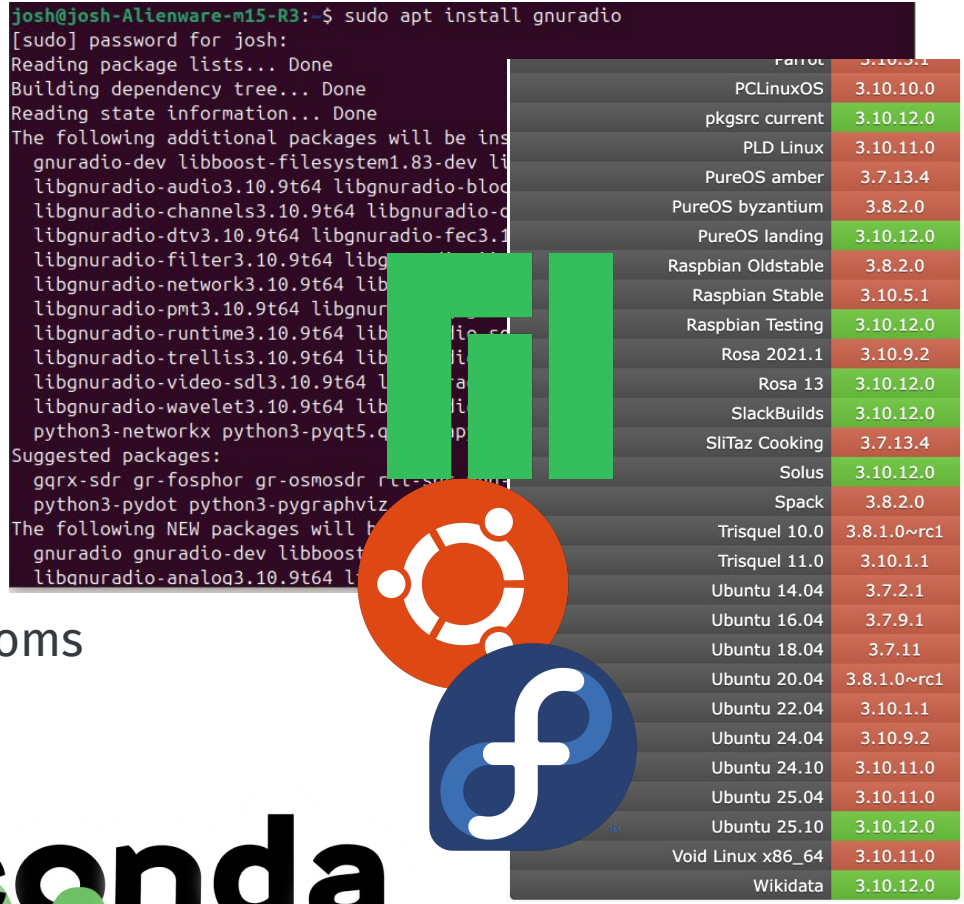
RFML

. . .

# Packaging


Installing GNU Radio has gone from headache to trivial over the past several years

**Thanks to the packagers in our community**




Debian(/Ubuntu) - Maitland Bottoms

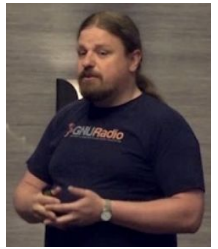
RadioConda - Ryan Volz

...

# GNU Radio Maintenance

Jeff Long has officially stepped down as maintainer

Marcus Mueller officially has taken on the lead maintainer role



**Looking for additional maintainers!**

- Be a recognized part of the maintenance team
- Own a module or group of modules (e.g. gr-qt, gr-soapy, gr-zeromq)
- Be responsible for ensuring relevant PRs are reviewed and merged
- Help backport merges to maint-3.10

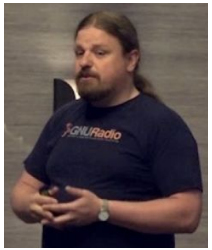
Email: info@gnuradio.org for more information

# How is GNU Radio Governed?

## GR BOARD

MARC LICHTMAN - VP

MARCUS MUELLER - VP




JOSH MORMAN - PRESIDENT

SETI INSTITUTE

DEREK KOZEL - PI

# General Assembly

Martin Braun - Community/Ecosystem

Andrej Rode - Infrastructure

Bastian Bloessl - Architecture

Johannes Demel - VOLK

Jeff Long - Maintenance

Seth Hitefield - GRC

Josh Morman - President

Marc Lichtman - Vice President

Derek Kozel - SETI PI

Marcus Müller - Chief Architect / Lead Maintainer

Nate Temple - Community

Philip Balister - Embedded

Samantha Palazzolo - GRCon

Jacob Gilbert - SigMF

Jean-Michel Friedt - Academic Engagement

Ben McCall - Documentation

John Sallay - GR 4.0

**Cyrille Morin**

# Teams

GNU Radio Conference - grcon@gnuradio.org

Architecture - architecture@gnuradio.org

GRC - grc@gnuradio.org

Documentation - docs@gnuradio.org

SigMF - sigmf@gnuradio.org

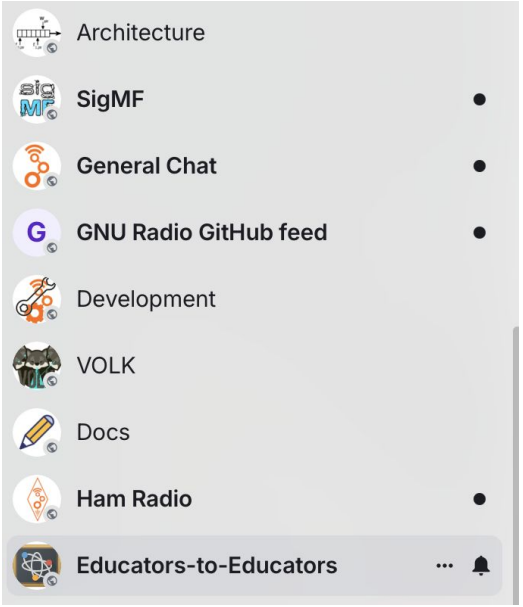
VOLK - volk@gnuradio.org

Infrastructure - admin@gnuradio.org

Education and Academic Outreach - education@gnuradio.org

Remember - GNU Radio is a completely volunteer run organizations

# Getting Involved




Join Chat - https://chat.gnuradio.org

Join the Mailing List - discuss-gnuradio

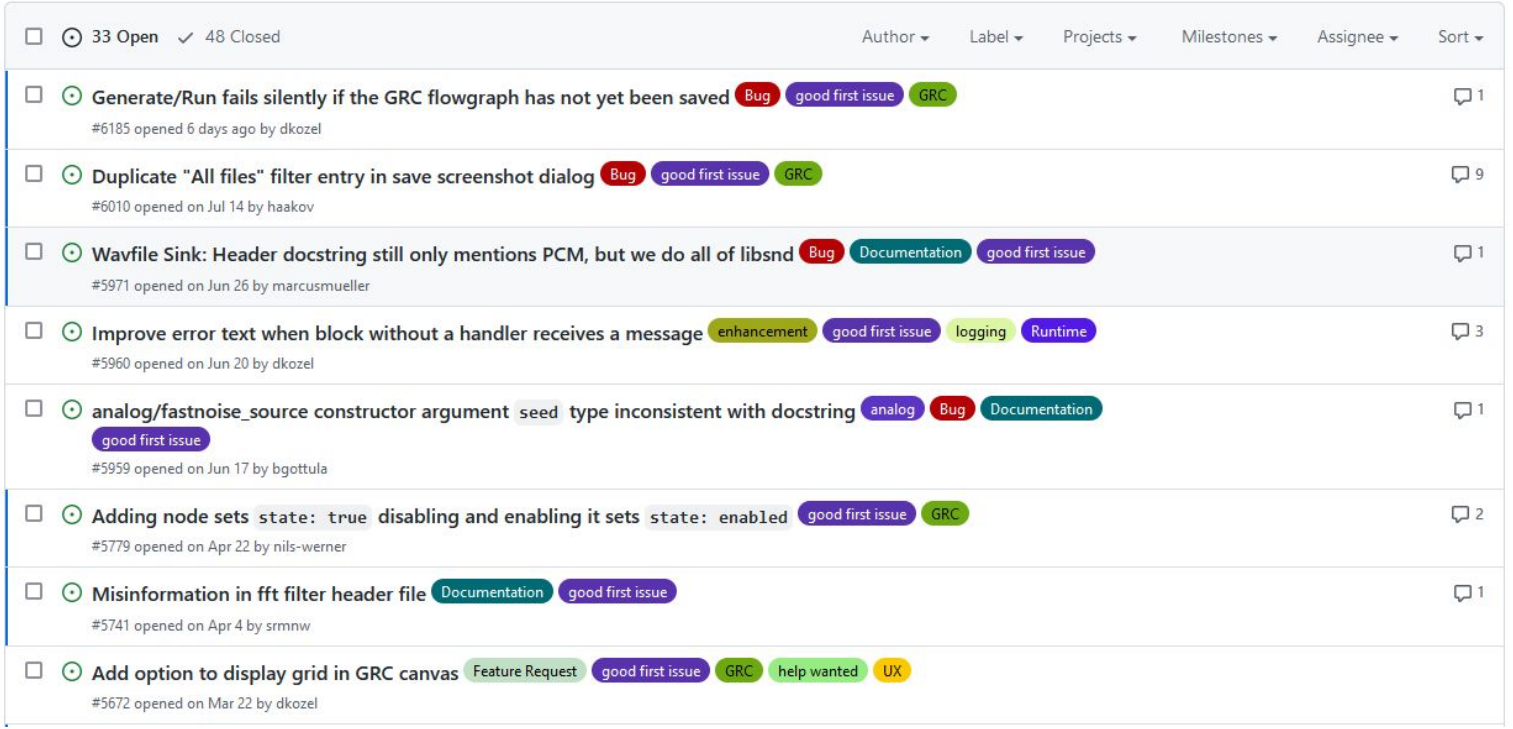
File issues - https://github.com/gnuradio

Review issues, add details, recreate ones

Improve the tutorials - https://tutorials.gnuradio.org

Give a talk about GNU Radio - ~1200 publications in 2024 mentioning GNU Radio

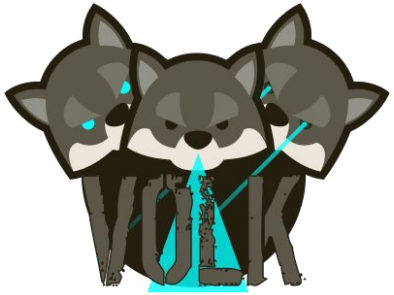
# Getting Involved



# Latest GNU Radio Project Releases

GNU Radio

THE FREE & OPEN SOFTWARE RADIO ECOSYSTEM





GNU Radio 3.10.12

- GRC-QT Parity
- UHD/RFNoC
- Other tooling updates

VOLK 3.2.0

- New/improved kernels
- Modernized CI
- Improved tests

SigMF v1.2.5

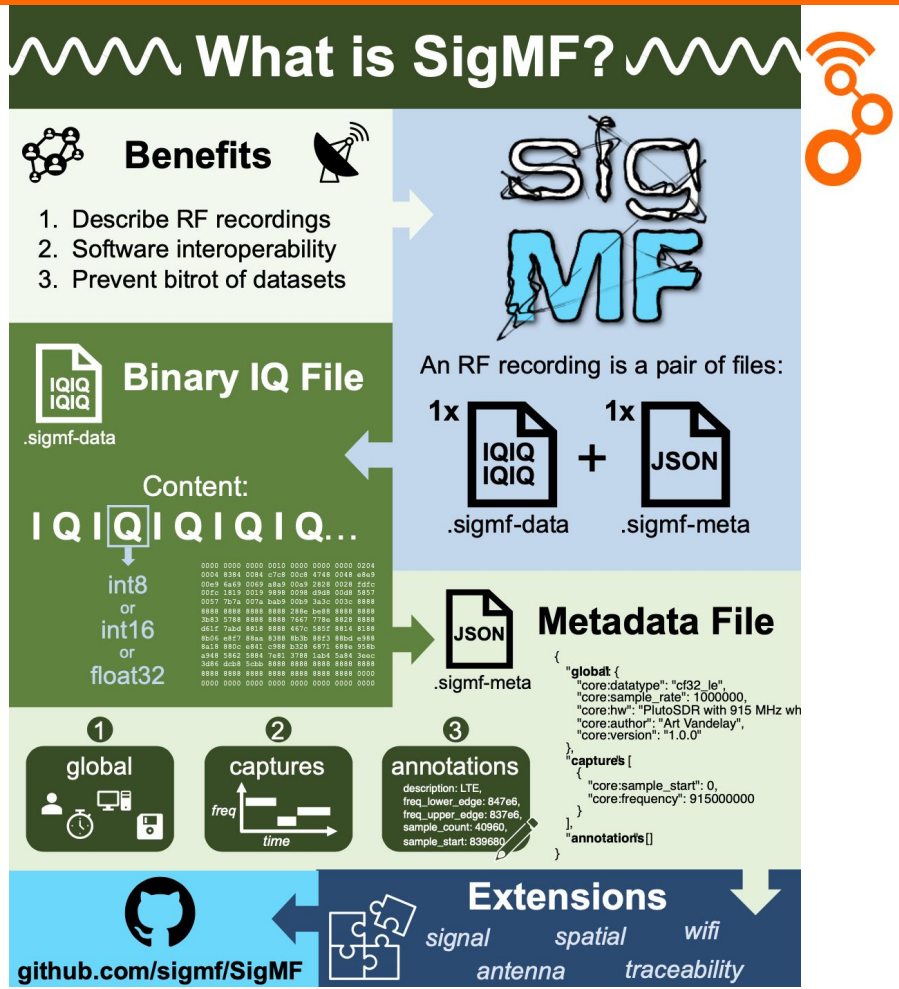
- Spec fixes and updates

# SigMF

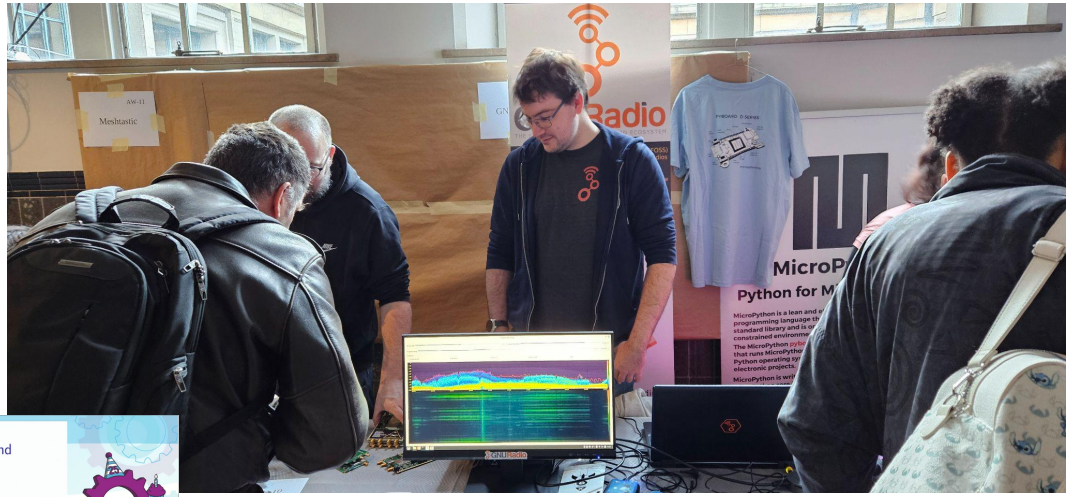
Standardized Data Format
- Common way to describe IQ Data captures with metadata
- Portable format - widely adopted

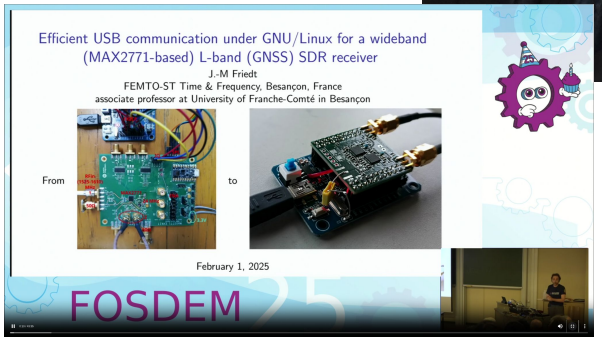
Training and Evaluation Pipeline
- Unified input format for ML training, validation, testing
- Simplified integration with frameworks like PyTorch

Applications
- RFML, Spectrum Sensing, signal identification, ...



# FOSDEM 2025


Meshtastic
Radio
MicroP
Python for M


Efficient USB communication under GNU/Linux for a wideband
(MAX2771-based) L-band (GNSS) SDR receiver
J.-M Friedt
FEMTO-ST Time & Frequency, Besançon, France
associate professor at University of Franche-Comté in Besançon
From
to
February 1, 2025
FOSDEM

# EU GR Days 2025

citi lab

Center of Innovation in Telecommunications and Integration of Services


# Australian GR Days

| | Tuesday 23rd | Wednesday 24th | Thursday 25th | Friday 26th |
|---|---|---|---|---|
| 9:00 | Registration | Radar Basics<br>S. Drake – Flinders University | ***Keynote***<br>Future Gen. Wireless Technologies<br>T. Rondeau - FutureG | *Classified Sessions*<br><br>Software Defined Radio: Threats and Opportunities |
| 9:30 | ***Keynote***<br>GNU Radio Community<br>D. Kozel – GNU Radio | TBD<br>M. Piyaratna – Solinnov Wireless | | |
| 10:00 | | Network Security<br>S. Rehman – Flinders University | TtW Detection w CSI Capt. via SDR<br>D. Naotunna - Solinnov Wireless | |
| 10:30 | Coffee Break | | | |
| 11:00 | Introduction GNU Radio Companion<br>A. Lammas – Flinders University | ADSB Doppler Detection on a FPGA<br>D. Bezborodow – Flinders University | Allan on SDR<br>A. Wiegelmann – Flinders University | |
| 11:30 | Antenna Fundamentals<br>S. Chen – Flinders University | AI for Wireless with SDRs<br>Y. Chen – Matlab | SDR-Based Direction Finding<br>R. Abdullah – Adelaide University | |
| 12:00 | Geolocation Basics<br>S. Drake – Flinders University | Lunch | Dist. One-step Passive Geolocation<br>A. Newcome – Flinders University | |
| 12:30 | Lunch | *Travel Time* | Lunch | |
| 13:00 | | INOVOR TECHNOLOGIES | | |
| 13:30 | Electromagnetic Propagation<br>S. Chen – Flinders University | | Antenna Parameters<br>S. Chen | |
| 14:00 | Enhancing Antenna Systems<br>H. Dang – RF Shop | *Travel Time* | | |
| 14:30 | Build Your Own RF Anechoic Chamb.<br>N. Brown – Flinders University | Coffee Break | | |
| 15:00 | Coffee Break | GNU Radio Companion:<br>Under the Hood<br>D. Kozel | Coffee Break | |
| 15:30 | GNU Radio Companion:<br>The Basics<br>A. Lammas | | ADSB Spoofing Verification<br>S. Drake | |
| 16:00 | | | | |
| 16:30 | | | Closing – S. Drake | |
| 17:00 | Drinks | Travel Time | | |
| 18:00 | | Dinner | | |
| 21:00 | Cyberspectrum | | | |

https://events.gnuradio.org/e/AustralianGRDays25

# Australian GNU Radio Days 2025

THE FREE & OPEN SOFTWARE RADIO ECOSYSTEM

**23rd - 26th September**
**Adelaide, Australia**

## What to Expect

The workshop will bring together academic researchers, RF and signal-processing engineers, enthusiasts, industry, and defence around the GNU Radio open-source infrastructure.

## Presentations and Workshops

**GNU Radio: From Introduction to Mastery**

Presentations and workshops will span a whole spectrum of levels and topics, from the introduction to the GNU Radio environment and community to the latest developments and applications in SDR from academia and industry.

## Classified Day

**Software Defined Radio: Threats and Opportunities**

A day with seminars and tutorials focused on the impact of SDR on defence.

CLEARANCE REQUIRED

DEEPSIG solinnov SRC Aus EMONA tims WIRELESS LAB TEACHING EQUIPMENT RFShop SouthTech Systems OZHACK.COM Flinders University

# SETI Hackathon

Sponsored by ARDC

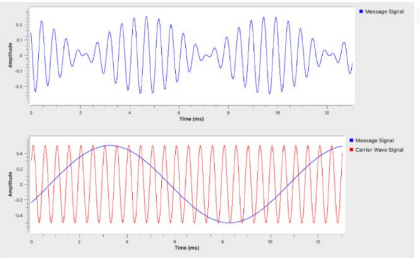
Allen Telescope Array

# SETI ARISE

agiseti.com

News

## SETI Institute Launches ARISE Lab, Bringing SETI and Radio Astronomy to Community Colleges



### Possible Types of Extraterrestrial Intelligence Radio Transmissions

In this lab, students dive into the field of SETI (Search for Extraterrestrial Intelligence) by exploring the types of radio transmissions that may be detected from extraterrestrial sources. This module covers essential concepts in signal processing, including the Nyquist sampling theorem, filtering techniques, and modulation. Students will examine various possible SETI signal types, such as beacons, leakage signals, narrowband vs. wideband signals, as well as continuous wave and pulsed transmissions. The hands-on component involves designing and implementing an AM transmitter and receiver, allowing students to apply their understanding of signal characteristics and modulation. By the end of the lab, students will gain practical experience in signal processing while considering the broader implications of detecting signals from extraterrestrial intelligence in SETI research.

Lecture Notes | Pre-Lab Reading | Teaching Resources

# Communication Systems Engineering with GNU Radio: A Hands-on Approach 1st Edition

by Jean-Michel Friedt (Author), Herve Boeglen (Author)

See all formats and editions

Pre-order Price Guarantee. Terms

**An approachable guide to an invaluable radiofrequency communication toolkit**

Software-defined radio (SDR), which emerged in the 1990s, has become a core development method in certain high-profile fields, including military and space communications. High cost and problems with hardware availability, however, prevented this technology from being widely disseminated. The advent of low-cost hardware beginning in the 2010s, however, has made GNU Radio—the leading open-source software toolkit for developing SDR systems—an increasingly viable and even critical tool for a new generation of radiofrequency communication engineers.

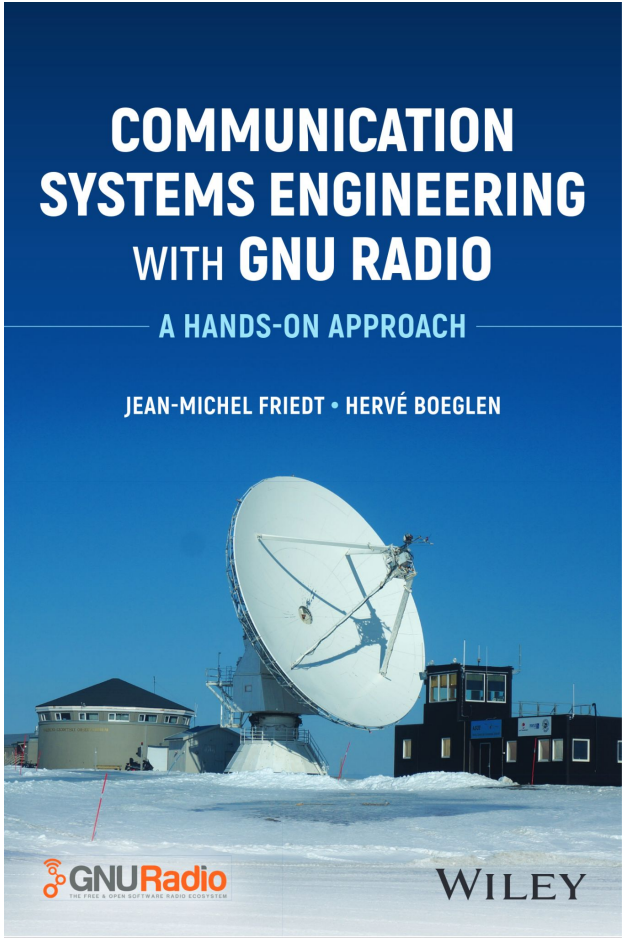
*Communication Systems Engineering with GNU Radio* provides an accessible overview of this toolkit and its applications. Beginning with the fundamentals of using GNU radio for digital signal processing, the volume then moves to the practicalities of decoding data and the advantages of accessing raw data normally unavailable in hardware-defined radiofrequency receivers. The result is a potentially crucial tool for engineers looking to adopt this cost-effective and flexible standard for transmitting and processing radiofrequency signals.

Readers will also find:

- A careful balance of radio communications theory with GNU Radio practicalities
- Practical implementation examples employing well-developed open-source GNU Radio platforms
- Extensive accompanying documentation and explanation

*Communication Systems Engineering with GNU Radio* is ideal for graduate and undergraduate students in communications systems courses, as well as professionals working in SDR.

Available now!
https://a.co/d/cXoltKj



# Practical SDR - No Starch Press

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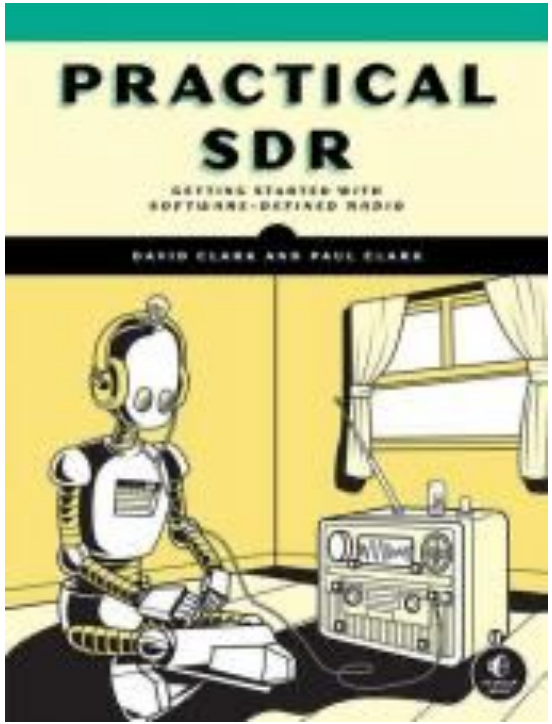
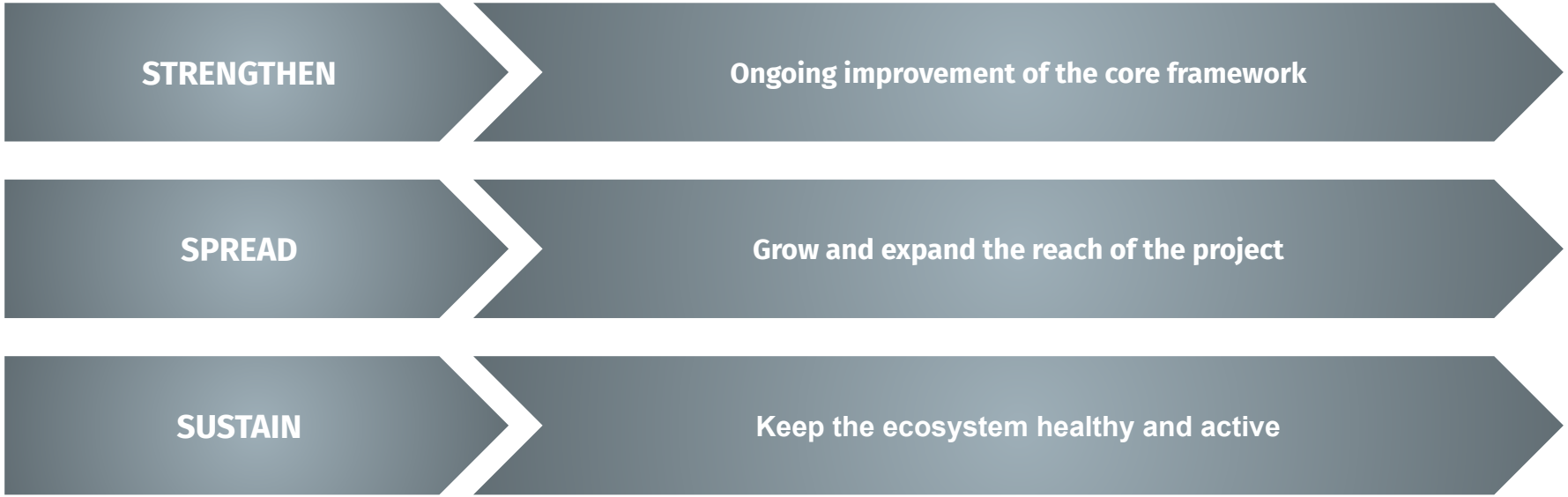


# Matrix Chat room for Educators

chat.gnuradio.org

education@gnuradio.org

# Project Vision



# GNU Radio Funding

- **GNU Radio Conference**
- **Grants**
- **Donations**
- ...
- **Sustainability**

# Google Summer of Code

This year we had 4 sponsored projects!

Thanks to Google, the students, and the mentors

Contributor
<Aaditya/>
Mentor
Michael Petry

5G CELL SCANNER

This project develops an open-source 5G cell scanner utilizing GNU Radio and SDR hardware to passively detect and decode 5G signals, extracting key...

View project details

Contributor
Daniel Paul
Mentor
Marcus Müller

GNU Radio FT8/WSPR OOT Module

This project aims to develop a comprehensive Out-of-Tree (OOT) module for GNU Radio that enables amateur radio enthusiasts to incorporate FT8 and...

View project details

Contributor
KrishGupta
Mentor
Josh M

Expanding the GNU Radio 4.0 Block Set

I propose to migrate and enhance critical signal-processing blocks from GNU Radio 3.x to the next-generation GNU Radio 4.0 architecture. Leveraging...

View project details

Contributor
StudHamza
Mentor
noc0lour

FM Broadcast Radio application

In this project, I aim to develop a fully fledged FM broadcast receiver application with integrated RDS and spectrum scanning. The application should...

View project details

# Fund your projects/ideas through grants

## Small Grants through GNU Radio - $5-$15k
## Nov. 15 Deadline - info@gnuradio.org

### Grant Ideas

Similar to the GSoC Ideas page, this is a list of things we could potentially ask for grant money to accomplish, or even just volunteers who want something specific to dive into:

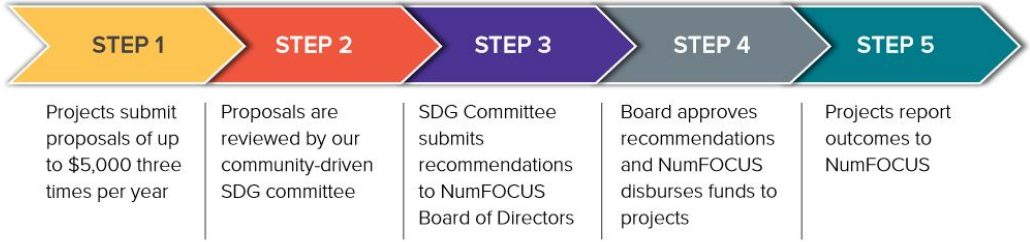
**Contents** [hide]



A R | D C

AMATEUR RADIO DIGITAL COMMUNICATIONS

The NumFOCUS Small Development Grants program is a community collaboration which addresses project needs while also engaging dedicated volunteers. See the process below:



# How to Support GNU Radio

Get Involved

Advertise that you use GNU Radio

Write a letter of support

Publish a whitepaper

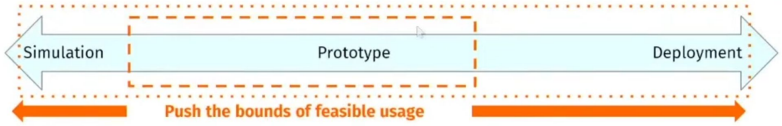
Join a team

# Technical vision remains unchanged

… but is starting to become reality

From GRCon22

## GNU Radio in the development workflow




Through the 4.0 architecture, expand feasible usage from simulation through to deployment

## Technical Vision for GNU Radio 4.0

**Modular CPU Runtime**

- Scheduler as plugin
- Application-specific schedulers

**Heterogeneous Architectures**

- Seamless integration of accelerators (e.g., FPGAs, GPUs, DSPs, SoCs)

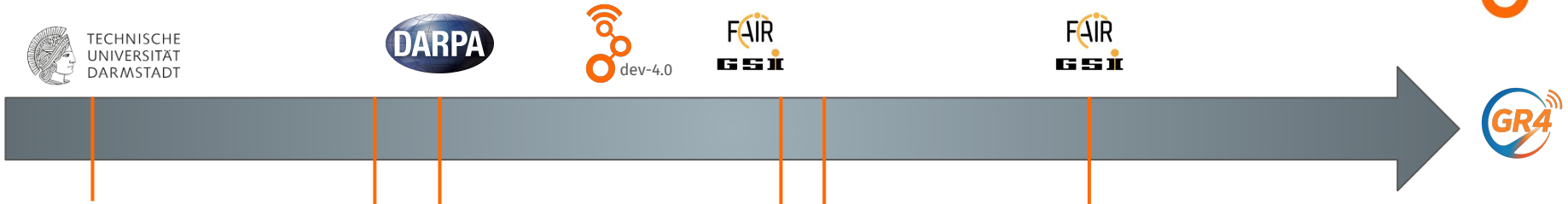
**Distributed DSP**

- Setup and manage flowgraphs that span multiple nodes

**Straightforward implementation of (distributed) SDR systems that make efficient use of the platform and its accelerators**

26

# GR 4.0 Timeline




2019: Benchmarking of GR scheduler, identification of optimization opportunities. Attempts to implement in current codebase

2020: newsched project - fresh start on architectural concepts

2020: SDR 4.0 - enhance GNU Radio capabilities on to heterogeneous compute platforms

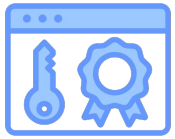
2022: GSI/FAIR commits resources and takes on deeper changes to scheduler and API

2022: GRCon22 - newsched modularity and usability demonstration

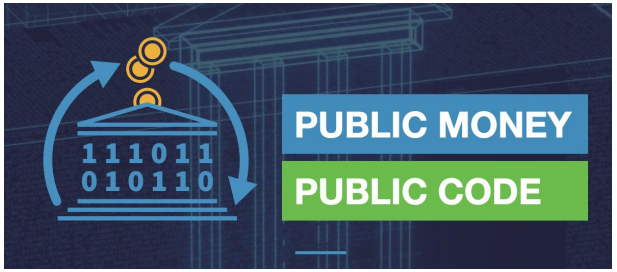
2024: EU GR Days - @GSI/FAIR hands on workshops

2024: EU GR Days - Demonstration of packet modem in GR 4.0

# Permissive Licensing



Our goal is for free and open software defined radio to get into the hands of as many people as possible.




GNU Radio is boxed out of many ecosystems because of (often misunderstood) GPL constraints

GR4 will have a permissive MIT licensed core and minimal blockset

Allows derived works to be licensed *at the discretion of the author*

- We envision a healthy GPLv3 ecosystem of OOT modules

Gain access to new applications / markets / ecosystems

*Note: no relicensing of GR3 - ported code will remain GPLv3*

# The future of the GNU Radio framework


Imagine ...

GNU Radio that is suitable for mission critical and enterprise grade applications

GNU Radio flowgraphs that can be designed as prototypes and be deployed as products with minimal additional effort

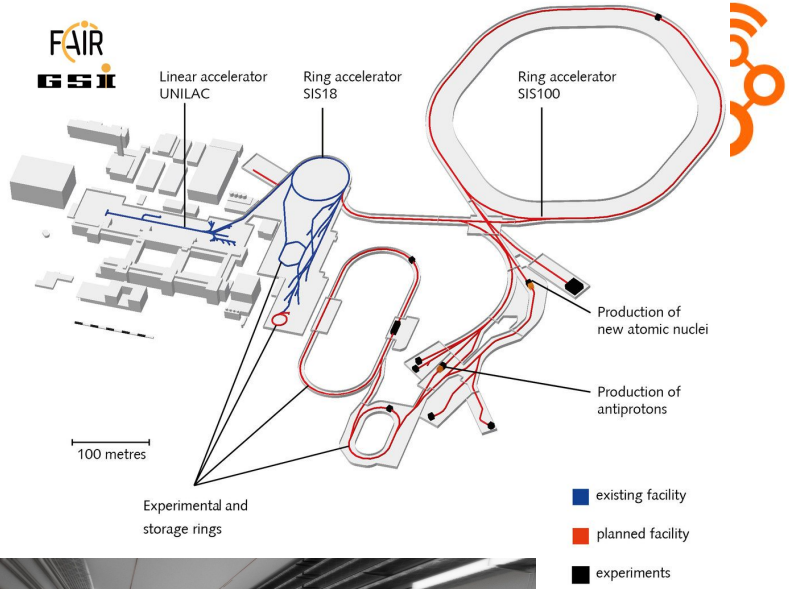
GNU Radio development workflows and data pipelines that better enable AI tools and AI/ML applications

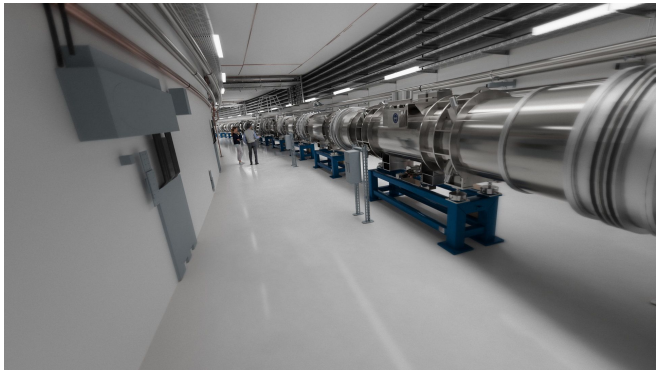
# Mission Critical

GR4 was developed as the measurement and sample processing solution for the particle accelerators at FAIR

Designed to run on **critical infrastructure**, and thus *meet higher standards for **safety**, **cybersecurity**, and **product liability**.*

- Redesigned from the ground up
- Modern C++ and Best Practices
- Lean, clean codebase
- High throughput and low latency demands



# From prototype to deployed product

Block based development is a powerful concept - rapid application development based on modularity, reuse - but how well can a general purpose framework allow this to become a “product”

How these blocks get executed is highly dependent on the runtime framework

- Optimal scheduling across available compute resources
  - Custom scheduler to meet application needs
- Heterogeneous compute
  - Custom buffers to suit specific compute resources
- Maximize CPU performance
  - Lock Free buffers, constexpr optimization, std::simd standardization, Block Merging

# GR4 Killer Features

Lean on compiler for efficient optimizations

- Type strictness and constraints
- Code is single source of truth

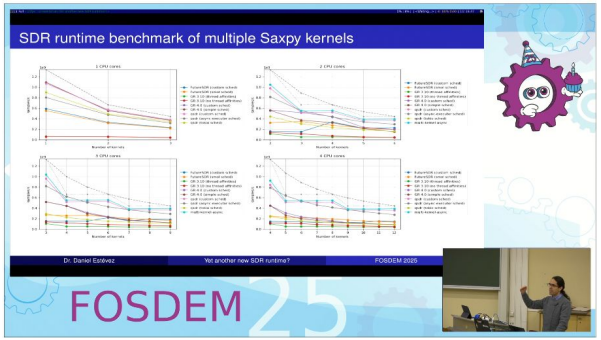
SIMD and Merge API

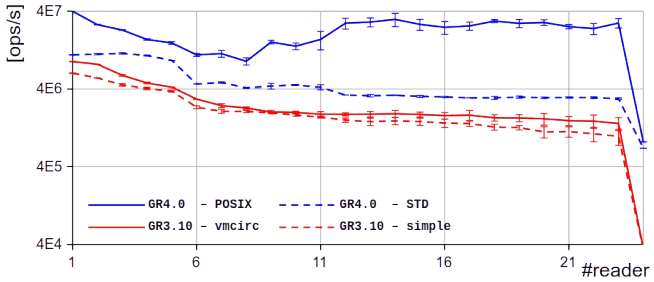
Direct testing of blocks without flowgraph

Lock free circular buffers

Modular Scheduling

Ease of Development




| benchmark: | cache misses | mean | stddev | max | ops/s |
|---|---|---|---|---|---|
| merged src→sink | 1.3k / 3k = 46% | 626 ns | 110 ns | 952 ns | 16.4G |
| merged src->copy->sink | 391 / 971 = 40% | 957 ns | 106 ns | 1 us | 10.7G |
| merged src(N=1024)->b1(N≤128)->b2(N=1024)->b3(N=32...128)->sink | 398 / 960 = 41% | 957 ns | 103 ns | 1 us | 10.7G |
| merged src→mult(2.0)→divide(2.0)→add(-1)→sink | 401 / 1k = 40% | 3 us | 108 ns | 4 us | 3.0G |
| merged src->(mult(2.0)->div(2.0)->add(-1))^10->sink | 470 / 1k = 42% | 41 us | 189 ns | 42 us | 248M |
| runtime src->sink | 9k / 174k = 5% | 42 us | 98 us | 336 us | 241M |
| runtime src(N=1024)->b1(N≤128)->b2(N=1024)->b3(N=32...128)->sink | 20k / 648k = 3% | 125 us | 328 us | 1 ms | 81.7M |
| runtime src->mult(2.0)->div(2.0)->add(-1)->sink - process_one(..) | 24k / 663k = 4% | 105 us | 259 us | 882 us | 97.5M |
| runtime src->mult(2.0)->div(2.0)->add(-1)->sink - process_bulk(..) | 24k / 664k = 4% | 152 us | 358 us | 1 ms | 67.3M |
| runtime src→(mult(2.0)→div(2.0)→add(-1))^10→sink | 56k / 686k = 8% | 127 us | 28 us | 198 us | 80.6M |

# GR4 in practice

This is a completely functional GR4 block

```
struct Square : Block<Square> {

    using Description = Doc<"@brief Squares the input value">;

    PortIn<float> in;
    PortOut<float> out;

    GR_MAKE_REFLECTABLE(Square, in, out);

    [[nodiscard]] constexpr float processOne(float input) const noexcept { return input*input; }
};
```

Join the GR4 Block Tutorial to learn more hands-on

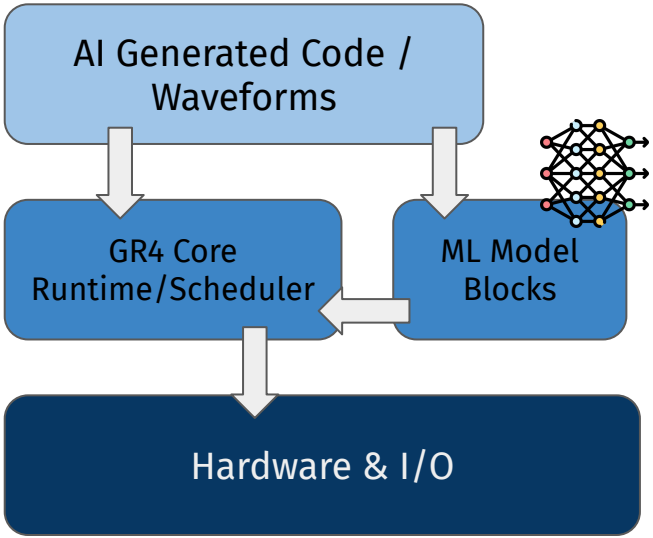
# GR4 as a low barrier entrypoint for AI enabled SDR

*AI-enabled SDR starts with an easy to use, high-performance framework.*

Without a stable, performant core, developers waste time reinventing DSP chains, schedulers, and I/O handling.

GR4 provides a production-grade signal processing engine so AI-generated code and AI-driven waveforms can focus on innovation, not reimplementation.

A shared foundation means AI models and outputs are immediately deployable and interoperable with other SDR components.



# AI Ready Data Model

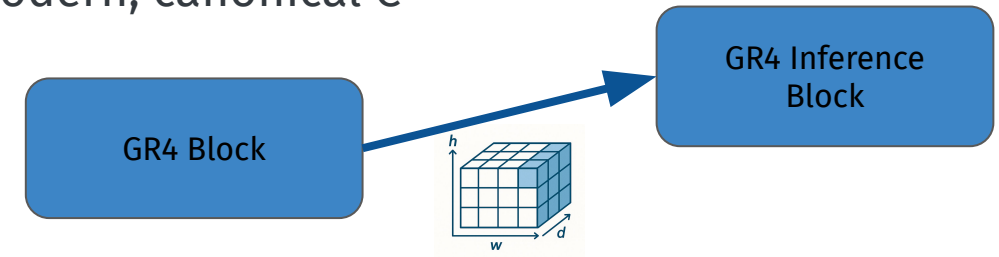
PMT Tensors: superset of vectors with shape, dtype, rank.

Fits naturally with PyTorch, TensorFlow, ONNX workflows.

Rich metadata (time/frequency/antenna) travels with data → training & inference ready.

PMT typed ports: simplify sending structured data between blocks

More sane PMT API - modern, canonical C++



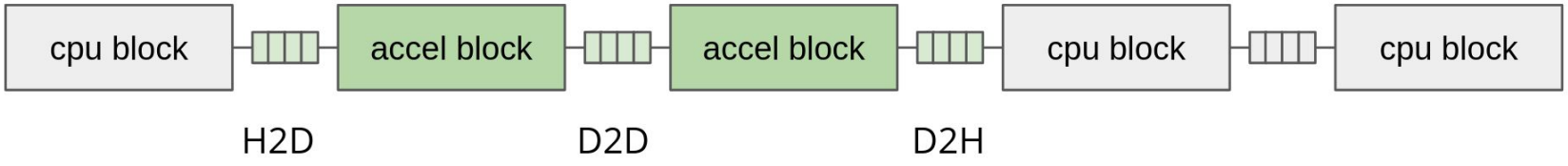
# Data Movement and Compute Placement

Custom buffers and zero-copy GPU/accelerator paths.

- Custom Buffer architecture in place
- SYCL as one prototyped option for compute abstraction

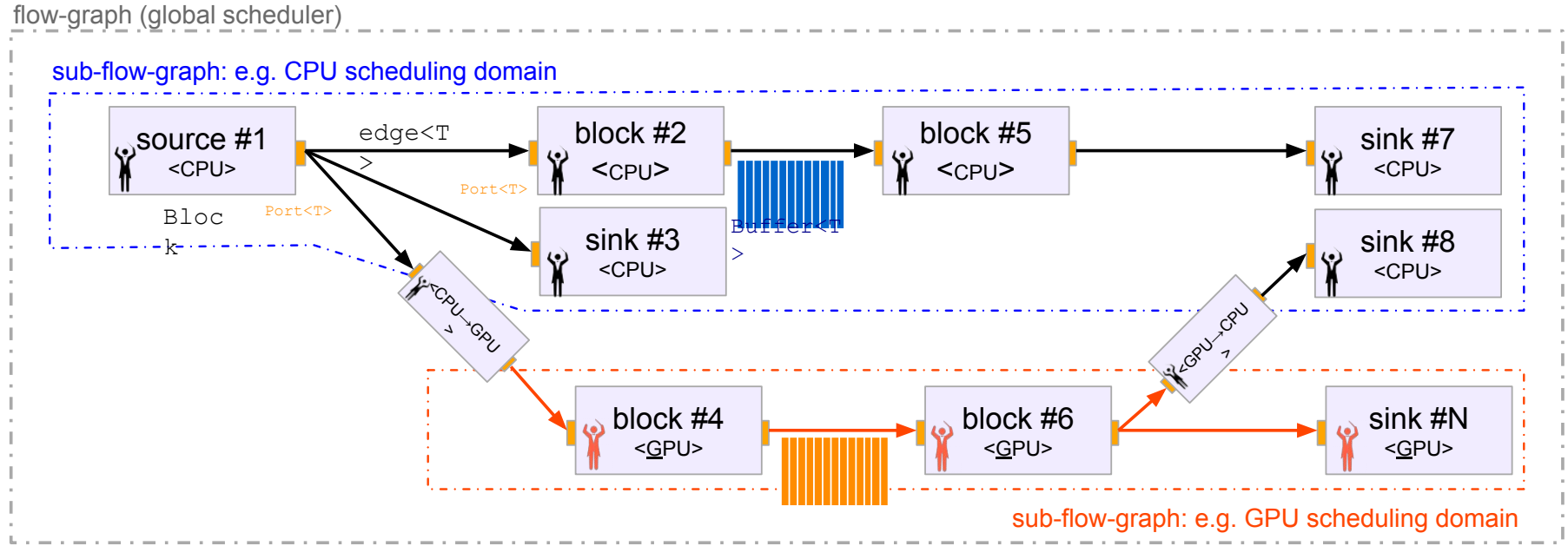
Modular schedulers allow a vast ecosystem of custom and future domain-specific schedulers

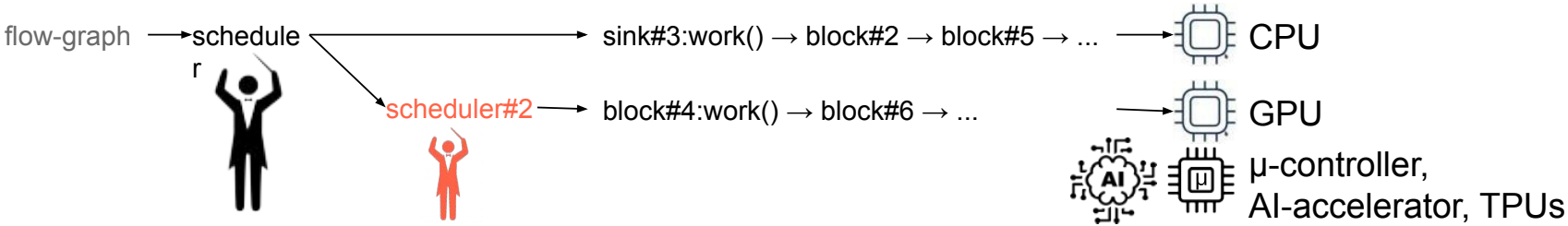
- Async & batch execution to match AI inference engine behavior.



# Graph-Based Signal-Flow Description

GR3.x→4: multiple compute domains & inverted scheduler paradigm `Block` → `Graph`

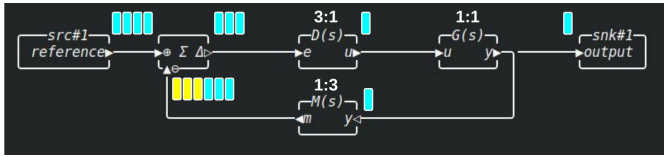


# Latest GR4 Features

New/properly integrated features

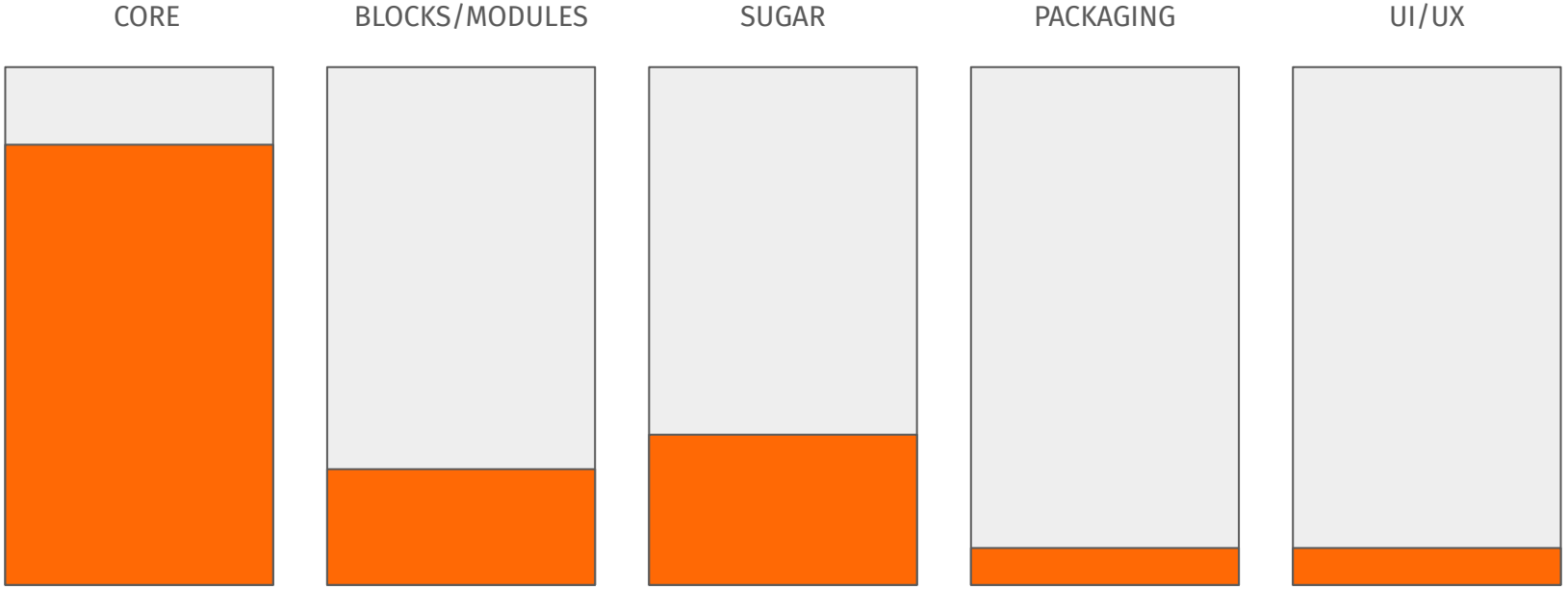
- custom user-defined scheduler
- low-latency schedulers (< ~10 us worst-case latencies, chain of 5 blocks)
- message passing API to read/write/modify graphs from a non-C++ context (important for GUI developments)
- fully compile-time static/runtime polymorphic (plugin) block API
- unmanaged + managed (WIP) polymorphic sub-graphs (plugin-API)
- ... finalising the Buffer, Port, Block, Graph, Scheduler API, ...
- ... reduced the overhead for tag-processing (~35M tags/s possible)
- ... feedback-loop integration (WIP)
- new `<simd>-FFT` (MIT-licensed, as-fast/faster than FFTW)




Tentative proof-of-concepts:

- tentative Windows support (Chris Gorman et al.)
- SYCL integration (GPUs, FPGAs, ...)
- ONNX integration (vendor-neutral ML integration) -> needs user-driven examples
- `Tensor<T>` support (John Sallay et al.)

# Goals for GR4 - to be broadly adoptable



# Low Hanging Fruit

What are some things that the community could jump on *right now*

Blocks / Modules

- Porting things from GR3
- SigMF
- ONNX, other AI model frameworks

REST/HTTP Integration

Example flowgraphs - AM/FM/Digital modulation/demodulation

Performance Benchmarks

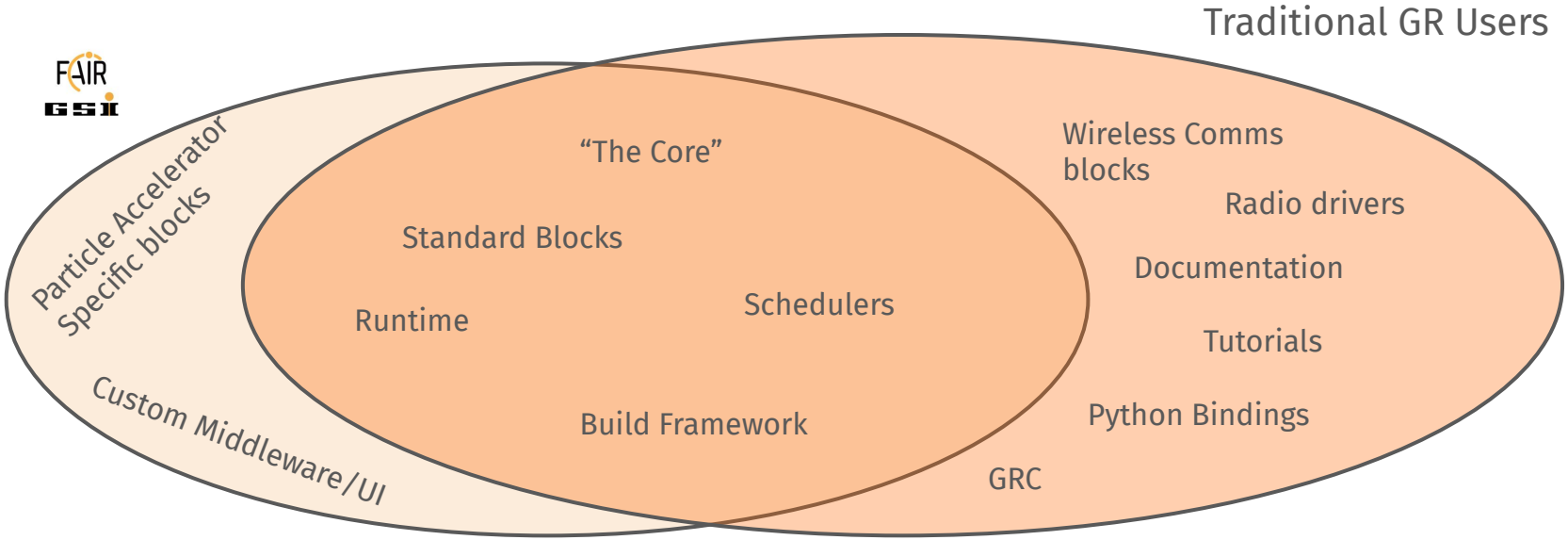
# How to Engage

**Architecture Working Group -**

- This is where we discuss what is going on with GR4
- 4th Thursday of every month (mostly) - 12PM ET
- https://groups.io/g/gnuradio-scheduler
  - To get meeting invites
- #Architecture Channel on chat.gnuradio.org
- Topics:
  - We would like to have more community driven topics - show what you are doing with GR4, issues you might be running into, how you would like to use it
  - Apart from that general updates and feature planning

# Community Maintainership

Goal is to transition ownership / maintenance to the GNU Radio community



# Let’s Make this a Reality!


Reach a level of community maintainership

Expand the blockset (join the GR4 block tutorial tomorrow, and hackfest Friday)

Create new and exciting applications that demonstrate the functionalities and performance advantages

FAIR GSI → GNURadio THE FREE & OPEN SOFTWARE RADIO ECOSYSTEM

# GNU Radio

THE FREE & OPEN SOFTWARE RADIO ECOSYSTEM