GSRF Safety Filter

Commercial Offering & Licensing Note

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Overview

I've developed a small, safety-first filtering method called **Gradient-Stabilized Recursive Filtering (GSRF)**.

GSRF is not a general-purpose signal processing algorithm and it is not positioned as an optimal estimator. It is intentionally conservative by design. The purpose of the method is to **suppress false alarms and overshoot** in systems where incorrect triggering is more costly than modest tracking error or delay.

This document outlines how GSRF is offered commercially, what it is (and is not), and how it can be licensed for use in safety-critical systems.

What GSRF Is

GSRF is a **structurally bounded recursive filtering design** intended for:

- alarm and trigger logic
- monitoring systems
- safety-critical thresholds
- systems where explainability and predictable behavior matter

The method enforces bounded behavior by construction, using:

- log-space state representation
- gradient-guided restoration toward a target band
- strictly bounded memory terms
- explicit parameter envelopes

The design prioritizes **predictable worst-case behavior** over statistical optimality.

What GSRF Is Not

To be clear:

- GSRF is **not** a general replacement for Kalman filters
- It does **not** claim statistical optimality
- It is **not** an AI or machine-learning system
- It is **not** intended for high-frequency trading or control loops requiring minimal latency

GSRF is designed specifically for **false-positive-sensitive environments**.

Typical Use Cases

GSRF is suitable for systems where false triggering has real cost, including:

- medical device alarms
- industrial safety shutdowns
- monitoring and alerting platforms
- embedded safety logic
- financial risk or circuit-breaker triggers

In these contexts, predictable and bounded behavior is often more important than achieving minimum RMS error.

Commercial Offering

GSRF is offered as a **commercial license**, not as a hosted service or product platform.

What the License Includes

The licensed package includes:

1. **Reference Implementation**
    - Python reference implementation
    - Clear pseudocode for translation into other languages
2. **Technical Documentation**
    - Full technical paper describing the method
    - Stability assumptions and parameter envelopes

    - Design rationale and limitations
3. **Integration Notes**
    - Guidance for use in alarm and threshold systems
    - Recommended conservative parameter settings
    - Notes on certification and safety review contexts
4. **License Grant**
    - Permission to use GSRF internally or in commercial products
    - No resale or redistribution of source materials

Pricing (Conservative)

I've deliberately kept pricing simple and conservative.

Standard Commercial License

- **£4,000 one-time fee**
- Perpetual usage rights
- No recurring obligation

This price is intended to be low-friction for small and mid-size engineering teams and does not require long procurement cycles.

Optional Maintenance & Clarification

- **£1,000 per year (optional)**
- Email clarification on usage or documentation
- Notification of updates or refinements
- No custom development or consulting implied

This is optional and only relevant if ongoing clarification is useful.

Support Model

GSRF is provided as a **finished, well-documented method**.

I do not offer:

- custom tuning per customer
- bespoke modifications
- guaranteed outcomes

Any deeper integration or consulting would be discussed separately and only if genuinely necessary.

Licensing Philosophy

The goal of this offering is simple:

- provide a **clear, bounded, safety-oriented filtering method**
- allow engineering teams to use it responsibly
- avoid complexity, lock-in, or long-term dependencies

GSRF is meant to be understandable, auditable, and easy to reason about in safety reviews.

Availability

The reference implementation, test scripts, and documentation are available via the GitHub repository:

GitHub repository: `boonmind/GSRF`

Commercial use requires a license as outlined above.

Closing Note

GSRF exists because some systems don't need to be clever — they need to be **predictable**.

If reducing false alarms or avoiding overshoot is a concern in your systems, I'm happy to explain whether GSRF is appropriate.

No pressure, no upsell — just a practical tool for a specific class of problems.

Carl Boon
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