HEALTHCARE-FIRST / CROSS-INDUSTRY RESEARCH

Research with boundaries.

Investigating how local execution, resource awareness and human governance can support dependable AI systems.

OUR RESEARCH QUESTION

How can useful intelligence be executed close to the point of action while remaining measurable, governable and safe under real hardware, data and workflow constraints?

01 Clinical edge infrastructure

Local-first processing, controlled interfaces and supervised clinical-workflow research; Medi AI+ is the flagship pre-clinical programme.

02 Resource-aware model systems

Latency, memory, compute and energy trade-offs; reproducible optimisation studies before deployment or scaling.

03 Evidence-governed intelligence

Provenance, citation-bound retrieval, human confirmation and deliberate refusal boundaries for generated outputs.

04 Bio-inspired resilient computing

Exploratory methods inspired by biological systems for adaptive and resource-efficient intelligence; hypotheses remain under research.

Research anchor: healthcare and medical AI. Other domains are opportunities to reuse validated engineering methods, not evidence of existing deployments.

HOW WE FRAME RESEARCH

From a hypothesis to a defensible claim.

The unit of progress is not a feature announcement. It is a testable question with evidence, limitations and a clear next validation step.

RESEARCH DIRECTION	REQUIRED EVIDENCE	NEXT VALIDATION GATE
Human-governed edge workflows	Simulated workflow traces, audit records, failure-state and human-approval tests.	Controlled hardware integration, then partner-approved institutional evaluation.
Resource-constrained AI	Reproducible baselines, measured latency/memory, accuracy and resource trade-offs.	Target-class device tests across power, thermal and failure conditions.
Governed knowledge & speech	Source lineage, citation and refusal tests; authenticated transcript-confirmation workflow.	Rights-cleared datasets, sealed evaluations and representative edge validation.

INTELLECTUAL PROPERTY & PUBLICATION

The public research page references **Indian Patent Application No. 202541127477**, described as a published application. An application is **not** a granted patent; public documents do not establish assignment or licensing rights. Protected implementation details are not disclosed in this brief.

COLLABORATION INVITATION

Provenant welcomes well-defined technical discussions with research institutions, MedTech organisations and engineering teams. A productive first discussion identifies the scientific question, acceptable data boundary, target evidence and appropriate research or B2B contracting route.

PUBLIC SOURCE BASIS

Grounded in Provenant research, Medi AI+ and public engineering status pages: provenantai.sg/research | /medi-ai-plus | /engineering-status. Checked 19 Nov 2026.