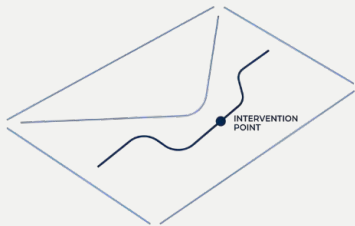


# Envelope.

Right before the edge.

**Derin Bilgin**

AI systems work —  
until conditions change,  
and then they can fail  
*without warning.*



# Market.

Autonomous systems are entering the real world, but safety is still handled with static tools in a dynamic environment.

## How the market solves today?

- **Design-time safety analysis** proves safety on paper but can't adapt after deployment.
- **Offline testing and simulation** cover known cases but miss real-world uncertainty.
- **Conservative operating limits** reduce risk by reducing autonomy.
- **Blunt runtime safeguards** rely on shutdown instead of control.

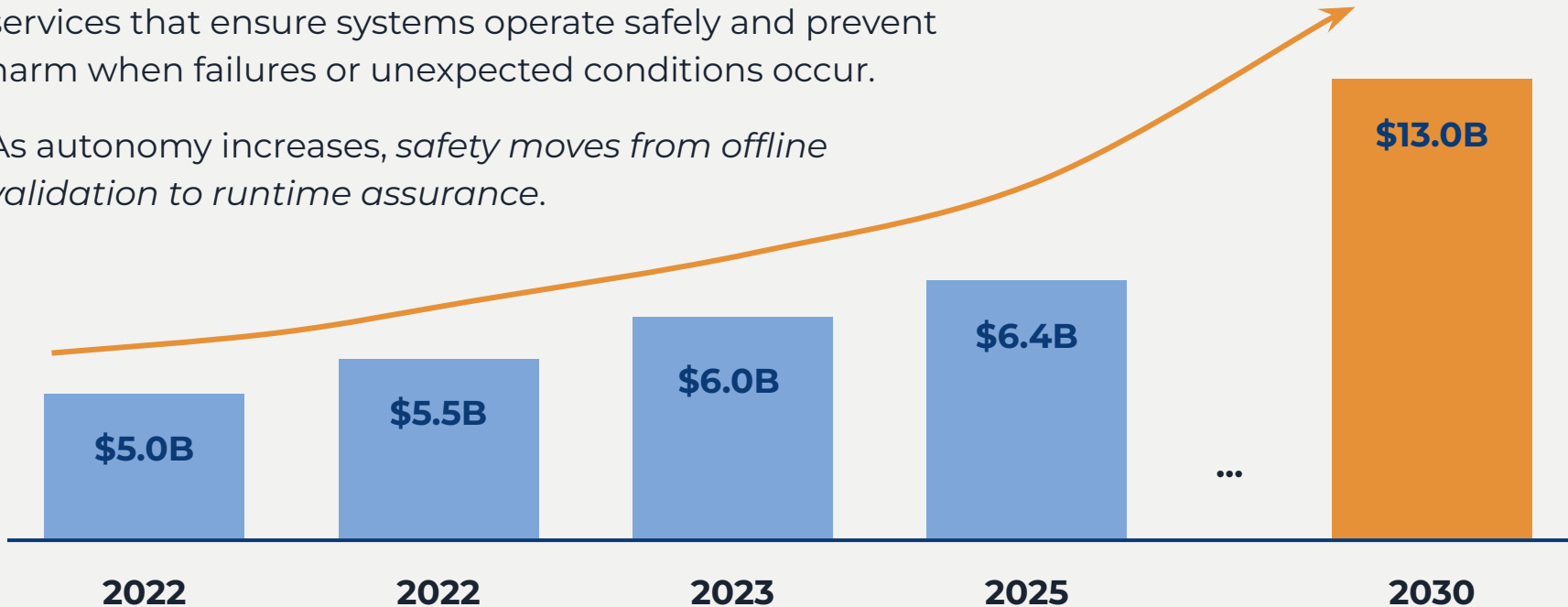
## Why are these failing?

- **Static safety assumptions** fail as conditions change.
- **Long-tail failures** remain unavoidable.
- **All-or-nothing intervention** leaves no middle ground.
- **Fragmented tooling offers** no real-time safety answer.

# Market: Size.

The **functional safety market** covers technologies and services that ensure systems operate safely and prevent harm when failures or unexpected conditions occur.

*As autonomy increases, safety moves from offline validation to runtime assurance.*



# Market: Size.

## SOM

Hamburg aviation  
autonomy &  
assurance

**~\$100–300M**

## SAM

European  
autonomy &  
safety software

**~\$60B**

## TAM

Global  
safety-critical  
autonomy market

**~\$300B**

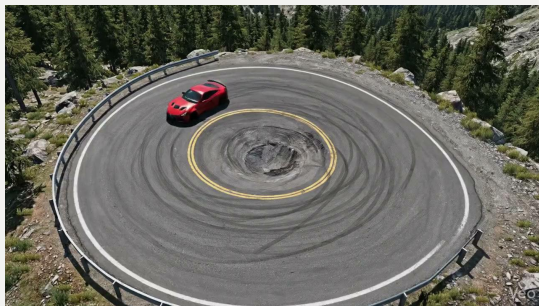
# Solution.

Autonomous systems ✕ Safety assurance ✕ AI decision support

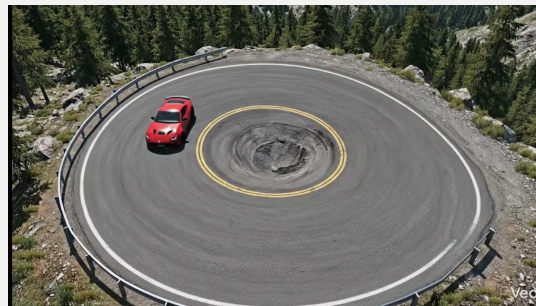
Envelope adapts safety margins in real time, combining physics-based risk with AI reasoning to stay explainable and safe.

Envelope does not replace controllers -  
it *supervises* them.

**Result:** fewer unnecessary interventions without compromising safety.



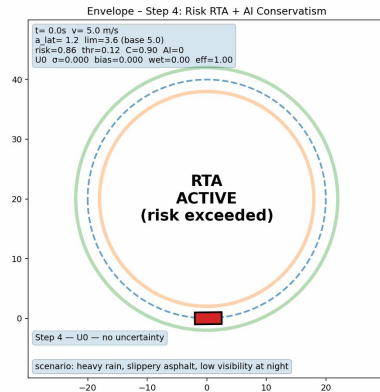
Unsafe - without RTA



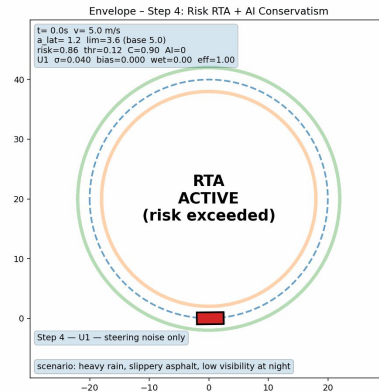
Safe - with RTA

# Solution: Uncertainty Ladder.

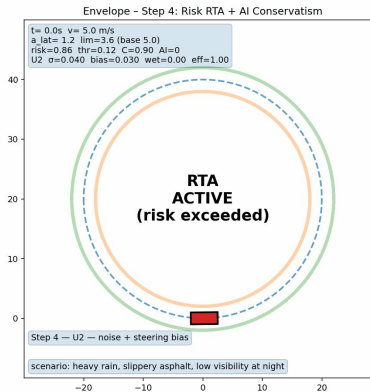
We've created an **Uncertainty Ladder** to animate our models for different uncertainty stages.



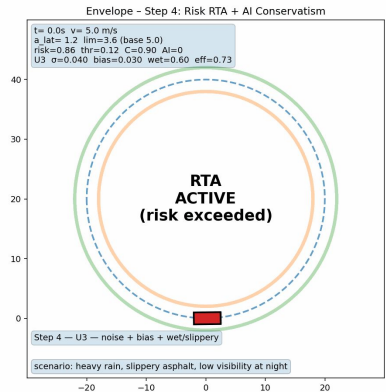
No uncertainty



Steering noise

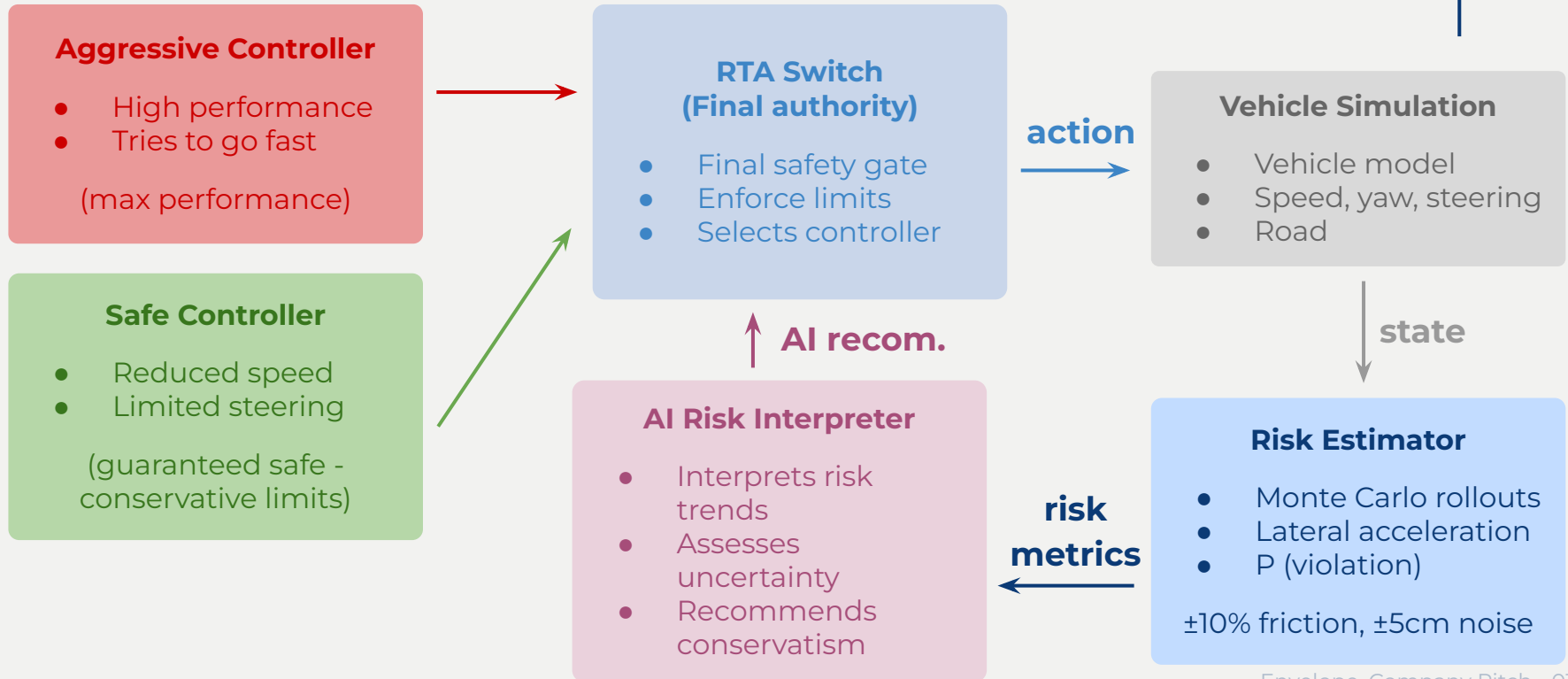


Noise + Steering  
bias



Noise + Bias +  
Wet/Slippery

# System Architecture.



# Advantage.

## Cost leverage

Existing solutions are either:

- Overbuilt and expensive, or
- Custom-built internally and costly to maintain

We offer a cheaper starting point with pricing that scales only when value is proven.

## Speed & simplicity

Switching removes:

- Custom maintenance
- Manual intervention
- Latency or reliability issues

Teams can be live in days, not months.

## Measurable

The product delivers an immediate, quantifiable win (e.g. faster analysis, lower infra cost, fewer errors), making the switch an easy internal justification.

# Business Model.

We operate a **B2B SaaS model** combining *annual licenses* with *usage-based pricing* to drive high-margin, recurring revenue and built-in expansion.

**Base fees:** \$3K – \$10K

**Mid market:** \$10K - \$30K ARR

**Enterprise:** \$50K – \$150K+ ARR

Annual platform license plus usage-based pricing at **\$0.01–\$0.05 per unit**, driving expansion as usage grows

**75–90%** gross margins, with **~\$3K – \$5K** annual variable cost on a **\$20K ARR** customer, driven primarily by compute and data infrastructure; marginal cost per additional usage unit is low, enabling profitable expansion as customers scale usage.

# GTM Plan.

Our target teams already doing this problem in a hacky or expensive way (custom scripts, spreadsheets, legacy tools, or in-house systems). These users already feel the pain daily and don't need education, **only a better tool**.

## First 10 customers

The first 10 customers come from direct, personalized outreach by the founders to:

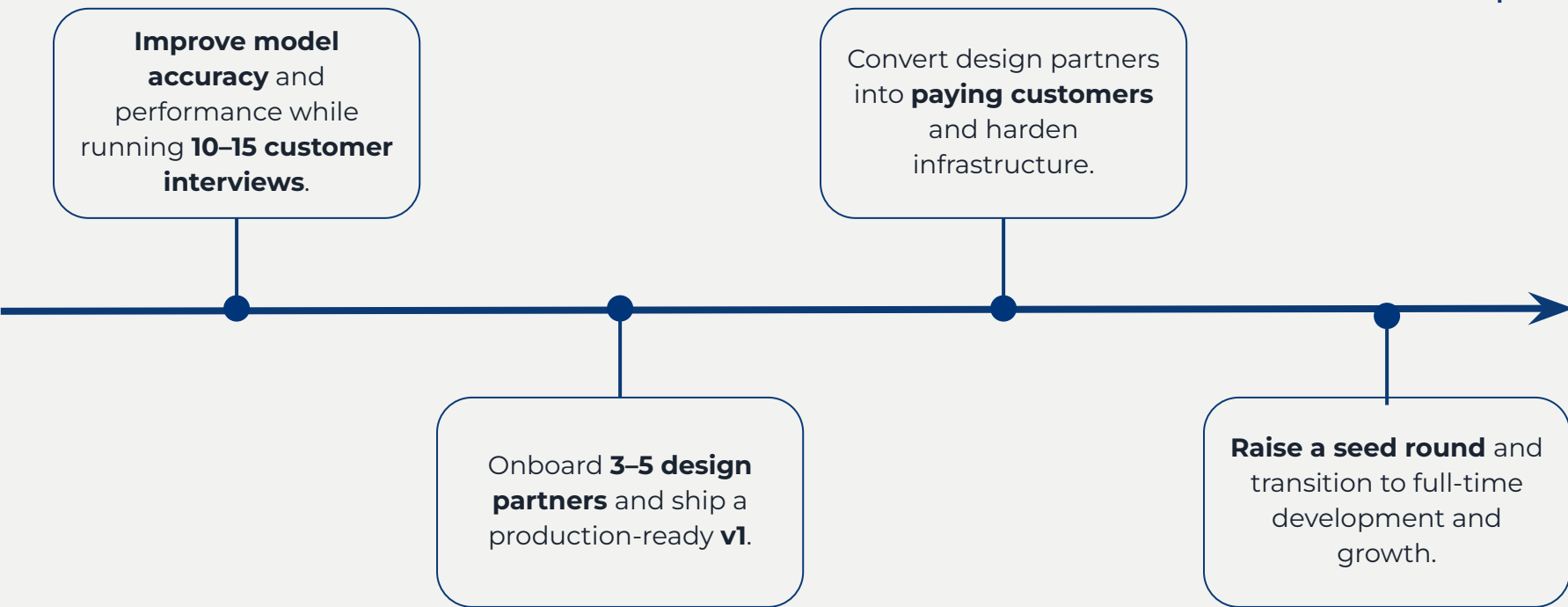
- People maintaining internal tools
- Teams posting jobs related to this problem
- Engineers / analysts complaining publicly (GitHub issues, Slack communities, forums)

Each message references their current setup and offers a fast, concrete win (e.g. "replace X script," "cut latency by Y," "remove manual step Z").

## Distribution advantage

- **Embedded workflows:** Integrates into tools teams already use, enabling low-friction, incremental switching
- **Word of mouth:** Tight user communities drive warm intros after successful early deployments
- **Founder-led sales:** Direct access to builders builds trust and shortens early sales cycles

# Roadmap.



# Why Envelope? Why now?

---

Teams still rely on fragile, custom-built systems for real-time analysis, but Envelope is here to change this by replacing internal hacks with a **scalable, off-the-shelf solution**.

## Why us?

---

We've built and operated the core of the real-time systems, giving us first-hand experience with the tradeoffs and failure modes that existing approaches don't handle well.

## What we learned?

---

Rapid prototyping helped us narrow the problem, remove unnecessary complexity, and show how much can be achieved quickly when AI works alongside us.



# Envelope.

Right before the edge.

**Derin Bilgin**

[derinnbilginn@gmail.com](mailto:derinnbilginn@gmail.com)