



MARYMOUNT
LABS



Trident

Beyond Bots: Goal-Driven Agents for Safer, Smarter Triage Support

Marymount Labs

www.marymountlabs.com

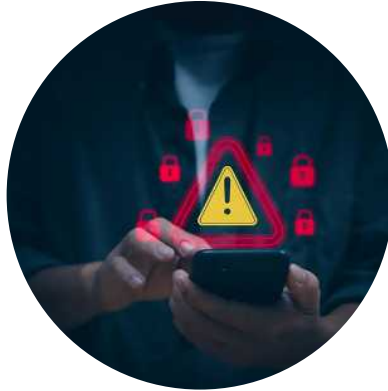
helpdesk@marymountlabs.com

Everyone's building healthcare chatbots. **That's not enough.**



Low Cognitive Depth

Healthcare needs adaptive reasoning, not rigid scripts.



Poor AI Safety

Healthcare needs to deliver safe advice, not hallucinating.



Weak Integration

Healthcare need tools integrated with existing systems.

Rigid bots create real patient risk and hospital liabilities.
We need a better solution.

**The problem with rigid bots:
Brittle, not very smart**

- ❌ Rely on rigid flows or simple LLM calls
- ❌ Struggle to adapt mid-conversation
- ❌ No memory, no escalation intelligence
- ❌ Can't operate safely under uncertainty



Latest research still indicates that current LLMs are not ready for direct patient care.



NUFFIELD DEPARTMENT OF
PRIMARY CARE
HEALTH SCIENCES

Clinical knowledge in LLMs does not translate to human interactions (Apr 2025)

Andrew M. Bean, [Rebecca Payne](#), Guy Parsons, Hannah Rose Kirk, Juan Ciro, Rafael Mosquera, Sara Hincapié Monsalve, Aruna S. Ekanayaka, Lionel Tarassenko, Luc Rocher, Adam Mahdi

Transmission of information between the LLM and the user is a point of failure: both users providing LLMs with incomplete information and LLMs not effectively conveying information.

Having access to complete information is not representative of clinical practice... need to develop AI systems that **account for incomplete or incorrect information**...

...need to **proactively manage and request information** rather than the user guiding the interaction.

Smart triage needs to move from rigid bots to **human-like dialogue reasoning.**

We borrowed leading planning architectures in other fields to create a **new cognitive architecture for conversation agents.**

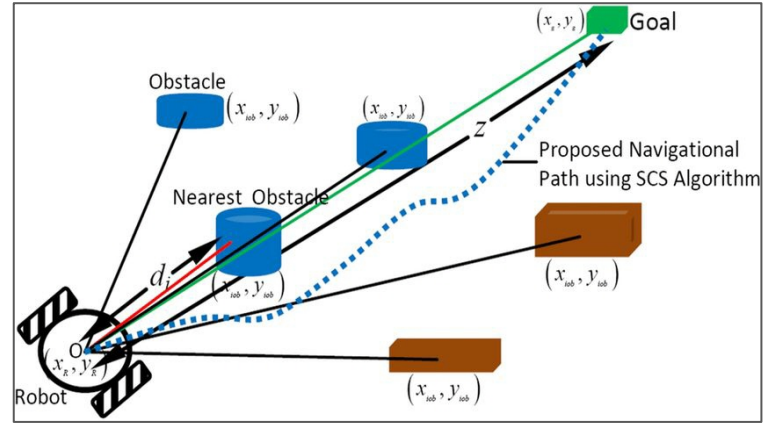
Chess



Video Games



Robots



We built **Trident**: goal-driven conversation agents for healthcare.

Trident introduces a fundamentally different architecture:
goal-driven agents.

How Clinicians Design Trident Agents

1

Set Goals & Sub-Goals

Goals ensure triage agents stay on course, e.g. collect history, check symptom.

2

Create Message Templates

Pre-approved messages ensure agents do not hallucinate, only repeating what is safe to say.

3

Invoke Clinical Tools

Add clinically validated questionnaires, symptom checkers and even image classifiers.

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How Trident Agents Operate

1

Adaptive Questioning

Adjust questions when patients give vague, anxious, or contradictory input.

2

Safety By Design

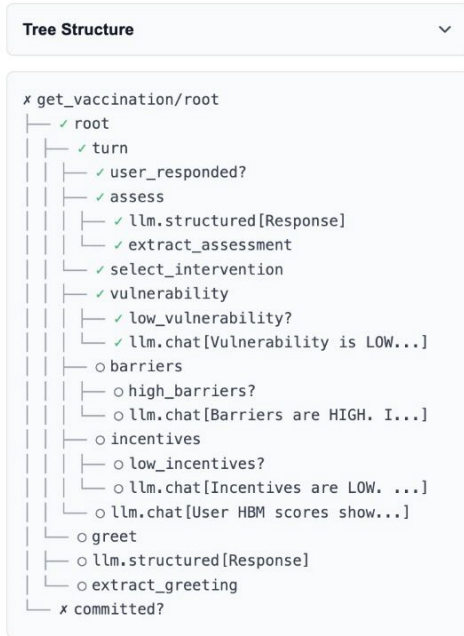
Know when to pause, ask again, escalate to a human or route to emergency.

3

Audits Every Decision

Every reply has an auditable decision pathway, fully explainable, not black box.

Trident has hospital-grade **governance, safety, and control.** Unlike black box, rigid bots.



Trident's logic-driven conversations provide high levels of transparency and auditability.

Tracks Patient States & Goals

Intent recognition, sentiment detection, goal tracking, etc. happens at every turn to guide the conversation.

Auditable Conversation Logic for Clinical Governance

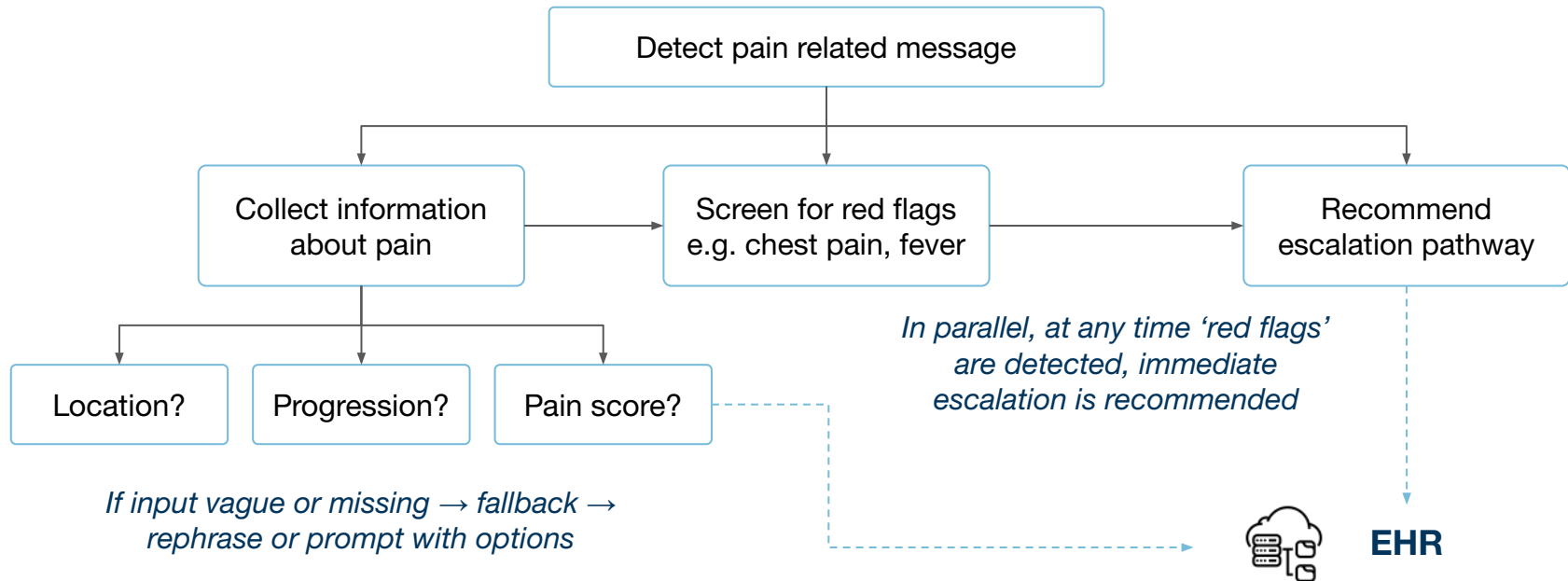
Explainable decision logic behind every message reply.

Reveals Information Gaps for Human Follow-Up

Shows what information is lacking or uncertain, rather than assuming 100% completion.

Example use case in Hospital@Home settings, where patient complains of pain and requests for attention.

Agent's goal: Assess patient's pain complaint and recommend appropriate action to clinical team.



Demo

Our core tech is **already deployed in real-world settings**, supporting national healthcare and social care KPIs.

Deployed behavioural science framework for messaging

Awarded Young Scientist Award at SingHealth Duke-NUS Scientific Congress 2025



Sent 1000s of Healthier SG campaigns for GP clinics

Convinced patients to do vaccinations, cancer screenings, ancillary diabetic services



Testing social care campaigns with Tzu Chi Foundation

Developing campaigns to engage socially isolated seniors using behavioural techniques



Trident is HL7/FHIR-compatible; designed to be deployed on Synapse's Healthcare Commercial Cloud



Trident builds on Marymount Labs' experience in developing solutions that can be deployed over the Healthcare Commercial Cloud.



Close working partners with InterSystems & Microsoft Azure to develop EHR-native solutions for PHIs. Recipient of InterSystems' venture grant.



Help us define the future: messaging as a programmable clinical interface.

We are looking for PHI collaborators.
helpdesk@marymountlabs.com