**Conversational AI for Dynamic HR Interview Form Filling: Resources and Solutions**

This report provides a comprehensive overview of resources for building a Conversational AI system that conducts HR/placement interviews through voice-to-text interaction, dynamically asks follow-up questions, extracts structured data, and fills forms automatically.

**Open-Source Projects and Frameworks**

**Specialized HR and Interview Tools**

1. **HR Chatbot**
   * An intelligent, AI-powered chatbot designed specifically for HR-related inquiries
   * Uses OpenAI GPT-4, Gemini-Pro, and LangChain for natural language processing
   * Features a conversational interface for collecting detailed information through structured flows
   * GitHub: [https://github.com/Sajjad-Amjad/HR-Chatbot3](https://github.com/Sajjad-Amjad/HR-Chatbot)
2. **FoloUp - AI-powered Voice Interviewer**
   * Open-source platform for AI-powered hiring interviews with voice capabilities
   * Features interview question generation from job descriptions
   * Conducts natural, conversational interviews through AI voice
   * Provides detailed insights and scores for each interview response
   * GitHub: [https://github.com/FoloUp/FoloUp14](https://github.com/FoloUp/FoloUp)
3. **Interview Bot**
   * Answers interview questions by selecting relevant responses from pre-written answers
   * Designed as a companion to demonstrate interview response capabilities
   * GitHub: [https://github.com/maxTarlov/interview-bot-source2](https://github.com/maxTarlov/interview-bot-source)

**Form Filling and Conversational Frameworks**

1. **Conversational Form by SPACE10**
   * Open-source concept for turning web content into conversational interfaces
   * Supports conversational replacement of all input elements
   * Features reusable variables from previous questions and complete customization
   * GitHub: [https://github.com/space10-community/conversational-form1](https://github.com/space10-community/conversational-form)[17](https://space10-community.github.io/conversational-form/)
2. **Auto Job Form Filler Agent**
   * Streamlit application that automatically fills job application forms using AI
   * Features resume processing, AI-powered form filling, and interactive feedback
   * Supports multiple AI models and Google Forms integration
   * GitHub: [https://github.com/ajitsingh98/Auto-Job-Form-Filler-Agent18](https://github.com/ajitsingh98/Auto-Job-Form-Filler-Agent)
3. **Chatbot Conversational Form**
   * Demo project for creating interactive forms using a chatbot-style interface
   * Collects user information in a natural, non-intrusive manner
   * Uses LangChain's ConversationChain for chatbot functionality
   * Implements create\_tagging\_chain\_pydantic for input extraction and validation
   * GitHub: [https://github.com/abhishekshingadiya/chatbot\_conversational\_form15](https://github.com/abhishekshingadiya/chatbot_conversational_form)
4. **DialogFlow-Form**
   * AI-native platform for creating dynamic, conversational forms and surveys
   * Replaces checkbox-filled forms with natural, human-like conversations
   * Features a dashboard for analytics and response management
   * GitHub: <https://github.com/Haseeb-Arshad/dialogflow-form>[13](https://dev.to/haseebarshad/dialogflow-form-3f5i)

**Research Papers and Academic Work**

**Conversational Form Filling and Question Generation**

1. **Evaluating Modular Dialogue System for Form Filling Using Large Language Models**
   * Introduces a novel approach to form-filling using LLMs
   * Establishes a modular setup where multiple components collaborate on form-filling
   * Demonstrates that modular setups outperform baseline approaches
   * Shows open-access models perform comparably to commercial models for form-filling
   * Published in SCI-CHAT 2024 Workshop Proceedings[5](https://aclanthology.org/2024.scichat-1.4/)
2. **A Knowledge-driven Approach for Follow-up Question Generation in Conversational Surveys**
   * Proposes a novel task for knowledge-driven follow-up question generation
   * Introduces a human-annotated dataset of follow-up questions with dialogue history
   * Designs Gricean-inspired evaluation metrics for generated follow-up questions
   * Presents a two-staged knowledge-driven model that generates informative and coherent questions
   * Available on arXiv: [https://arxiv.org/abs/2205.109776](https://arxiv.org/abs/2205.10977)

**Relevant Datasets**

1. **Resume Dataset**
   * Contains structured resume data with skills, education, and experience information
   * Useful for training models to extract information from professional backgrounds
   * Available on Hugging Face: [https://huggingface.co/datasets/brackozi/Resume7](https://huggingface.co/datasets/brackozi/Resume)
2. **MEDIASUM**
   * Large-scale dialogue summarization dataset from media interviews
   * Contains 463,596 transcripts with summaries averaging 30 turns and 6.5 speakers
   * Covers diverse topics including politics, international news, crime, economy, and US news
   * Useful for training models on multi-speaker dialogue summarization[8](https://www.microsoft.com/en-us/research/uploads/prod/2021/03/MediaSum_NAACL-1.pdf)
3. **LMSYS-Chat-1M**
   * One million real-world conversations with 25 state-of-the-art LLMs
   * Collected from 210K unique users across 154 languages
   * Average of 2.0 turns per conversation with detailed token statistics
   * Available on Hugging Face: [https://huggingface.co/datasets/lmsys/lmsys-chat-1m9](https://huggingface.co/datasets/lmsys/lmsys-chat-1m)

**APIs and Platforms for Implementation**

1. **LangChain FormAgent**
   * FormAgent component asks users to fill information sequentially
   * Collects all information before processing
   * Can be integrated with other LangChain components for end-to-end solutions[10](https://github.com/langchain-ai/langchain/discussions/15704)
2. **Rasa Forms**
   * Framework for collecting structured information through conversational interfaces
   * Supports dynamic form behavior that adapts to user responses
   * Allows updating required slots dynamically based on previous responses
   * Enables custom actions for asking about the next required input[11](https://rasa.com/docs/rasa/forms/)
3. **OpenAI Function Calling**
   * Feature for generating structured output from natural language input
   * Enables creation of custom functions for information extraction
   * Allows defining parameters and their types for structured data collection
   * Useful for parsing responses into form fields with proper validation[12](https://www.datacamp.com/tutorial/open-ai-function-calling-tutorial)

**Tutorials and Demonstrations**

1. **How to Make Conversational Form with LangChain**
   * YouTube tutorial demonstrating how to create conversational forms
   * Shows how to allow users to answer with natural conversation
   * Explains how to handle multiple answers at once
   * Demonstrates efficient token usage for OpenAI function calls
   * Available at: <https://www.youtube.com/watch?v=IT93On2LB5k20>

**Implementation Approaches**

For implementing your system, consider this combined approach:

1. Use **Rasa** or **LangChain** as the foundational framework
2. Implement **OpenAI Function Calling** for structured data extraction from natural conversations
3. Train on **Resume** and **MEDIASUM** datasets for domain-specific understanding
4. Integrate with **FoloUp's** voice capabilities for the interviewing component
5. Adopt the modular architecture described in the SCI-CHAT 2024 paper for robust form filling

This combined approach would allow for a sophisticated system that can conduct natural conversations while efficiently extracting and organizing candidate information into structured forms.

Certainly! Based on your interest in Conversational AI systems that dynamically extract structured information from natural speech to automatically fill forms, here are some relevant resources across GitHub projects, research papers, and YouTube tutorials:

**🔧 GitHub Projects**

1. **ConvoForm**  
   Transforms traditional forms into interactive conversational experiences, powered by AI.  
   🔗 [ConvoForm on GitHub](https://github.com/growupanand/ConvoForm)
2. **TalkFormAI**  
   A web app that allows users to create and fill forms through chat, with field types inferred automatically by an LLM.  
   🔗 [TalkFormAI on GitHub](https://github.com/nsbradford/TalkFormAI)
3. **FormChat**  
   An AI-powered form builder that turns traditional form-filling into natural, dynamic chat experiences.  
   🔗 [FormChat on GitHub](https://github.com/jazmy/formchat)
4. **Conversational-Ai**  
   A project dedicated to developing a responsive, intelligent chatbot that can understand and process natural language.  
   🔗 [Conversational-Ai on GitHub](https://github.com/ankitrajsh/Conversational-Ai)

**📄 Research Papers**

1. **A Generic Approach to Web Form Filling Using GPT and Computer Vision**  
   This research presents a novel approach to automating web form filling by combining computer vision with GPT models.  
   🔗 [Read the paper](https://wjarr.com/sites/default/files/WJARR-2023-2524.pdf)
2. **mForms: Multimodal Form-Filling with Question Answering**  
   Presents a new approach to form-filling by reformulating the task as multimodal natural language question answering.  
   🔗 [Read the paper](https://arxiv.org/abs/2011.12340)
3. **Proactive Conversational AI: A Comprehensive Survey**  
   A comprehensive survey of proactive conversational AI, discussing dialogue systems designed to offer functional services through natural language interactions.  
   🔗 [Read the paper](https://dl.acm.org/doi/10.1145/3715097)

**🎥 YouTube Tutorials**

1. **How to Make Conversational Form with LangChain**  
   A tutorial on creating conversational forms using LangChain.  
   🔗 [Watch the video](https://www.youtube.com/watch?v=IT93On2LB5k)
2. **Create Conversational AI Forms Using Formshare**  
   Demonstrates how to create conversational AI forms that transform static interactions into dynamic conversations.  
   🔗 [Watch the video](https://www.youtube.com/watch?v=ZAgWSlWvjPw)
3. **How to Build a Form Filling AI Chat Webapp | Full Coding Walkthrough**  
   A full coding walkthrough on building a form-filling AI chat web application.  
   🔗 [Watch the video](https://www.youtube.com/watch?v=0Jf4QHyw2ac)

These resources should provide a comprehensive overview of existing projects and research in the field of conversational AI for dynamic form filling. Let me know if you need further information or assistance on any of these topics!

**Citations:**

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