

# SLP Sidekick: Open-Source AI for Speech Therapy with Community-Driven Standards

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## ABSTRACT

Advances in artificial intelligence (AI) present significant opportunities to support overburdened speech-language pathologists (SLPs) and improve patient access to scarce speech therapy services. However, AI-driven therapy systems also introduce governance challenges that traditional licensing frameworks fail to address. In this paper, we release SLP Sidekick, an open-source AI assistant designed to automate routine documentation tasks, facilitate home-based speech practice, and augment limited clinical resources. We then propose a community-driven, voluntary certification model to identify and guide the development of high-quality AI tools without stifling innovation. By emphasizing collaboration among professional associations, SLPs, and users, our approach aims to establish shared standards, enable continuous oversight, and foster iterative improvements. In doing so, we illustrate how safety, efficacy, and trust can be maintained as technology continues to evolve.

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## 1 INTRODUCTION

Speech-language pathologists (SLPs) play a vital role in diagnosing and treating communication disorders, yet many schools and clinics remain understaffed. In the United States alone, recent data indicate that over half of school districts report SLP shortages [3], driven by factors such as aging populations, increasing numbers of early interventions, and lengthy education pipelines for SLPs. Patients in rural or low-income regions often face long waitlists or inadequate therapy hours.

Artificial intelligence (AI) has emerged as a potential solution, and could be used to help automate time-intensive tasks, such as speech assessment scoring, documentation, and routine at-home practice. Early studies confirm that even relatively simple machine learning-based exercises can improve speech therapy outcomes [7, 8], which may suggest that the availability of more advanced AI-driven systems could serve as a catalyst for scaling SLP services. AI tools could free human SLPs to focus on complicated cases and more-specialized interventions.

Traditional licensing and regulatory frameworks have not kept pace with AI's rapid evolution. Current rules designed for human

clinicians risk blocking these beneficial technologies from reaching underserved populations, yet permitting unrestricted use of AI in clinical contexts may pose safety and quality concerns. Although general auditing and certification proposals for AI exist [1, 4, 9], speech-language pathology presents unique governance needs due to its specialized protocols, individualized treatments, and reliance on continuous feedback.

In this paper, we introduce **SLP Sidekick**, an open-source AI assistant for speech therapy that aims to automate routine documentation tasks, deliver home-based exercises, and alleviate clinician workload. We argue for a *community-driven, voluntary certification* approach tailored to the SLP domain, arguing that professional societies, expert practitioners, and end users can collaboratively set quality standards and benchmarks. Our goal is to ensure that AI-based therapy tools remain safe, effective, and trustworthy while preserving the flexibility necessary for the pace of AI innovation.

## 2 SLP SIDEKICK

**SLP Sidekick** is an AI-driven speech therapy assistant designed to automate many of the time-consuming aspects of therapy. For example, session documentation and routine scoring of speech exercises - traditionally burdensome tasks for clinicians [3] - can be largely automated using machine learning approaches [7, 8]. After each session, SLP Sidekick generates progress notes from these automated scores, thereby lightening the paperwork load on SLPs and enabling them to focus on specialized interventions.

In addition, SLP Sidekick offers daily exercises that users can complete at home with real-time feedback. This addresses longstanding challenges in traditional at-home therapy: high costs, limited availability, and inconsistent adherence outside clinical settings. By reducing the burden on both practitioners and patients, tools like SLP Sidekick have the potential to greatly expand therapy capacity - particularly in schools, clinics, and underserved communities that struggle to meet demand.

The momentum for AI-driven telepractice has also been bolstered by recent policy shifts. The Centers for Medicare Medicaid Services (CMS) permanently expanded billing codes to cover virtual check-ins, e-visits, and remote therapeutic monitoring for SLPs as of January 2021, and introduced new remote therapeutic monitoring services in 2022. These reforms allow SLPs - and, by extension, any AI-powered platform they use - to receive Medicare reimbursement for certain telehealth services. While this expansion promises to accelerate innovation, it simultaneously raises critical questions

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**Figure 1: A screenshot of SLP Sidekick, our free and open-source AI assistant for speech therapy, running on a mobile device. Users can provide live session feedback, mute their microphone, re-generate AI responses, or type messages, enabling flexible at-home or clinic-based practice.**

about *how* to oversee AI-based therapy tools. Existing practice and licensing frameworks were built with human clinicians in mind, leaving legal and regulatory gaps regarding software that delivers or assists with patient care.

Currently, the U.S. Food and Drug Administration (FDA) and related agencies may classify certain AI therapy apps as “medical devices,”<sup>1</sup> but recent enforcement efforts primarily focus on consumer fraud rather than clinical quality. In practice, many consumer-facing AI apps for speech therapy skirt deeper legal scrutiny by including disclaimers [5], leaving investors and developers uncertain about the regulatory future. This lack of clarity may inhibit the growth of AI solutions, despite rising demand and the new reimbursement mechanisms that could fund them.

The broader challenge is ensuring that AI-based interventions do not compromise patient safety or professional standards while still capitalizing on the speed of AI innovation and the expanded coverage that telepractice now enjoys.

<sup>1</sup>Insert FDA reference here.

### 3 CHALLENGES OF AI GOVERNANCE VIA LICENSING

SLP licensure requirements in the United States were predominantly shaped by the American Speech-Language-Hearing Association (ASHA), a nonprofit that accredits academic programs, administers certification exams, and collects annual dues from practitioners [2]. Although ASHA has established rigorous educational and clinical standards, some states have begun reconsidering or removing requirements tying licensure to ASHA membership, prompting debates over the balance between private credentialing bodies and public regulatory authority.

Crucially, these licensing frameworks were designed to evaluate *human* practitioners, not AI or software-driven solutions. Consequently, AI therapy platforms remain in a gray area, with no dedicated mechanism to ensure they meet the same safety or efficacy standards as human providers. Yet providing *no* licensing mechanism can be equally problematic: unvetted or deceptive AI “therapists” can harm users and erode trust in legitimate innovations [6].

Meanwhile, the Audiology Speech-Language Pathology Interstate Compact[CITE] will allow most licensed SLPs to practice across state lines, both in person and via telepractice, which may include AI-powered care without the practitioner being present, by late 2025. Although this measure reduces barriers for human clinicians, it does not address the regulatory uncertainties surrounding AI. These gaps highlight the need for a *sociotechnical* governance model that combines clinical expertise with effective oversight of emerging technologies.

### 4 PROPOSED SOLUTION: COMMUNITY-DRIVEN CERTIFICATION

We propose that SLPs and related professionals establish a **voluntary certification** body dedicated to evaluating AI therapy tools. While the CCC-SLP credential ensures human clinicians meet certain competencies, it does not extend to AI systems. A specialized certification process would fill this gap by requiring AI developers to meet evidence-based benchmarks, undergo auditing, and commit to transparency about performance and limitations.

#### 4.1 Key Elements

**Technical Benchmarks.** Any certified AI tool should demonstrate validated therapy protocols, accurate speech recognition, and minimal error rates. If the AI cannot reliably handle specific disorders or situations, it must alert the user and recommend a human evaluation.

**Usage Guidelines and Peer Review.** Certified AI systems must document best practices and usage limitations. Tools like SLP Sidekick, for example, would go through peer-review testing to confirm that their automated scoring and feedback align with accepted SLP standards.

**Open Performance Data.** Much like hospitals share safety metrics, AI developers should publicly report performance outcomes. A certification entity could revoke endorsements if evidence of declining quality or unexpected risks emerges.

*Iterative Oversight.* Traditional licensing models can take years to update, but AI evolves on a faster timescale. Voluntary certification bodies could respond more quickly to emerging technologies and new clinical data, revising benchmarks as needed. Such agile oversight accommodates innovative features without compromising safety.

*Adoption and Incentives.* Insurers, schools, and clinics may eventually prefer or require certified AI solutions. This market-driven demand would motivate AI developers to comply with certification standards. Over time, multiple stakeholders - including SLPs, patient advocates, AI researchers, and policy experts - can collaboratively refine these standards to reflect real-world outcomes.

## 5 CONCLUSION

SLP Sidekick illustrates both the promise and challenges of AI in speech therapy. On one hand, it can reduce burdensome tasks, boost patient throughput, and potentially mitigate ongoing clinician shortages. On the other, it operates in a gray area of existing regulation, prompting unresolved legal and ethical questions.

We argue that **community-driven certification** - led by professional associations, expert practitioners, and user advocates - offers a pragmatic way to promote innovation while safeguarding patient well-being. Such a model addresses the shortcomings of traditional licensing by setting clear, flexible standards for AI-based services. Ultimately, this approach can help ensure that AI tools like

SLP Sidekick evolve responsibly, supporting SLPs rather than attempting to replace them, and expanding equitable access to speech therapy for all.

We invite feedback from the HCI community on refining and implementing these ideas at scale. As AI's impact on healthcare accelerates, robust *sociotechnical* governance that combines technical excellence with clinical expertise will be crucial in realizing AI's full potential for improving patient outcomes.

## REFERENCES

- [1] American Medical Association. 2023. AI guidelines for physicians: Ethics, education, and oversight. Retrieved from <https://www.ama-assn.org/ai-guidelines-2023>.
- [2] American Speech language-Hearing Association. 2020. Certificate of Clinical Competence (CCC-SLP). Retrieved from <https://www.asha.org/Certification/CCC-SLP>.
- [3] ASHA. 2021. Supply and Demand Resource List for Speech language Pathologists. Retrieved from <https://www.asha.org/siteassets/surveys/supply-demand-slp.pdf>. Accessed 2025-03-07.
- [4] A. Chen. 2021. Community-based certification: Engaging civil society in AI governance. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2 (2021), 1–23.
- [5] FDA. 2023. Software as a Medical Device (SaMD): Clinical Evaluation. Retrieved from <https://www.fda.gov/medical-devices/software-medical-device-samd>.
- [6] Federal Trade Commission. 2024. Statement on AI Deception and DoNotPay Settlement.
- [7] Z. Haidar and T. Johnson. 2022. A systematic review of AI-driven speech therapy applications: Efficacy and patient outcomes. *Journal of Speech, Language, and Hearing Research* 65, 3 (2022), 548–562.
- [8] M. Lopez et al. 2024. Evaluating a smartphone-based AI speech therapy app for post-stroke dysarthria: A randomized controlled trial. *Archives of Physical Medicine and Rehabilitation* 105, 4 (2024), 765–774.
- [9] I. Raji. 2021. Establishing a third-party AI auditing framework: Balancing transparency and developer constraints. In *ACM Conference on Fairness, Accountability, and Transparency (FAccT)*.