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<http://RIFFIT.com>

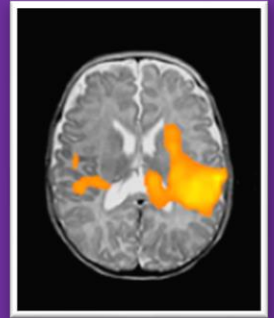
Harnessing the Power of song Using AI

Lex Van der Ploeg (lex@RIFFITnow.com)
Shashi Shashidhar (shashi@RIFFITnow.com)

Music has the power to bring people together.
It inspires, heals, evokes emotion and enriches
our lives in countless ways

Music 'lights up' the right brain
Hemisphere

Music and song have historically been used for
communication and learning. RIFFIT aims to revolutionize
the way we communicate, learn, and entertain through
music and song.



Melodic activated
brain fMRI image

PNAS, 2010, 107, 10-
4758-4762
Neuroimage, 2022, 257,
119310

Music and song help language processing

Melodic methods help in language processing for diverse neurological conditions – prominent scientific studies



Main language areas in the brain are in the left hemisphere;
Music and song integrate processes in the right and left hemisphere.

Example: Data in support of RIFFIT - Aphasia

J Commun Disord. 2018 Sep - Oct;75:72-86. doi: 10.1016/j.jcomdis.2018.06.005. Epub 2018 Jun 22.

Please don't stop the music: Song completion in patients with aphasia.

Kasdan A¹, Kiran S².

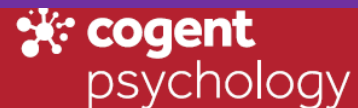
Author information

Abstract

Aphasia, an acquired language disorder resulting from brain damage, affects over one million individuals in the United States alone. Many persons with aphasia (PWA), particularly those with non-fluent aphasia, have been observed to be able to sing the lyrics of songs more easily than they can speak the same words. Remarkably, even humming a melody can facilitate speech output in PWA, and this has been capitalized on in therapies such as Melodic Intonation Therapy. The

Example: Data in support of RIFFIT - Autism

Johnston et al., *Cogent Psychology* (2018), 5: 1554773
<https://doi.org/10.1080/23311908.2018.1554773>



Received: 14 August 2018
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*Corresponding author: Daniel Johnston, Electronics, University of York, UK
E-mail: dij502@york.ac.uk

Reviewing editor:

APPLIED PSYCHOLOGY | REVIEW ARTICLE

Innovative computer technology in music-based interventions for individuals with autism moving beyond traditional interactive music therapy techniques

Daniel Johnston^{1*}, Hauke Egermann² and Gavin Kearney¹

Abstract: Individuals with autism spectrum disorders (ASD), who exhibit developmental limitations in social-emotional interaction and communication, are widely reported to respond positively to music therapy interventions that incorporate active and improvisational techniques. The fundamental elements of music have

Example: Data in support of RIFFIT - Dyslexia

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Beating Dyslexia Through Music

November 29, 2011

TAGS: CHILD DEVELOPMENT | COGNITIVE DEVELOPMENT | EDUCATION | LEARNING DISABILITIES | MUSIC

Musical skills may translate into reading skills — particularly for children with dyslexia. Research published by Martina Huss, Usha Goswami, and colleagues in *Cortex* indicates that musical games may be useful in treating dyslexia in young children because an inability to distinguish between strong and weak “beats” is closely related to dyslexia.



Huss and Goswami asked 10-year-old children to listen to pairs of simple songs in which certain notes were accented. To make the songs different, the scientists changed the length

Related



Research Briefs
Research highlights from APS journals, including work on mirror neurons, social connection, and substance use. [More](#)



Lila Gleitman (1929–2021), Renowned for Innovative Research on Language and Learning
Gleitman’s empirical work helped to unravel the mysteries of how children learn language. [More](#)



Growing Places
Science examines how physical surroundings affect children’s development. [More](#)

The Road to RIFFIT



Lex's daughter had reading and comprehension issues.

But she could very well understand materials presented through song and music.

Lex researched solutions to help his daughter but found none suitable.

He came across a wealth of scientific literature explaining how song and music therapy enable dyslexia, ASD and aphasia.

Lex made it his mission in life to build a digital product to help people with learning difficulties.

Lex starts RIFFIT, inc. to build digital products that incorporate music and song into the learning, communication and enjoyment experience.

Learning disabilities impact millions globally!

Over 66 Million (1 in 5) people in the US and 700 Million people in the World have **learning disabilities***

- People with learning impairments can find it difficult to read, speak or comprehend written or spoken text
 - Includes neurological disorders like Autism, Dyslexia and Aphasia
- These impairments pose numerous social and educational challenges
 - Stigmatized in schools resulting in increased drop out rates for students
 - Increased incidence of incarceration (~50% of Texas prison pop is dyslexic)

Current solutions partially help people with learning and communication difficulties, and many are left without support

700M with Learning Disabilities in the World

Growing public awareness of a global problem



Introducing RIFFIT:

Enhancing Communication and Learning with the Power of Song

Our Missions

Bringing the Language of song to the World

Providing song for learning, therapy and communication

Providing song for communication and entertainment

Our Methods

Let users create fully custom songs from anywhere. If they can access the internet, you can access RIFFIT

Apply technology to diverse student and patient populations and develop applied protocols

Enable song for general communication and use by anyone

Our Platform

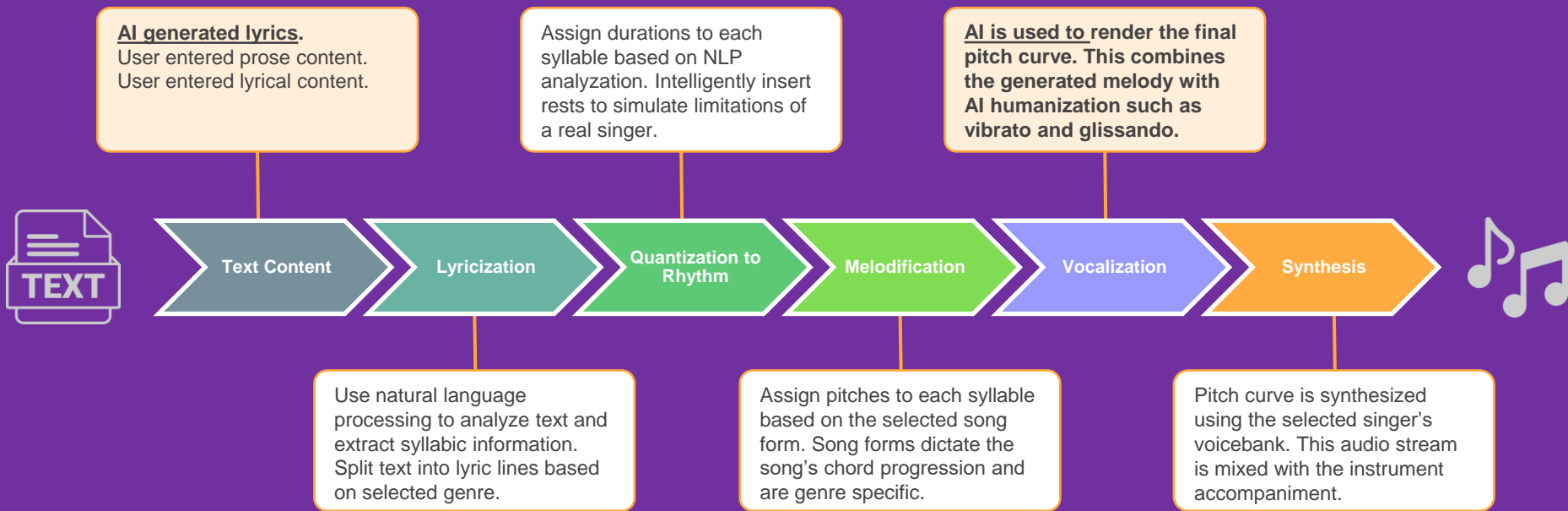
Generative AI powered RIFFIT Text-to-Song Platform

For communication, enjoyment, entertainment,
enhanced learning, therapy and treatment for
selected CNS indications.

RIFFIT improves Comprehension and
students report enhanced Concentration and
Engagement.*

How does it work?

Revolutionary AI powered platform that converts any text into a personalized song in real-time



Real-time Text-to-Song App for Music Therapy

Enabling people with neurological conditions to comprehend text in a melodic manner.

Automatically converts text into a song of user's chosen genre and voice.

Built on AI-powered RIFFIT text-to-song platform (patented methodology).



<https://app.RiffitNow.com>

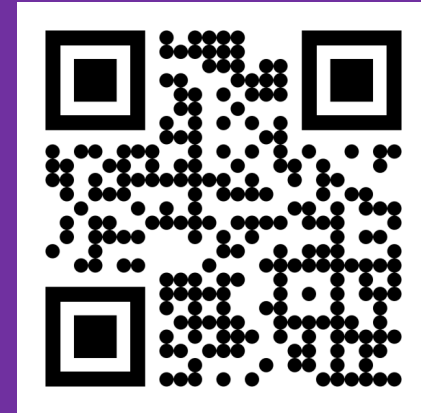
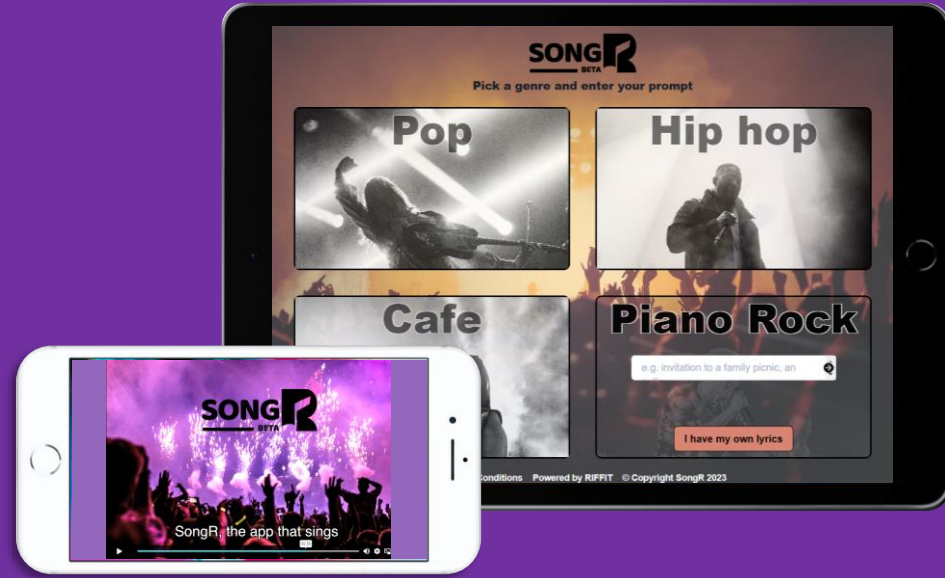


Real-time Lyrics & Song Generation App

Enabling everyone to create unique, personalized songs in real-time with just a few keywords!

Automatically creates lyrics, accompaniment and mixes them into a fully produced song.

Built using the Generative AI in GPT.



Opportunities beyond communication & education

Ecosystem of apps for diverse markets



Consumer App*

Custom Song App

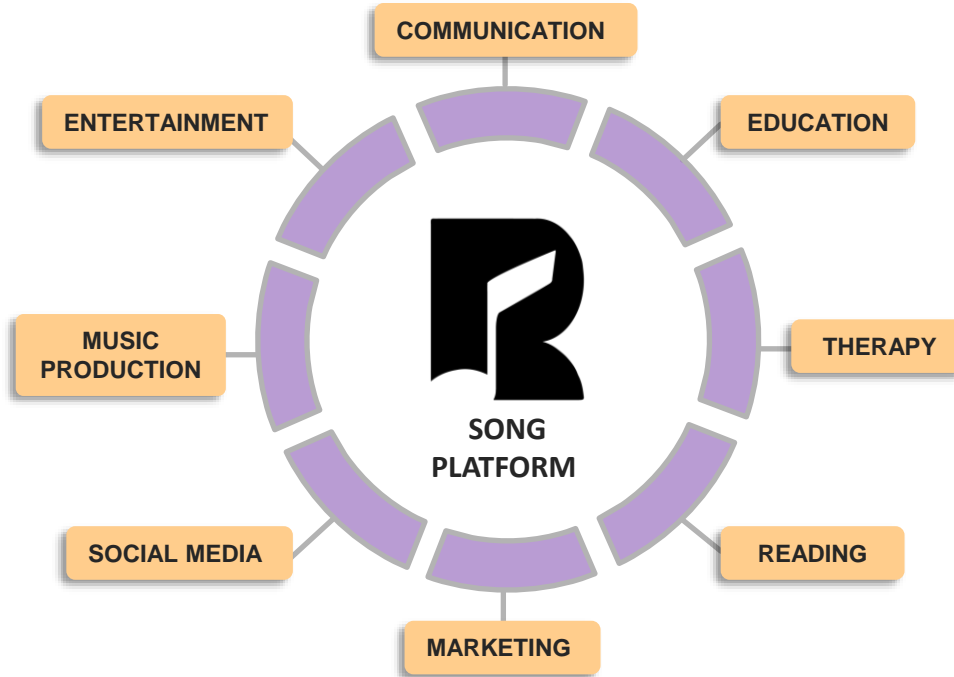
Song API



Learning App*

Language Therapy App

Reading App



Power of Song – Opportunities

- Affordable on-demand song creation for communication, learning, and therapeutic applications.*
- Unique and novel ways to create lyrical content that is more engaging and memorable to the audience.
- New ways to entertain and connect with others socially.
- Copyright free custom song creation without needing musical talent or the equipment to do so.

Dyslexia: What is it & Why does it matter?

- No cure
- Difficulty with learning to read and writing language
- Difficulty with hearing and manipulating sounds in words
- Long-term educational, social, and economic consequences
- Low self-esteem, behavior problems, anxiety, aggression..
- Early intervention allows individuals to reach full potential

Pilot Study:

Evaluation of Text to Song Compared to Silent Reading of Text for Children with Dyslexia

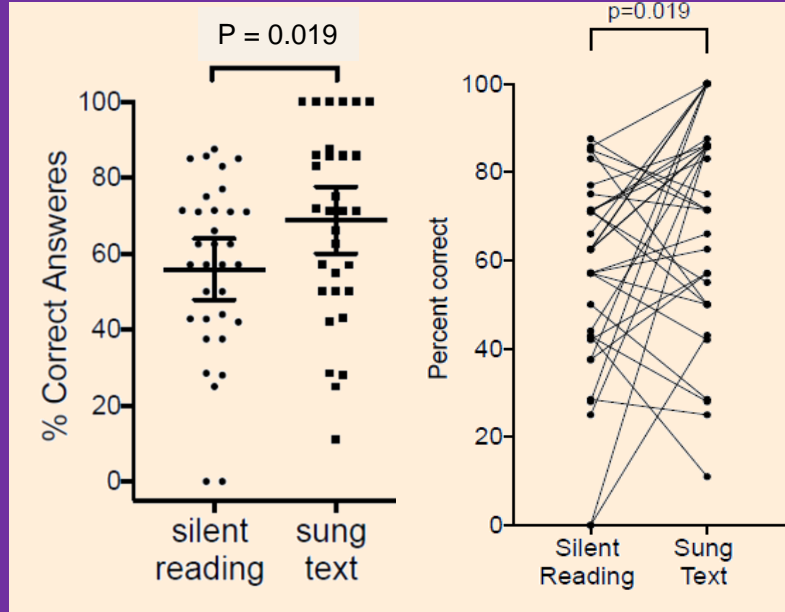
Focus: 4th to 8th grade students
(N=48)



Results of reading comprehension

60% of these students benefitted from RIFFIT App

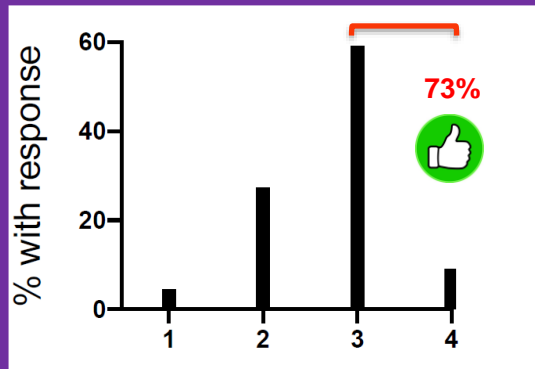
18% of these students scored 100% when using RIFFIT App



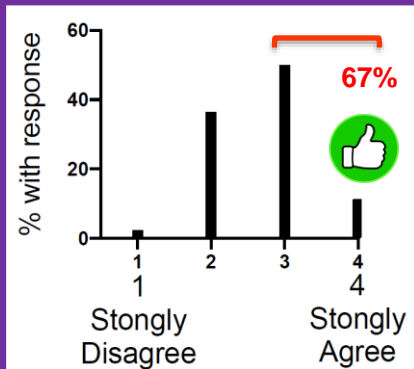
11 Students who scored 100% on silent reading not included in this analysis. Comprehension with silent reading was 56% correct answers vs 69% correct answers with sung text (p=0.019).

Students feedback on RIFFIT App

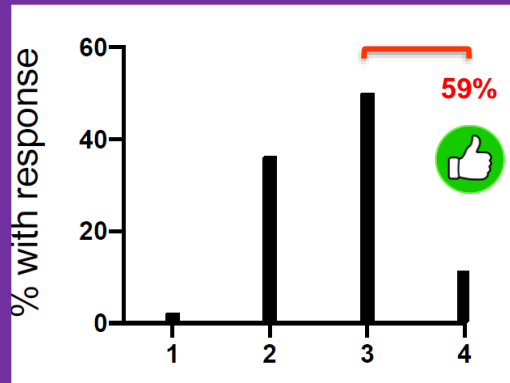
Improves concentration



Good voice



App is fun to use



- Students who use Text to Speech report RIFFIT enabling concentration ($P < 0.0001$) and being fun ($P = 0.018$)
- Males are 6.9 times more likely to strongly agree that RIFFIT improves concentration than females ($p = 0.033$)
- For each 1-year lower grade, students are 2.3 times more likely to strongly agree that RIFFIT improves concentration ($p = 0.005$)
- As % silent correct goes up, the proportion of students reporting that RIFFIT helps concentrate goes down

Pilot Study Results: Reading Comprehension

11 students who scored 100% on silent reading were excluded



60%

**These students
benefitted from
RIFFIT App**



18%

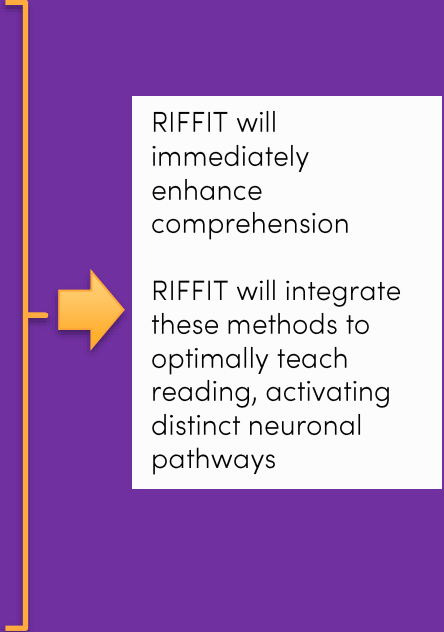
**These students scored
100% when using
RIFFIT App**

Study conducted at Athena Academy

Dyslexia: Current treatment options

Methods active for early intervention: Diagnosis often delayed/absent

- Orton Gillingham
 - Bridging the gap between sounds and letter symbols
 - Bridge the gap between sound and letter symbols, aimed at word recognition
- Davis
 - Resolving letter confusion visually
- Rhythm training
 - Using temporal effects of rhythm, music and song to teach phonological awareness, making use of right hemisphere preference in developmental dyslexia
- Text to Speech
 - Speechify
 - <https://speechify.com/story>



RIFFIT will immediately enhance comprehension

RIFFIT will integrate these methods to optimally teach reading, activating distinct neuronal pathways

ASD – RIFFIT Focus Areas

Autism spectrum disorder (ASD):
a complex neurodevelopmental condition

Visual and auditory processing differences, challenges
with learning, communication and social skills, and
repetitive behaviors

Music Training benefits to ASD

Language delays in ASD are impacted by social attention impairments such as joint-attention and social engagement. These are characteristics of autism and can be addressed through musically based interventions. (Dawson et al., 2004; Kim, Wigram, & Gold, 2009; Loveland & Landry, 1986; Mundy, Sigman, & Kasari, 1990).

Buday (1995) investigated the imitation effects of music therapy in facilitating the memory for signed and spoken words, comparing musical and rhythmic approaches for 10 children with ASD. Musical approaches were superior.

Children with ASD exhibit a preference to song over spoken words (Molnar-Szakacs & Heaton, 2012).

“... move beyond traditional interactive music therapy techniques...” for ASD (Johnston et al 2018)

RIFFIT Approach to ASD

RIFFIT Products:

Personalized text/voice to song solutions:

- Learn to read product
- Learn to speak product
- Joint attention behavior product
- Voice-to-Song communication product

Planned RIFFIT Studies:

- Real-time Text-to-Song (3Q 2023)
- Voice-to-Song (4Q 2023)

FDA's COVID-19 Enforcement Guidance

Enables faster time to market

Enforcement Policy for Digital Health Devices For Treating Psychiatric Disorders During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency

Guidance for Industry and Food and Drug Administration Staff

APRIL 2020

Applies to conditions including Autism, Depression, ADHD, Anxiety, etc.

Considered as low risk.

No prescription needed.

Contact Physician and teachers or therapists as appropriate before use.

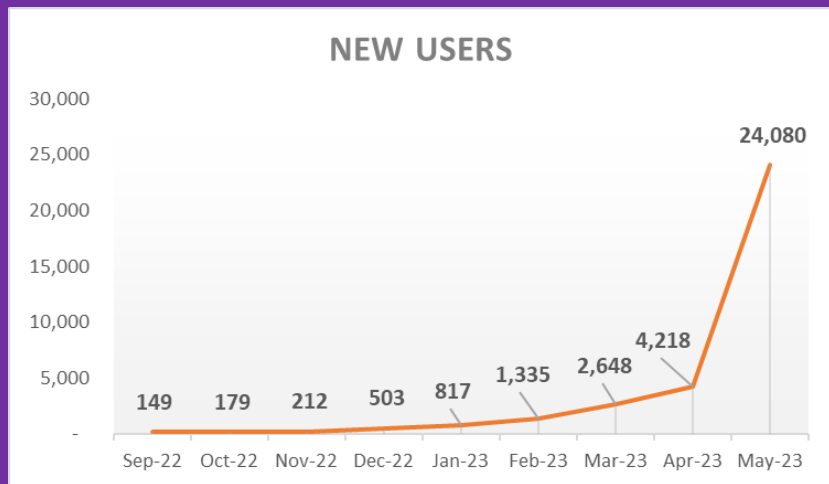
Our product Pipeline (near term)

- Text to Song for education (DTC & DTX)
 - Text to Song for dyslexia, ASD
 - Text to Song for general learning
- Text to song for general communication and entertainment
- Song books released with diverse genres (not real time); for children, adults and religious communities (Chant) and meditation
- Real time song for social communication (e-mail, Twitter, etc.)
- Real time Voice to song

Spontaneous traction to date

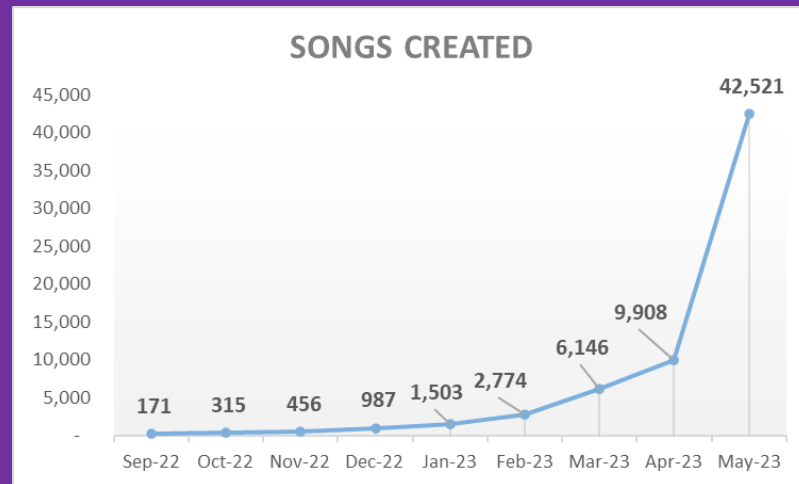
Avg. MoM new user growth

~80%

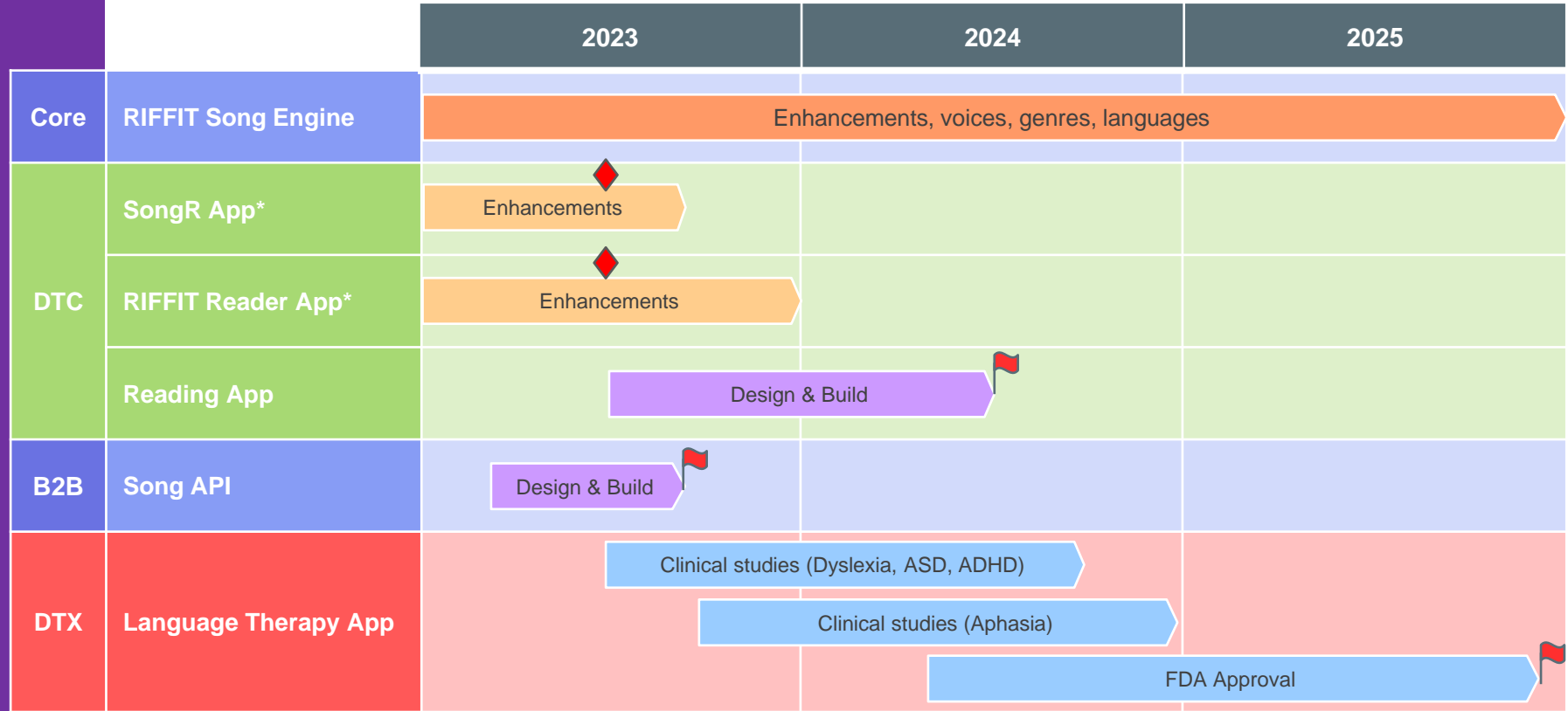


Avg. MoM songs growth

~80%



Product Roadmap



Premium Paid Version Release



Release

* Currently available



Barriers to Entry

RIFFIT has a strong patent portfolio to protect the IP
1 issued Patent and 3 Applications Pending.



Patent No./ App No.	Title	No. of Claims	Priority Date
US Patent No. 11,049,492	Real time comprehensible song generation algorithms for the treatment of selected CNS disorders. Pending in AU, CA, EP, IN and a US continuation	33	Mar 2019
63/009,166	Algorithms for additional song generation methods	16	Apr 2020
63/076,150	Additional song generation methods	5	Sep 2020
63/136,698	Song generation methods and applications	22	Oct 2020

RIFFIT's Leaders & Advisors

CEO: Lex Van der Ploeg & **CSO:** Shashi Shashidhar

AI & Algorithms

Garrett Eckl

Head of Engineering
RIFFIT

Dr. Lawrence Hunter

Professor
Univ of Colorado

Dr. Bud Mishra

Professor
NYU Courant

Dr. Steven Yi

Music Composer
Computer Scientist

Business

Dr. Larry Gold

Founder, SomaLogic

Dr. Dinko Valerio

Co-founder, Leyden Labs

Dr. Ronald Brus

Founder & CEO
myTomorrows

John Hulburt

VP, Finance

Melody & Voice

Peter Jarvis

Director, STO
New England
Conservatory of Music

Michael Shapiro

Principal Composer
Mad Bard Music

Clinical

Dr. Michael Weiden

Professor, NYU

Dr. John Powell

Author, Music & Brain

Lisa Hecker

Speech & Language
Therapist

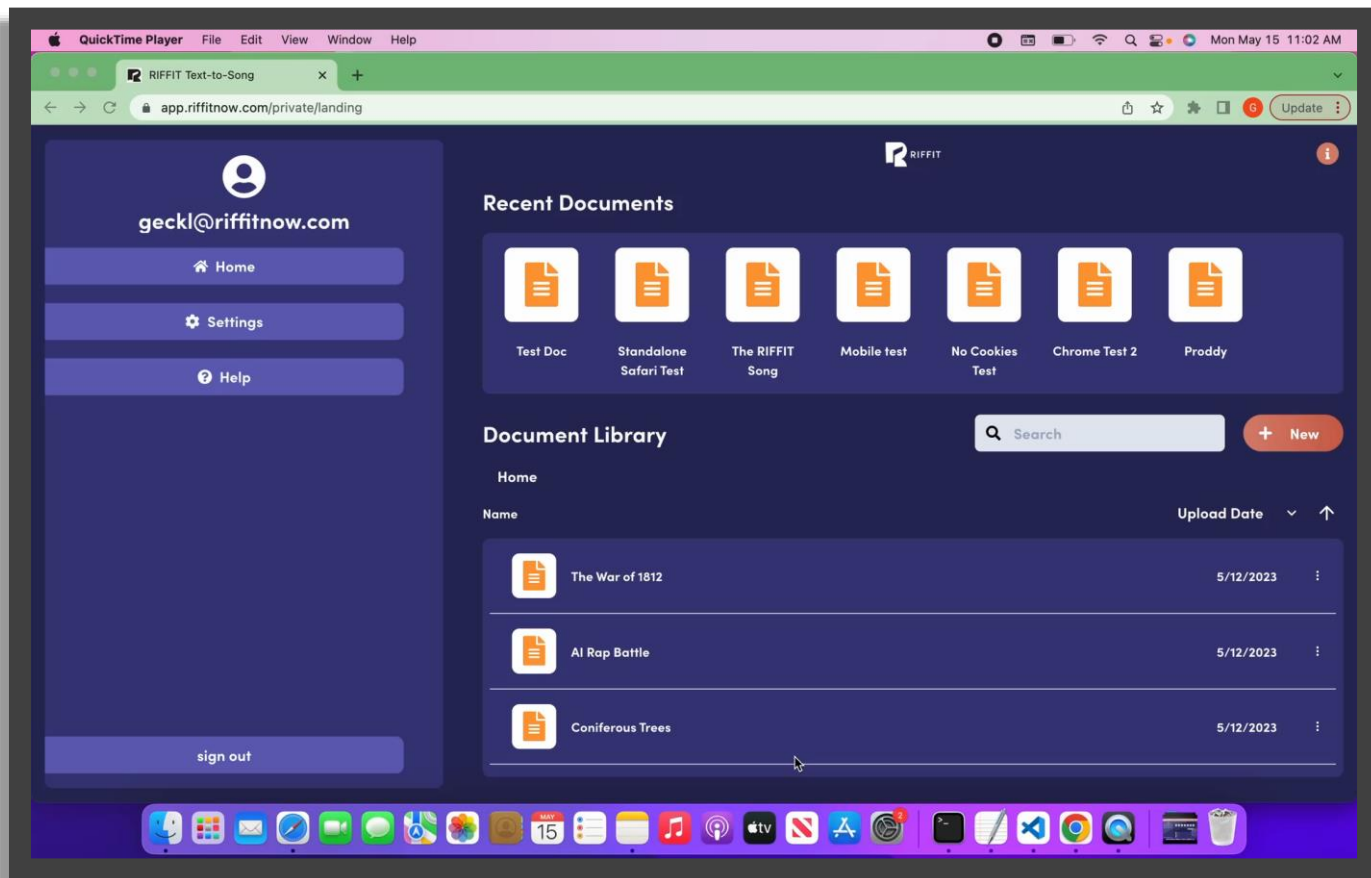
Regulatory

Dr. Ilia Ichetovkin

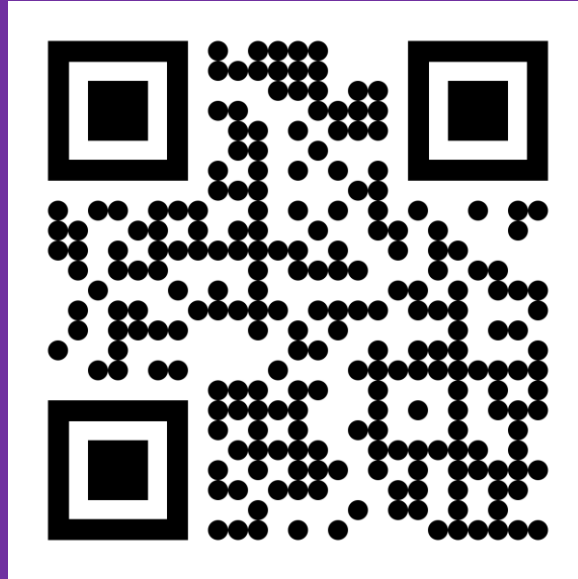
Denovo Biopharma

Dr. Gail Radcliffe

Radcliffe Consulting



Create your custom song in 3 clicks



Thank You!

