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Hack-Nation

Global AI Hackathon | Feb 7-8, 2026

in collaboration with MIT Sloan AI Club & MIT Club of Northern California

CallPilot — Agentic Voice AI for Autonomous Appointment Scheduling

Challenge sponsored by ElevenLabs

1. Motivation / Goal to Achieve

Booking an appointment — whether at a doctor's office, a car repair shop, or a hairdresser — is still one of the most time-consuming micro-tasks in everyday life. You call, wait on hold, negotiate a time slot, realize it doesn't fit your calendar, call the next place, repeat. For a single appointment, this can easily consume **20–30 minutes**.

Now imagine needing the earliest available slot across multiple providers while factoring in travel distance, reviews, and your own schedule. No human can efficiently parallelize 15 phone calls at once — but an AI voice agent can.

Goal

Build an **agentic Voice AI Receptionist powered by ElevenLabs** that autonomously:

- Calls service providers
- Negotiates appointment slots in natural conversation
- Selects the optimal match based on calendar, location, and preferences

- Leverages ElevenLabs Agentic Functions (tool calling) to orchestrate multi-call campaigns and make decisions in real time
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2. Core Features (MVP)

2.1 Single-Call Appointment Booking

- User requests appointment (e.g., “I need a dentist appointment this week”)
 - Agent calls provider via ElevenLabs Conversational AI
 - Navigates receptionist interaction and books a suitable slot
 - Integrates calendar (Google Calendar / iCal) to check availability in real time
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2.2 Agentic Functions — Tool Calling as the Brain

- Use ElevenLabs tool calling to access external tools mid-conversation:
 - Calendar queries
 - Provider lookup
 - Distance calculations
 - Slot validation / confirmation
 - Agent asks clarifying questions when information is missing
 - Adapts negotiation strategy dynamically
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2.3 Multi-Call Parallel Outreach (“Swarm Mode”)

- Simultaneously calls up to **15 providers**
 - Each call runs as independent voice agent instance
 - Aggregates results using scoring function based on:
 - Earliest availability
 - Google rating
 - Distance / travel time
 - User preference weighting
 - Returns ranked shortlist for confirmation
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2.4 Smart Preference & Calendar Matching

- Prevents double booking via real-time calendar checks
 - Cross-references proposed slots with user schedule
 - Uses preference engine combining:
 - Google Places rating data
 - Travel distance metrics
 - Availability timing
 - Custom user weighting
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3. Stretch Goals (Optional Enhancements)

Multilingual Support

- Automatic language detection
- Seamless switching (e.g., German, English, Turkish)

Rescheduling & Cancellation Agent

- Manage existing bookings
- Call to reschedule or cancel autonomously

Live User-in-the-Loop

- Real-time transcript streaming
- Allow user intervention or override

Hallucination-Aware Handover

- Recognize uncertainty or risk of fabrication
- Transfer gracefully to human user when needed
- Emphasize self-awareness over fluency

Domain Expert Voice Agents

- Specialized expert agents supporting main system
- Examples:
 - Health knowledge expert
 - Fitness or therapy scheduling expert
- Routed dynamically when deeper knowledge required

Waitlist & Callback Intelligence

- Register on provider waitlists
 - Automatic retry logic when slots open
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4. Hints and Resources

ElevenLabs (Core)

- Conversational AI SDK (WebSocket voice interaction)
- Agentic Functions (Tool Calling)
- Voice Library / Professional Voice Cloning

Backend & Orchestration

- Python (FastAPI) or Node.js
- Twilio or SIP provider for outbound calls

External APIs

- Google Calendar API
- Google Places API
- Google Maps Distance Matrix API

Data Simulation

- Create provider directory JSON for demo
 - Simulate receptionist agents for full workflow showcase
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5. Evaluation Criteria

- **Conversational Quality**
Natural interaction, interruption handling, <1s latency
 - **Use of Agentic Functions**
Effective tool orchestration and decision-making
 - **Optimal Match Quality**
Quality of final recommendation
 - **Parallelization & Scalability**
Handling concurrent calls and failures
 - **User Experience**
Seamless journey from request → booked appointment
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6. Why It Matters

The phone call is the last unautomated mile of the internet. While we can order food, book flights, and manage finances digitally, appointment scheduling often still requires manual phone negotiation — a friction affecting hundreds of millions of people daily.

This challenge pushes voice AI beyond speech generation into **real-world execution**. It demonstrates that next-generation AI agents won't just converse — they will negotiate, compare, decide, and act on behalf of users.

The solution represents a prototype for a future where:

“Call and book for me” becomes as effortless as “Order for me.”