seamlessm4t 24 hour hackathon

5-dee studios

shellie

an open-source universal react component for universal speech translation using T2T, TTS, S2S, S2T

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the problem

Real-World Problems

- **Language Barriers**: Difficulty in communicating across different languages hinders globalization and inclusivity.
- **Accessibility Issues**: Those who are visually or hearing-impaired often face challenges in digital communication.
- **Limited Customer Service**: Businesses struggle to offer multilingual support, limiting their customer base.
- **Emergency Response**: Language barriers can complicate emergency situations, delaying crucial assistance.
- **Content Limitation**: Media and educational content often exist in a limited set of languages, restricting their reach.

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shellie

Limitations in AI research and multimodal pipelines have limited possibilities with multimodal language translation and accessibility

Shellie democratizes access to knowledge with an open-source universal react component for universal speech translation

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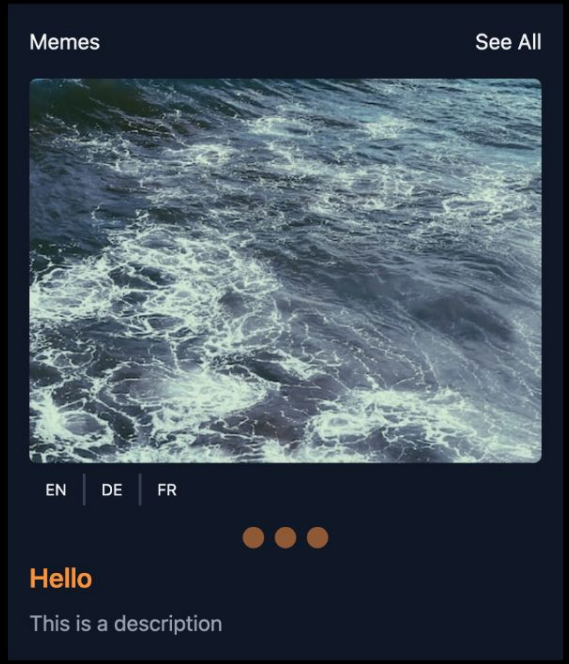
Seamless M4T Demo
This a demo!

https://kbve.github.io/widget-seamless-m4t/#



Features

- Automatic speech recognition for nearly 100 languages
- Speech-to-text translation for nearly 100 input and output languages
- Speech-to-speech translation, supporting nearly 100 input languages and 35 (+ English) output languages
- Text-to-text translation for nearly 100 languages
- Text-to-speech translation, supporting nearly 100 input languages and 35 (+ English) output languages

Implementation

- Built as a React component widget
- Uses JavaScript to call Gradio API endpoints from Huggingface
- Huggingface Runs Inference on Multi-Modal SeamlessM4T Model
- UI returns text or audio file in one click

Goals

- Help reduce friction for regional-based content
- Provide a simple UI for multimodal universal language translation
- Remove language barriers to information and knowledge
- Provide state-of-the-art accessibility tools for people with disabilities

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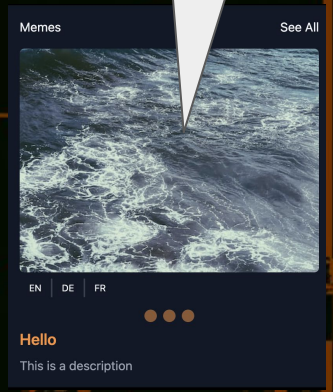
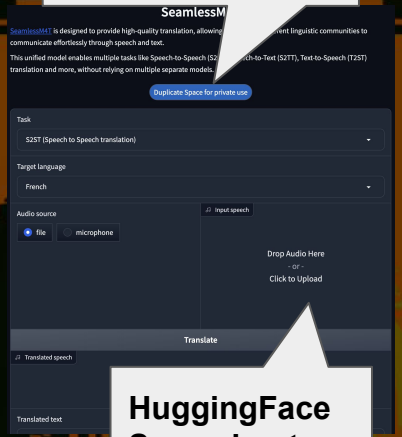
high-level design

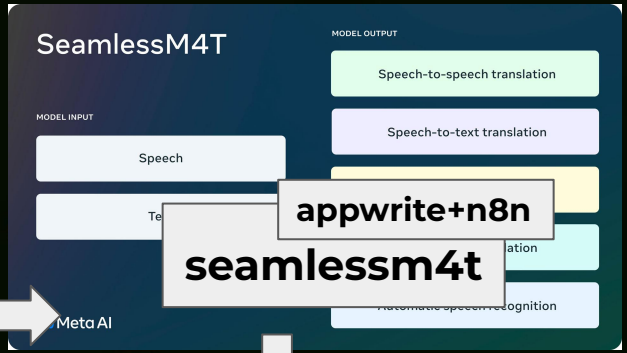
User:
Activates widget through mouse click



Gradio API:
shellie calls the gradio API endpoints to inference with Seamless M4T



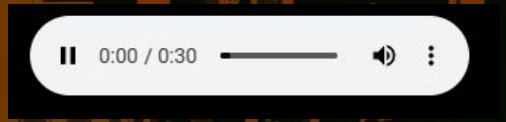
HuggingFace Space hosts Gradio API



appwrite+n8n

seamlessm4t

Shellie offers multimodal language translation + accessibility in one click



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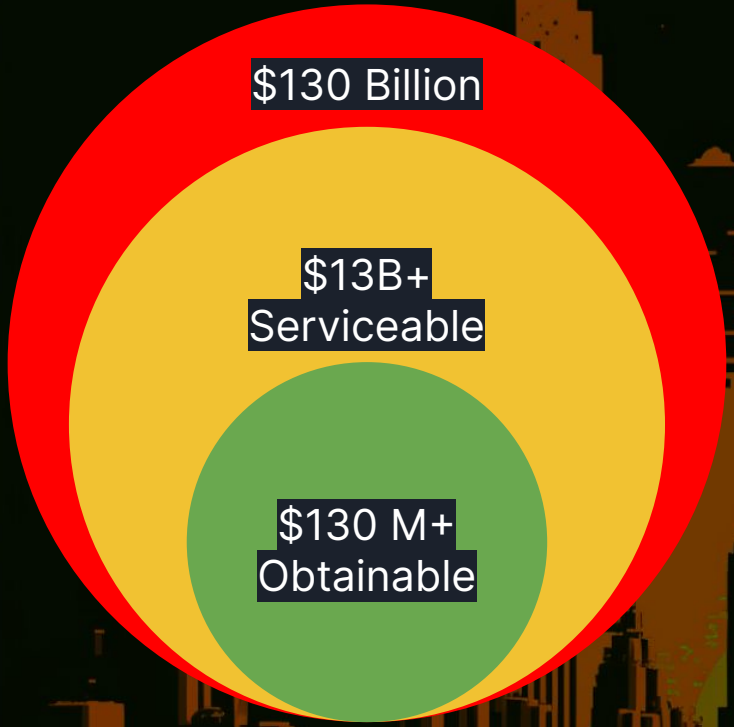
shellie market



Total Market $130 Billion

- **Language Learning Market**: Estimated at $50 billion globally.
- **Voice Assistant Market**: Estimated at $30 billion globally.
- **Global Translation Services Market**: Estimated at $40 billion globally.
- **Accessibility Market**: Estimated at $10 billion globally.

Serviceable Market $13B+

- **E-commerce Platforms**: Companies like Amazon or eBay could integrate Shellie for multilingual customer support.
- **Educational Institutions**: Universities and online course platforms can make content accessible to students worldwide.
- **Healthcare Providers**: Hospitals can use Shellie for patient care across language barriers.
- **Global Enterprises**: Businesses with a global footprint could use Shellie for internal communications.
- **Travel & Tourism**: Airlines, hotels, and travel agencies can offer multilingual services to customers.

Services Obtainable $130M+

- **Local Educational Platforms**: Online education providers targeting specific non-English speaking countries.
- **Telehealth Services**: Telemedicine platforms looking to expand services to non-English speaking patients.
- **Regional Airlines**: Smaller airlines that want to improve customer experience by breaking language barriers.
- **Startup Tech Companies**: Early-stage companies building global products but lacking in-house multilingual capabilities.

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Technologies Used

- React.js
- HTML, CSS (Tailwind)
- Gradio Client/API Endpoints
- Huggingface Space
- SeamlessM4T
- Appwrite Backend as a Service
- N8N Workflow Automation Tool

ACCESS LINK:
https://kbve.github.io/widget-seamless-m4t

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Our Team

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Citations

https://dl.fbaipublicfiles.com/seamless/seamless_m4t_paper.pdf
@article{wang2020lofi,
  title={Lofi hip-hop radio: Beats to relax/study to},
  author={Wang, Justin},
  journal={The Word: Tha Stanford Journal of Student Hiphop Research},
  volume={1},
  number={1},
  pages={10--23},
  year={2020}
}

@article{copet2023simple,
Seamless Communication, Loïc Barrault* , Yu-An Chung* , Mariano Cora Meglioli* , David Dale* , Ning Dong* , Paul-Ambroise Duquenne* , Hady Elsahar* , Hongyu Gong* , Kevin Heffernan* , John Hoffman* , Christopher Klaiber* , Pengwei Li* , Daniel Licht* , Jean Maillard* , Alice Rakotoarison* , Kaushik Ram Sadagopan* , Guillaume Wenzek* , Ethan Ye* , Bapi Akula, Peng-Jen Chen, Naji El Hachem, Brian Ellis, Gabriel Mejia Gonzalez, Justin Haaheim, Prangthip Hansanti, Russ Howes, Bernie Huang, Min-Jae Hwang, Hirofumi Inaguma, Somya Jain, Elahe Kalbassi, Amanda Kallet, Ilia Kulikov, Janice Lam, Daniel Li, Xutai Ma, Ruslan Mavlyutov, Benjamin Peloquin, Mohamed Ramadan, Abinesh Ramakrishnan, Anna Sun, Kevin Tran, Tuan Tran, Igor Tufanov, Vish Vogeti, Carleigh Wood, Yilin Yang, Bokai Yu, Pierre Andrews† , Can Balioglu† , Marta R. Costa-jussà†‡, Onur Celebi† , Maha Elbayad† , Cynthia Gao† , Francisco Guzmán† , Justine Kao† , Ann Lee† , Alexandre Mourachko† , Juan Pino† , Sravya Popuri† , Christophe Ropers† , Safiyyah Saleem† , Holger Schwenk† , Paden Tomasello† , Changhan Wang† , Jeff Wang† , Skyler Wang†,§ Meta AI, §UC Berkeley
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Thank you!
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