AI Congress Barcelona

20 - 21 - 22 OCT 2026

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Un esdeveniment de:

CIDAI Centre of Innovation for Data tech and Artificial Intelligence

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Col·laboradors:

Barcelona

BSC Barcelona Supercomputing Center Centro Nacional de Supercomputación

CVC Centre de Visió per Computador

i2cat

UPC Universitat Politècnica de Catalunya Barcelona Tech

IDEAI Intelligent Data Science and Artificial Intelligence Research Center

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MODELS D'IA VERTICALS: ESPECIALITZACIÓ O GENERALITZACIÓ?

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MODELS D'IA VERTICALS: ESPECIALITZACIÓ O GENERALITZACIÓ?

Presenta:



Joan Mas
Director
CIDAI

Ponents:



Ray G. Butler
CEO i Director de Data Science
Butler Scientifics



Aleix Figueres
Responsable IA
Fluendo

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Ray G. Butler
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PONÈNCIA:

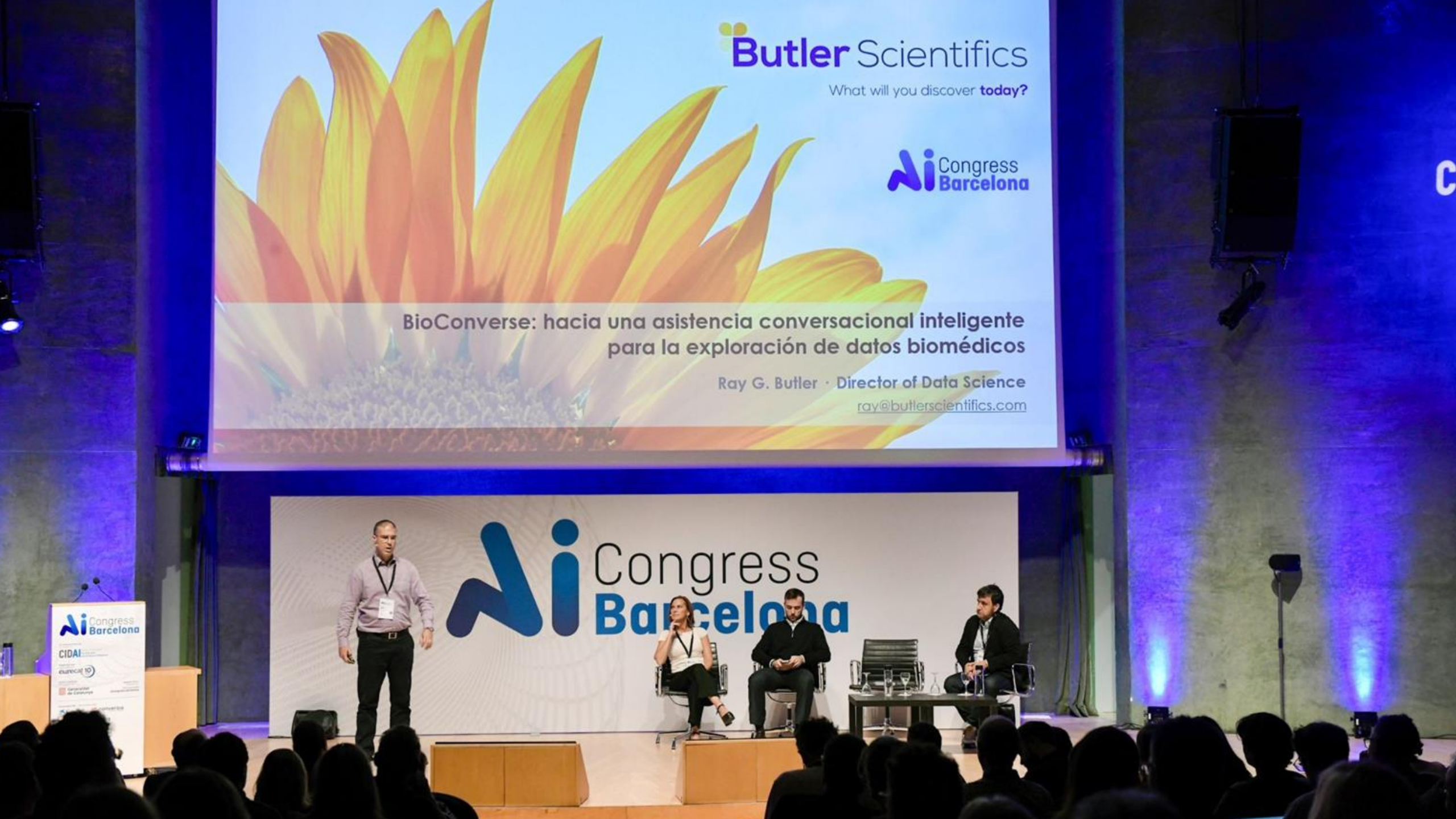
BIOCONVERSE AVANÇA: DE LA CONVERSA AMB DADES A L'EXPLORACIÓ BIOMÈDICA GUIADA PER AGENTS

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BioConverse avanza: de la conversación con datos a la exploración biomédica guiada por agentes

Ray G. Butler · Director of Data Science
ray@butlerscientifics.com


Butler Scientifics
What will you discover today?
Congress Barcelona
BioConverse: hacia una asistencia conversacional inteligente para la exploración de datos biomédicos
Ray G. Butler · Director of Data Science
ray@butlerscientifics.com
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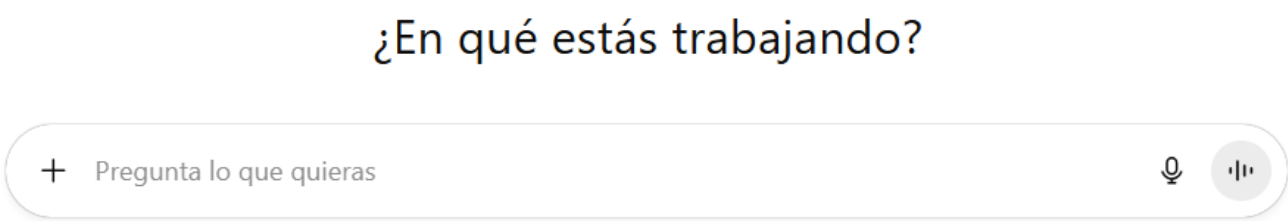
Nuestra Experiencia “As A Software”





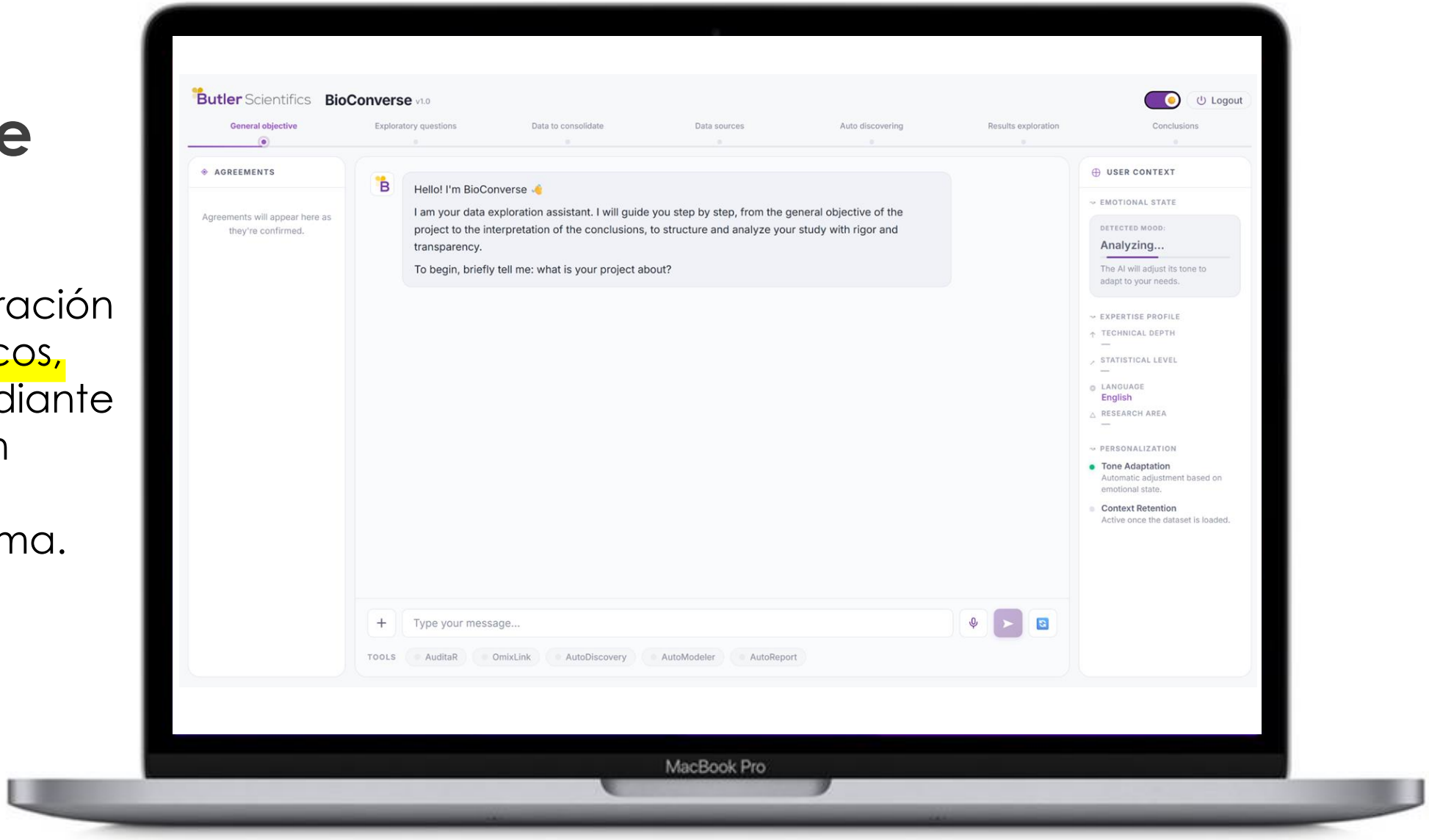

+10 years exploring data

BioConverse


¿En qué estás trabajando?
Pregunta lo que quieras

BioConverse

Software de exploración de datos biomédicos, automatizado mediante una interacción en lenguaje natural y guiada por el sistema.



Empezamos por las Personas

😨 No teme a la IA sino a …

- Perder el control
- Perder rigor
- Perder contexto clínico



🔍 Alicia necesita …

- ✅ **Hablar** en su “idioma”
- ✅ **Controlar** cada paso
- ✅ **Documentar** el razonamiento
- ✅ **Asegurar** la confidencialidad
- ✅ **Mantener** la precisión
- ✅ **Ahorrar** tiempo

Esas son las claves para el vertical de investigación biomédica

Nuestra Estrategia de Verticalización Actual y Futura

Especialización en …

Proceso

- ¡Nuestra experiencia!
- Reglas del dominio
- Orquestación específica

Capacidades

- Apoyo en software externo
- Sistema multi-agente

BioConverse
(actual)

Conocimiento

- RAG
- Ontologías
- Guías clínicas
- BBDD biomédicas

(futuro)

Modelo

- Training desde cero
- Continued pre-training
- Fine-tuning

Primera Clave de nuestra Estrategia

Generalización donde necesitamos escala

- Comprensión del lenguaje
- Razonamiento general
- Adaptación emocional

Segunda Clave de nuestra Estrategia

Especialización donde importa el riesgo

- Conocimiento biomédico
- Calidad de los datos
- Estadística e interpretación

Tercera Clave de nuestra Estrategia

Soberanía donde hace falta control

- Proceso epistemológico
- Infraestructura
- Sustitución de LLM subyacente

Fruitful Collaborations.

Our achievements at Butler Scientifics demonstrate our prowess in leveraging automated data science, integrating top scientific minds to turn complex data into actionable insights. This collaboration not only fuels innovation but also underscores our dedication to advancing data science.

Immunology. COVID19. Innate Immune Response

The main objective of the work was to recognize early markers of the disease that are associated with the final evolution of the patient.

27/07/2022 · 0 min. read



Anatomic Pathology. Uveal Melanoma

One of the goals of this study was to assess how the immunohisto-chemical expression of the markers that are part of the signaling act as independent predictors of the risk of metastasis or variables of global survival.

23/03/2022 · 9 min. read

Microbiology. Intensive Care Unit. Lower Respiratory Tract Infections

The main objective was to evaluate the potential associations between clinical/epidemiological data and genetical microbial features in a cohort of patients under mechanical ventilation and isolation of Staphylococcus aureus in the respiratory tract.

14/03/2020 · 9 min. read

VIDEO DEMO

ACCIÓ Generalitat de Catalunya

Inici > Ajuts i serveis > Vols innovar? > Innovació oberta i disruptiva > Ajuts a projectes d'innovació oberta i disruptiva

Ajuts a projectes d'innovació oberta i disruptiva

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drop

INNOVATION AGENCY

DESIGN AGENCY

Butler Scientifics



+10 years exploring data


Butler Scientifics
Te
Necesitamos
¿Te
Vienes?

MODELS D'IA VERTICALS: ESPECIALITZACIÓ O GENERALITZACIÓ?



Aleix Figueres
Responsable IA
Fluendo

PONÈNCIA:

IA·VEU: VEUS SINTÈTIQUES EN CATALÀ AMB UNA IA SEGURA I RESPONSABLE

fluendo

IA·Veu: Synthetic Catalan voices with safe and responsible AI

From voice cloning to sovereign vertical speech models



A journey from general-purpose foundations to Catalan speech sovereignty

Who we are

Fluendo’s ecosystem

- Licensed Codecs
- Gstreamer expertise
- Tailored Media Solutions
- Multimedia Edge AI



Aleix Figueres

AI Manager at Fluendo
Building production AI for real-time video and audio
10+ years in Computer Vision & applied AI
Experience across drones, automotive & multimedia industries
Former AI startup founder

Fluendo TTS: where horizontal and vertical AI meet

Our goal: specialize, govern and productize AI models where Catalan quality, rights and deployment control matter.

Horizontal AI gives us leverage

Foundation models and open ecosystems
Large pre trained speech representations
Transfer learning instead of starting from zero
Rapid prototyping across model families

Vertical AI makes it useful

Catalan-specific data and pronunciation
Professional voices, consent and rights
Task-specific training and evaluation
Product integration, cost and governance

Our goal: turn advanced AI models into reliable Catalan speech products, while building the capability to improve them ourselves.

IA·Veu

Professional Catalan voices

Jun 2025 – Feb 2026

→

Lyrebird

Controllable prosody

@ßfÃ¯ÃĎŕΦŕŘ’ŕÃ¯ÃĎ

→

ReadIA

Web reader MVP

May 2026 – Feb 2027

→

SOV-CAT-VOICE

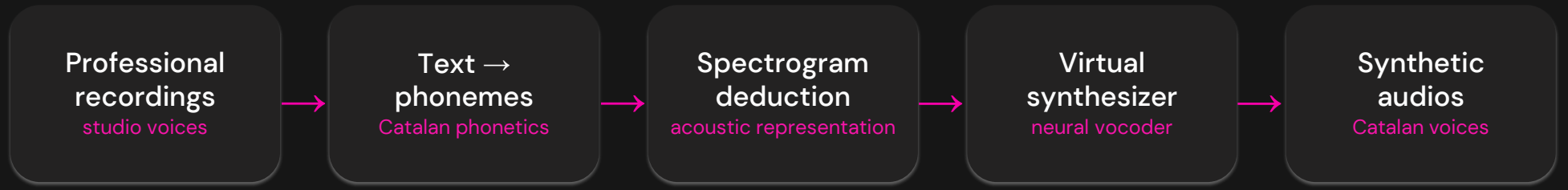
HPC-scale TTS R&D

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IA·Veu: the first foundation

Our first Catalan TTS pipeline

Starting from the latest AINA-style stack: no direct generative AI yet.



Scope

- Professional Catalan voices (~40h)
- Explicit consent and usage rights
- Safe, traceable synthesis pipeline

Outcomes

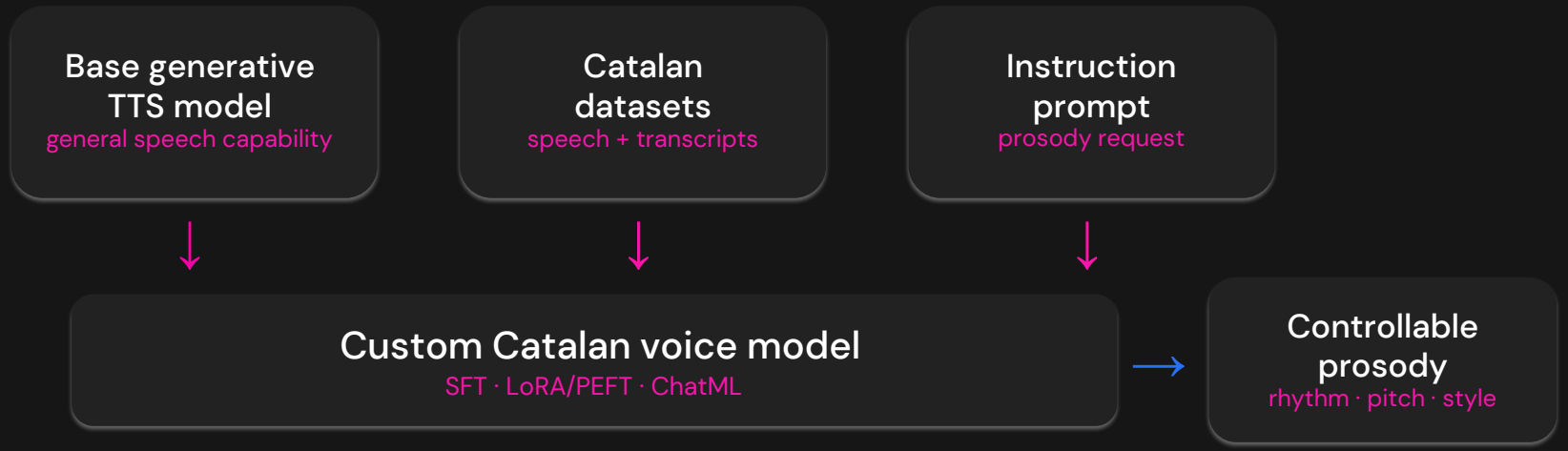
- Voice-cloning baseline for Catalan
- Catalan pronunciation (Central dialect) correct
- Gap identified: prosody control

Current TTS architecture reaches a technical ceiling in naturalness and expressive control

Lyrebird: from cloning to controllable speech

The generative TTS recipe

Foundation model + Catalan speech data + style instructions.



Scope

- Move beyond fixed prosody
- Benchmark modern generative TTS models
- Learn controllable Catalan intonation

Outcomes

- Champion agentic AI-based model Catalan prototype
- Best quality / identity / prosody trade-off
- Transfer-learning path for new voices

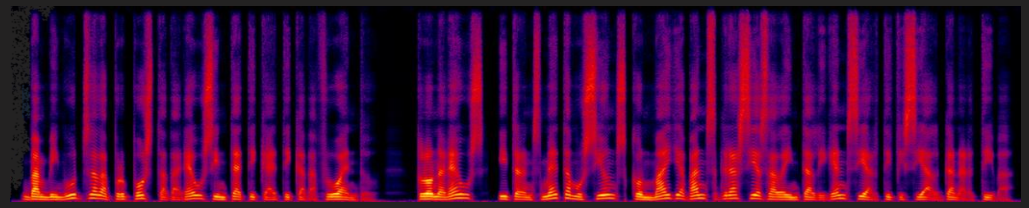
Teaching the model how Catalan should sound

Three objectives optimized together

Pronunciation | Cloning | Prosody

IA·Veu

classical neural TTS



~3.5/5.0 Subjective MOS*

3.00/5.0 UTMOS

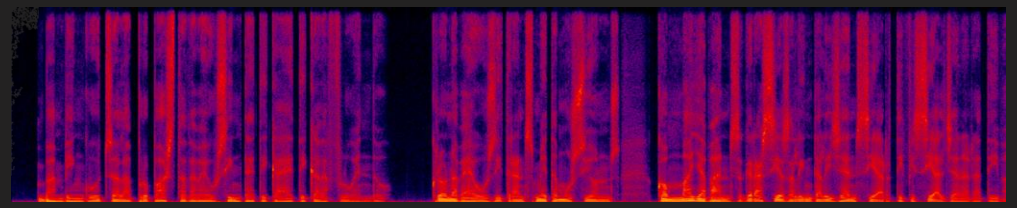
2.9% WER

Accuracy first
phonetic control

Accurate transcription and pronunciation; lower perceived naturalness and expressive range.

Lyrebird

generative foundation TTS



~4.0/5.0 Subjective MOS*

3.73/5.0 UTMOS

9.8% WER

Naturalness first
expressive speech

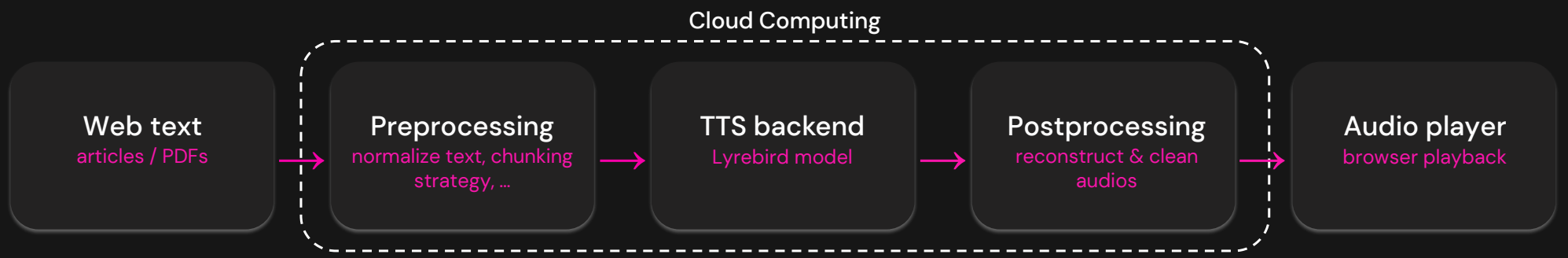
Clear naturalness gain and stronger expressiveness; linguistic accuracy still requires work.

Lyrebird is constrained by our current training capacity — HPC unlocks larger-scale experimentation

ReadIA: productizing Catalan TTS

The product loop

From web content to natural-sounding Catalan audio.

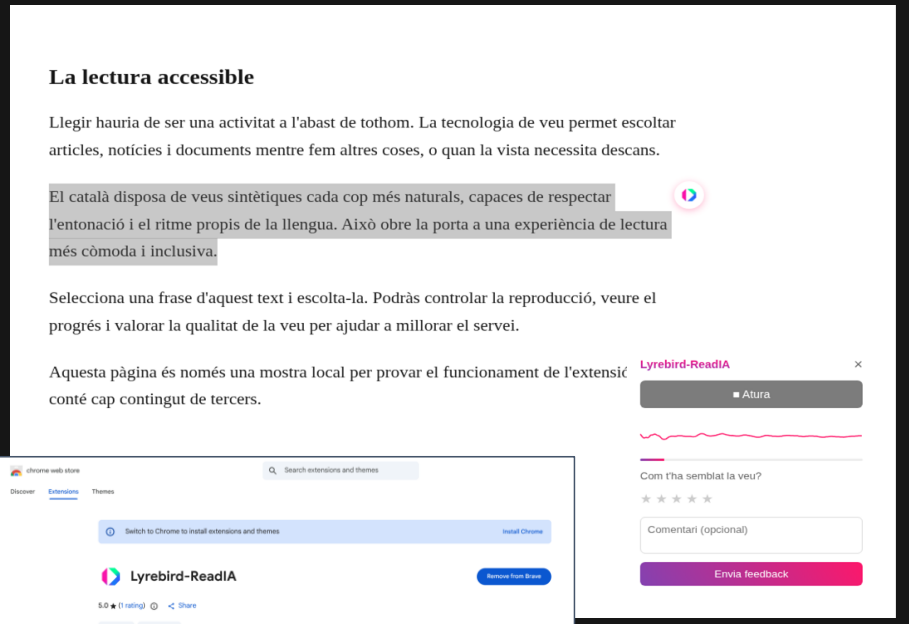


Scope

- Turn the model into a usable web reader
- Handle long-form real-world content
- Build benchmarking and monitoring

Outcomes

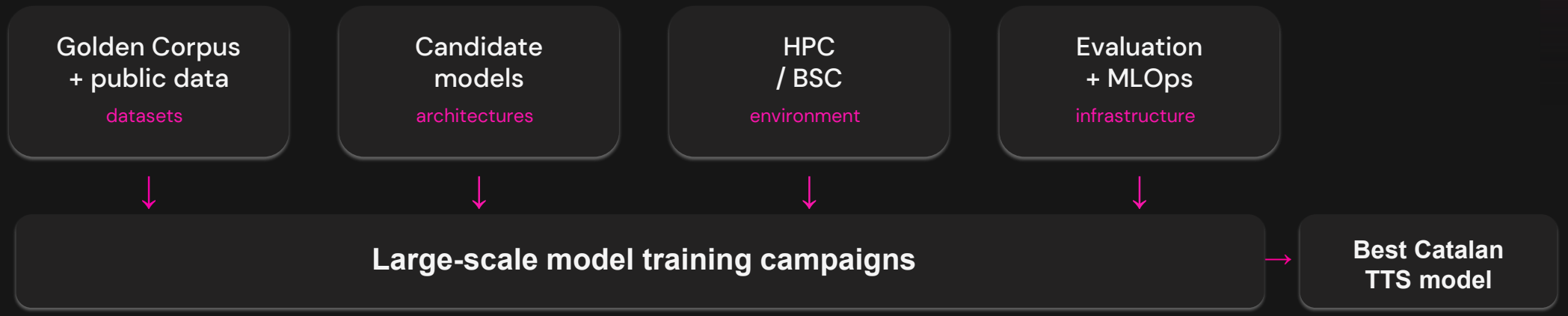
- Chrome-extension MVP
- Robust preprocessing and chunking pipeline
- Quality, latency and cost benchmark API



SOV-CAT-VOICE: scaling Catalan TTS with HPC

The scale-up engine

From local prototypes to industrial-scale Catalan speech model engineering.



Scope

- Large-scale training with ~4,000 h Catalan speech available
- Benchmark cutting-edge model families and training strategies
- Leverage HPC in collaboration with BSC

Target outcomes

- Higher-quality, better-controlled Catalan speech
- Faster adaptation and cloning of new professional voices
- More control over data, evaluation and deployment

From “Can we make Catalan speak?” to “How far can we push Catalan speech AI?”

What this journey leaves us with

Key lessons, trade-offs and next questions

From better Catalan voices to the next strategic questions.

Lessons learnt / conclusions

Success is a three-way balance

Voice quality, speaker identity and prosody must be optimized together — improving one axis can degrade another.

Verticalization is where value appears

Horizontal models provide capabilities; Catalan data, evaluation and product constraints turn them into useful speech technology.

Scale changes the experiment space

Local fine-tuning got us to Lyrebird. HPC lets us test training regimes and architectures that were not feasible locally.

Open questions

Ownership & IP

Who owns a synthetic voice: the voice actor, the training data, the adapted model, or the organization that created it?

Ethics & Responsibility

How do we ensure synthetic voices are created and used with consent, transparency, traceability and safeguards against misuse?

Model sovereignty

How much of the stack must we control — data, training, deployment and evaluation — to be strategically independent?

fluendo

Thank you!

For more information visit fluendo.com

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afigueres@fluendo.com



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Funded by the European Union - NextGenerationEU

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Plan de Recuperación, Transformación y Resiliencia

Generalitat de Catalunya
Departament d'Empresa i Treball

MINISTERIO PARA LA TRANSFORMACIÓN DIGITAL Y DE LA FUNCIÓN PÚBLICA

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