NC ASK (North Carolina Autism Support & Knowledge)

Introduction

Families and providers of children with autism spectrum disorder (ASD) often struggle to find reliable, actionable information tailored to their child's developmental needs. Existing resources, such as websites or printed guides, provide static information that may not address real-time concerns or specific challenges related to sensory processing, behavior regulation, and intervention strategies. Additionally, families in underserved communities face even greater barriers in accessing specialized knowledge and guidance.

This proposal aims to develop **NC ASK (North Carolina Autism Support & Knowledge)**, an AI-powered educational tool designed to provide structured, evidence-based answers through dynamic AI-driven queries. Unlike freeform AI models that generate open-ended responses, NC ASK will use verified data sources and structured retrieval methods to deliver reliable, accurate, and contextually relevant information. The focus is on enhancing accessibility to autism resources while ensuring transparency, accuracy, and ease of use for families and providers.

Project Objectives

1. **Develop an AI-Powered Q&A-Based Educational Tool**
    - Utilize **Azure OpenAI Service** to support structured natural language queries.
    - Provide **evidence-based responses** drawn from approved sources, ensuring accuracy and reliability.
    - Allow families and providers to ask specific questions and receive **clear, actionable insights**.
2. **Integrate Structured Data Queries for High-Accuracy Responses**
    - Utilize **Azure Cognitive Search** to retrieve information from **state-specific autism resources, sensory processing guidelines, and behavioral intervention frameworks**.
    - Implement **Azure AI Studio** to refine model responses based on structured prompts and document indexing.
3. **Enhance Accessibility and Minimize AI Hallucinations**
    - Responses will be derived **exclusively from validated, structured sources**, reducing the risk of misinformation.
    - **Pre-loaded knowledge base** with North Carolina Medicaid, Autism Society resources, and evidence-based intervention strategies.
    - The system will include built-in **query validation mechanisms**, ensuring AI responses remain **grounded and relevant** to the user's inquiry.

Innovation

NC ASK stands out by combining AI's natural language processing capabilities with personalized, evidence-based autism strategies derived from structured public data sources. Unlike traditional websites, which provide static content, NC ASK will offer dynamic, structured responses based on best-practice interventions and educational resources. For example, if a caregiver asks how to address repetitive behaviors in a non-verbal 5-year-old, the app will retrieve validated strategies from autism intervention guidelines, behavioral frameworks, and sensory integration resources to tailor guidance suited to the child's communication abilities and developmental stage. This structured, yet adaptable, approach provides a level of personalization and accessibility not possible with generic online resources, ensuring families receive practical, research-backed information that aligns with public data and recommended practices.

Project Leadership and Advisory Group

This project is led by Dr. Rohan Patel, Developmental Behavioral Pediatrician (DBP) with expertise in informatics and the integration of technology into clinical care. Dr. Patel has presented nationally on steering boards and locally at UNC, where he collaborates with the ISD team to create tools that enhance patient care through the use of technology.

The NC ASK team includes key collaborators with deep expertise in clinical care, health informatics, and family advocacy. Dr. Carl Seashore, Associate Chief Medical Information Officer (aCMIO), brings critical insight into how NC ASK can integrate with pediatric and primary care workflows to enhance provider usability and impact. Dr. Rebecca Baum, Division Chief of Developmental-Behavioral Pediatrics at UNC, provides leadership in ensuring the tool reflects current clinical practice and supports the needs of children with developmental disabilities.

The project also partners with the Autism Society of North Carolina (ASNC). Their Clinical Director plays an active role in aligning the app with statewide advocacy priorities and the lived experiences of families navigating autism services. ASNC's involvement ensures NC ASK remains practical, community-driven, and rooted in the realities families face every day.

The **NC ASK Advisory Circle** brings together clinicians, caregivers, informatics experts, and advocates. This group helps ensure the tool evolves in response to real-world feedback and remains focused on improving access to timely, evidence-based autism resources across North Carolina.

Advisory Circle Roles:

- Ensure that NC ASK reflects the lived experiences of families and providers
- Review and advise on content sources and usability
- Support alignment with state-level initiatives and advocacy efforts
- Promote inclusive design and equitable access to autism-related information
- Serve as ambassadors and champions for the tool across North Carolina communities

Funding
This project is supported by the **Junior Faculty Development Award** at the University of North Carolina at Chapel Hill, which provides seed funding for early-career faculty to develop impactful, innovative scholarship. This award enables the foundational development of NC ASK and reflects institutional investment in digital tools that support child health and equity.

Conclusion

NC ASK will increase accessibility, improve equity, and provide real-time, evidence-based support for families and providers seeking autism-related information. By leveraging structured AI-driven queries, it ensures that families receive reliable, actionable, and easy-to-understand guidance tailored to their needs. By focusing on accuracy and accessibility, NC ASK represents a meaningful advancement in digital autism support tools.