



NabuPD - AI Augmented Treatment of Parkinson's Disease Patients

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Introduction

Parkinson's disease (PD) is a progressive neurodegenerative disorder causing motor symptoms such as tremor, rigidity, bradykinesia, and postural instability, alongside non-motor symptoms including cognitive, sleep, mood, and autonomic changes^[1].

Current care relies on infrequent clinic visits and retrospective reporting, limiting timely responses to daily symptom fluctuations and treatment needs^{[2][3][4]}.

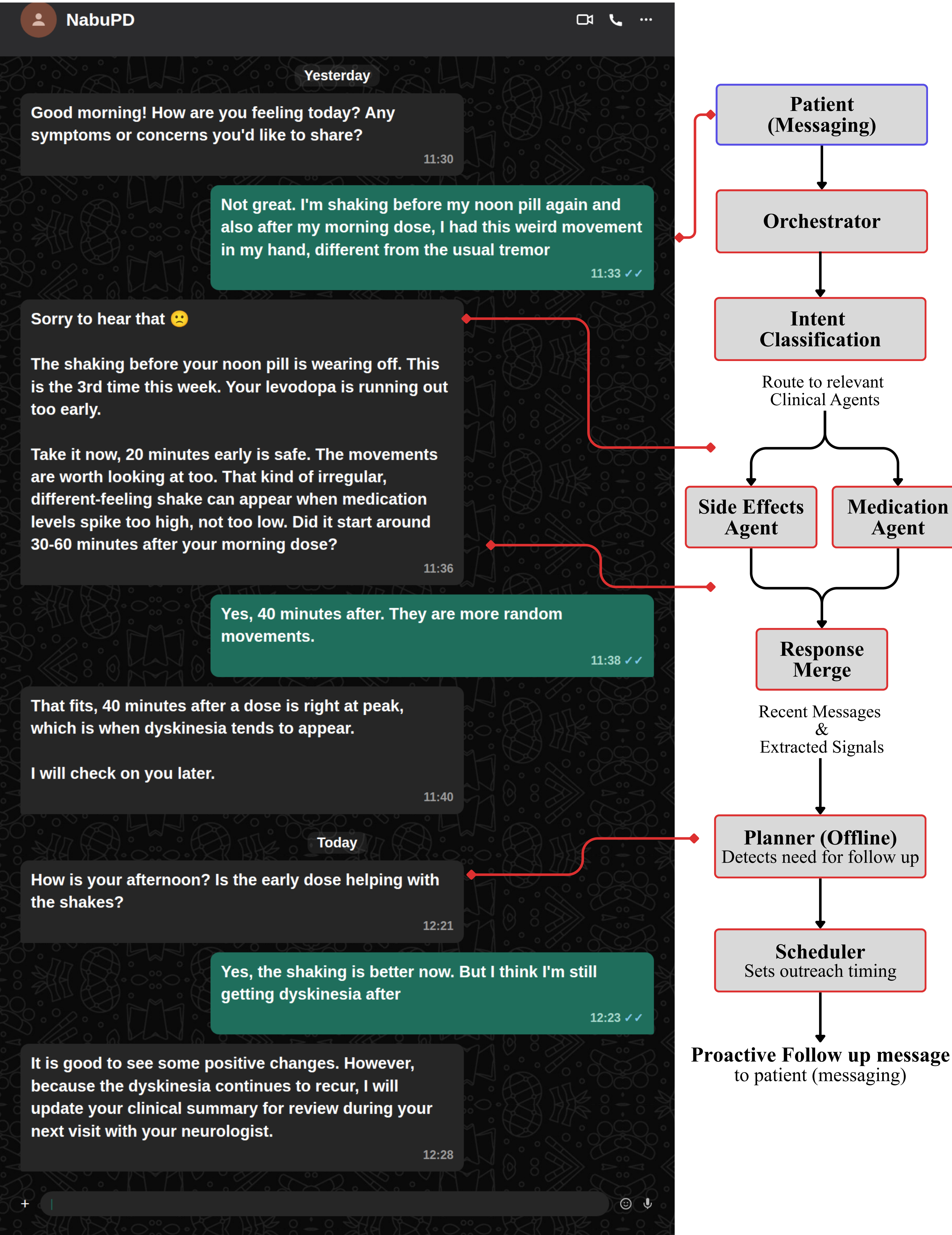
To address these critical care gaps, we are developing NabuPD, an active clinical pilot with Hadassah Medical Center that utilizes a conversational interface and a multi-agent backend to actively monitor patients. The system analyzes symptoms and medication data via conversational interaction, bridging the disconnect between daily symptom fluctuations and proactive clinical management to support patient Quality of Life (QoL).

Goal

Optimizing the patient's QoL by bridging the gap between clinic visits for PwPD

Conversational Agent Interaction

The example illustrates how NabuPD can turn routine patient messaging into longitudinal clinical context, enabling earlier follow-up and more informed care between visits.



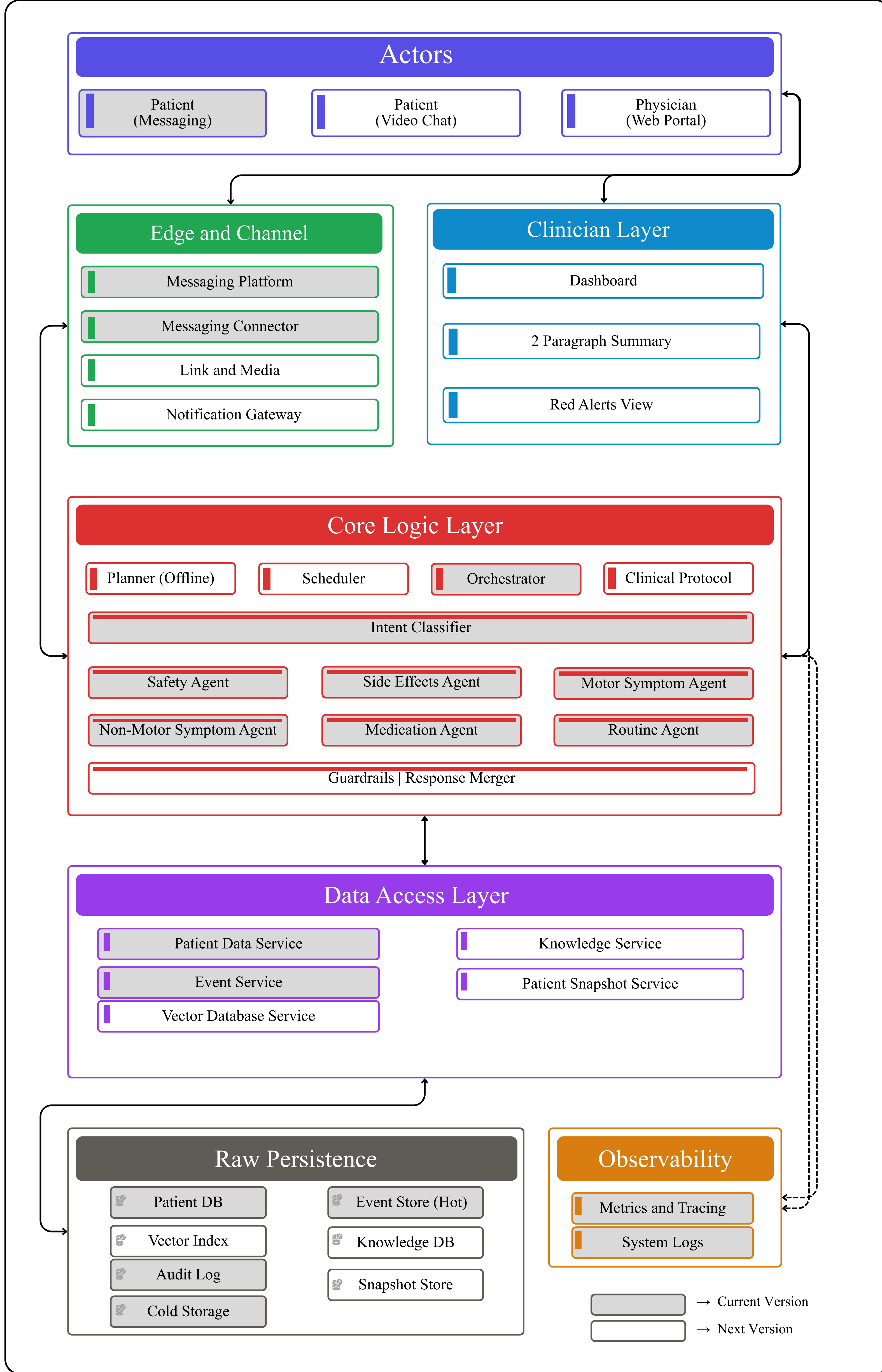
Design Principles

- **Accessible interaction:** Familiar messaging for longitudinal symptom reporting.
- **Privacy by design:** Identity is anonymized before clinical processing.
- **Specialist routing:** Intent-based routing to dedicated clinical agents.
- **Protocol-constrained AI:** LLM reasoning operates within clinician and literature defined rules.
- **Clinician oversight:** Concise summaries and Red Alerts support clinical review.
- **Guardrails:** Validate merged outputs before patient replies; escalate urgent cases.

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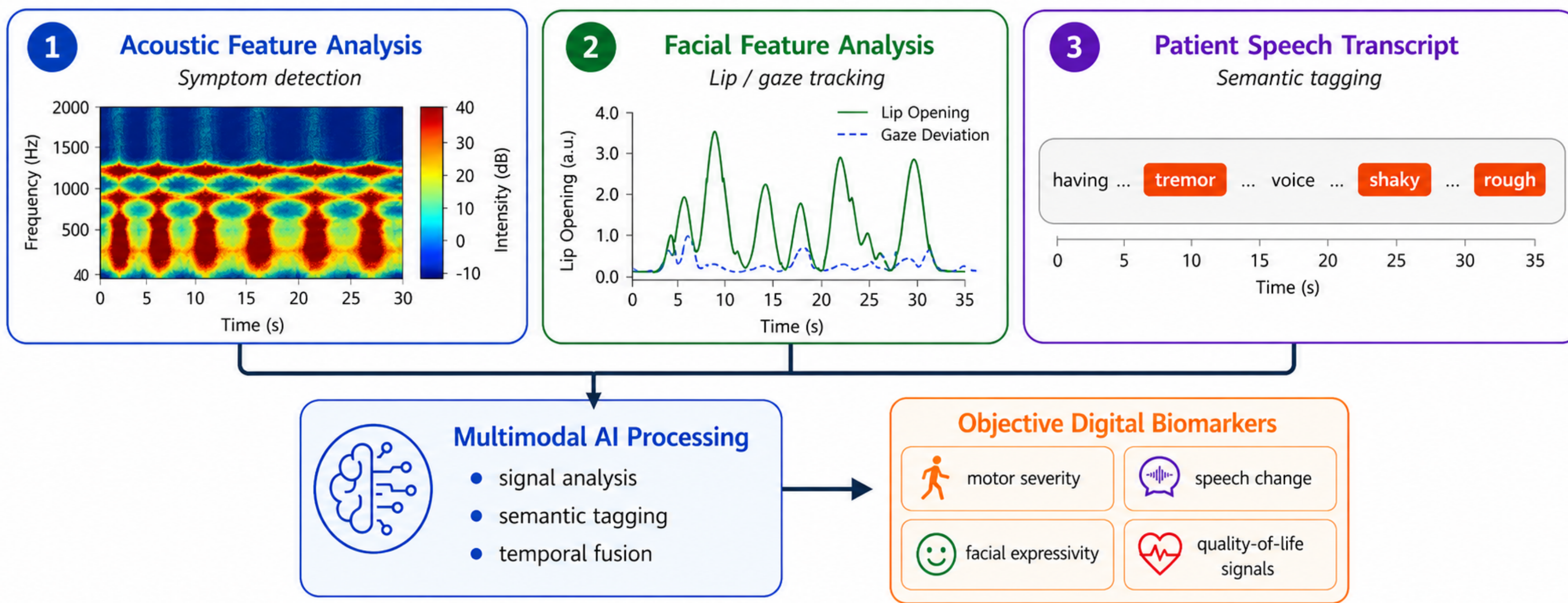
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Key Research Directions

- Latent State Analysis
- Longitudinal Memory Analysis
- Multimodal Interaction Data Integration

Multimodal Interaction



Summary

NabuPD is an AI augmented messaging-based system that enables proactive medication management: dosage reminders, contextual suggestions within physician-defined ranges, and personalized lifestyle guidance. NabuPD bridges the gap between clinic visits and daily life, improving patient quality of life and supporting clinical decision-making.

References

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