

MASTER THESIS Designing an AI-Enhanced Interface for
Cognitive Support in High-Stakes Interrogations

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AI for Interrogation Analysis

POPULAR SCIENCE SUMMARY **Jonathan Ahlström, André Roxhage**

After an interrogation, an interrogator must turn a long recorded conversation into a precise written protocol, often under time pressure and with confidential information at stake. AI could speed up this work, but introducing it into high-stakes decisions carries real risks. We designed an interface where the AI extracts facts from the transcript and helps the interrogator write the protocol. Everything runs locally, so sensitive material never leaves the computer.

We studied an organization where interrogation leaders must turn interviews into protocols under pressure. Our thesis investigates how a local AI can ease that workload without the human losing oversight. The result is FENRIR, a prototype where the AI reads a transcribed interrogation, analyzes who said what, when, and where, flags contradictions, and builds a timeline.

Although AI increases efficiency, cognitive load is redistributed rather than removed. The new bottleneck is verifying every claim the AI produces. When suggestions look polished, the temptation to approve without checking grows. We call this verification fatigue, and it worsens when users are tired.

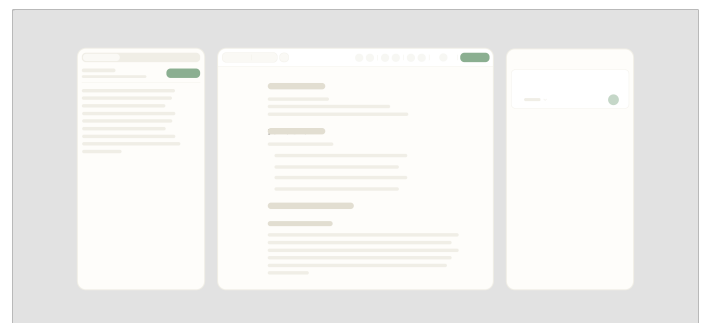
FENRIR attempts to answer this problem through frictional design. The interface is shaped so that manual inspection is emphasized over blind approval. Every AI-finding is clickable and reveals the exact quote it builds on. The vision is that AI acts as a supportive layer, while the human makes the decisions.

Interrogation analysis demands memory and high cognitive load. Stress and multitasking mean even experienced interrogators miss details or anchor on a first impression. AI handles the mechan-

ical work, scanning the full text for names, places, and timestamps. The human is left to judge credibility, cooperation, and what is left unsaid.

Faster protocols deliver information before it loses relevance, and traceable citations simplify later review. Because the system runs locally, sensitive material never leaves the analyst's machine.

The potential of FENRIR extends to many other domains, such as police interviewing, journalism, and legal investigation. They all share the same problem: long text in, short and reliable summary out. Keeping the human in the loop is a challenge with both risks and rewards.



Mock-up of the FENRIR interface. Including findings panel, text editor and contextual chat