MATÍAS HOYL

+1 (650) 382 7950 · mhoyl@stanford.edu · www.linkedin.com/in/matiashoyl · hoyl.me

Education

Stanford University   Spring 2025

M.Sc. in Data Science & Education (*GPA: 4.12/4.00*) | *Specialization:* Machine Learning, NLP, and Causal Inference.

Pontifical Catholic University of Chile   2009 - 2014

B.Sc. in Computer Science (GPA: 3.8/4.0) | *Minor:* Industrial Engineering (Project Management, Optimization, and Finance)

Experience

LitLab.ai | ML Engineer Intern   Fall 2024

Edtech startup leveraging AI to create customized, phonics-based reading materials that adapt to each child's literacy development stage.

- Engineered LLM pipelines using Langchain, improving text decodability (key metric) from 90% to 99% through experimentation.
- Implemented vector database for information retrieval, improving story coherence by 30% based on LLM-as-a-judge metrics.
- Designed and implemented 5 user-requested story customization features in T3 stack (Next.js, TypeScript, tRPC).
- Developed hybrid recommendation engine combining product analytics and learning data to personalize story suggestions, increasing student engagement by 42% and reading comprehension scores by 23%.

Meta | Product Data Scientist Intern   Summer 2024

Part of the Generative AI team, responsible for the AI Studio product launch. Focused on the User Generated Characters (UGC) feature.

- Analyzed 100M+ user interactions using Presto SQL to identify top 20 character themes, informing AI Studio's character categorization strategy and feature roadmap.
- Leveraged Spark SQL to analyze 50M+ cross-platform user behaviors across Facebook, Instagram, and WhatsApp, creating detailed AI user archetypes that informed AI Studio's launch targeting strategy.
- Developed ML-based user segmentation models (k-means clustering, random forests) to analyze 1M+ Meta AI users, informing targeted product launch strategies and user acquisition campaigns.

Spark | Cofounder and CTO   2023 - 2024

AI-powered app that crafts customizable stories, enabling kids to actively participate in the narrative and enhancing their engagement in learning.

- Led the full-stack development of an edtech reading platform, architecting a React web app and Node.js backend that processes 500+ daily LLM-powered story generations.
- Implemented Low-Rank Adaptation (LoRA) to fine-tune Stable Diffusion image generation models, achieving 95% character consistency across story illustrations and reducing story abandonment rates by 27%.
- Architected end-to-end analytics infrastructure using Mixpanel and MS Clarity, resulting in 25% faster product iteration cycles through data-driven A/B testing.
- Won Stanford University's Learning Design Challenge twice and got accepted at StartX accelerator as Student in Residence.
- Conducted parameter-efficient fine-tuning of Meta's Llama 3.1 model using LoRA, reducing story abandonment rates by 18%.
- Spearheaded the integration of educational theories into the app's design, ensuring that story narratives support developmental milestones and learning objectives in early childhood education.
- Integrated evidence-based literacy frameworks (UFLI's systematic phonics approach and Lexile measures) into story generation algorithms, resulting in 35% higher teacher satisfaction scores.

Laboratoria | Country Manager   2019 - 2023

Social startup aiming to train Latin American women as web developers and data scientists, with the goal of reducing the gender gap in the industry.

- Led 30-person team training 500 women in software development, achieving 3x average salary increases post-graduation, 20% higher placement rates, and reducing program dropout from 30% to 14%.
- Elevated organization's visibility through 50+ media interviews and keynote presentations at international forums (including APEC 2019), securing $500K+ in partnerships and establishing the organization as a regional leader in tech education.
- Established and led new innovation division, designing scalable learning programs that reduced costs by 90% and increased cohort capacity 10x while securing strategic partnerships with IDB, IBM, and Google for LATAM-wide educational initiatives.

Laboratoria | Data Science Bootcamp Director   2019 - 2023

Social startup aiming to train Latin American women as web developers and data scientists, with the goal of reducing the gender gap in the industry.

- Launched new data science track for over 1000 students, incorporating real-world projects focused on SQL, NumPy, Pandas, Seaborn, and Scikit-learn. Directed end-to-end research, curriculum planning, and instructional methodology.

- Led a cross-functional team of over 20+ members including data scientists, and software developers, driving initiatives that reduced student dropout rates from 30% to 14%, increased placement rates by 18%, and boosted graduate salaries by 20%.
- Orchestrated strategic partnerships with a steering committee of data science experts from Meta, Rappi, Deloitte, Microsoft, and Google, ensuring industry-aligned curricular development.
- Engineered an educational platform leveraging AI for learning, resulting in a 90% reduction in operational expenses and enabling a tenfold increase in student capacity compared to previous initiatives.

Zapien | Cofounder and CTO   2018 - 2022

Edtech platform leveraging adaptive algorithms and data science to personalize learning experiences.

- Led development and launch of a math edtech platform, scaling to 35,000 students across 180 Chilean schools, achieving 20% improvement in standardized test scores and 97% teacher satisfaction rate.
- Led cross-functional product discovery through competitive analysis of 15+ edtech platforms and 50+ user interviews, prioritizing feature backlog that led to 95% sprint completion rate across 6-month roadmap.
- Engineered an adaptive assessment system using Three Parameter Logistic (3PL) modeling to calibrate 12,000+ math items and predict student responses, improving ability estimation accuracy by 15% across 35,000+ students.
- Architected and deployed an ELO-based adaptive learning system, processing 10K+ daily interactions to dynamically assess student abilities, achieving 21% higher predictive accuracy over traditional IRT assessment models.
- Developed ML-based content recommendation system using collaborative filtering and gradient boosting algorithms, to achieve 26% higher engagement and 12% improved learning outcomes through personalized subject-skill matching

Directorate of Public Education, Ministry of Education of Chile | Public Policy Specialist   2017 - 2018

Institution responsible for ensuring the quality of education for over 1.2 million children in the Chilean public school system.

- Architected digital infrastructure for 7 regional education services, streamlining operations for 20% of Chile's public schools.
- Implemented automated payroll verification system ensuring accurate payments for 20,000+ teachers, reducing errors by 95%.
- Engineered data pipeline integrating 10+ educational datasets across 10,000+ public schools, leveraging Python and Tableau to create automated reporting dashboards that informed resource allocation decisions for 1.2M+ students.

Enseña Chile | Teacher   2015 - 2017

Part of the Teach for All network. Intends to positively impact education by inserting professionals into the most challenging classrooms.

- Elevated academic performance of 200 students by achieving 19% higher scores in standardized tests.
- Received program-wide recognition for exemplifying Teach for All's core values, selected from 150 fellow program participants.

Additional information

- **Eligible for H1B1 work authorization**: special work visa due to Free Trade Agreement (not subject to lottery).
- **Data Science & ML**: Python (Pandas, NumPy, PyTorch, Scikit-learn), R (tidyverse, caret), Big Data (SQL, Apache Spark, Presto).
- **Full Stack Development**: T3 (JavaScript, TypeScript, Next.js, React, Tailwind, tRPC, Prisma), RoR (Ruby, Rails).
- **Generative AI & LLMs**: LLM Pipelines (Langchain, Langsmith), Vector databases (Pinecone, pgvector), RAG, Prompt Engineering.
- **Business analytics**: GCP BigQuery, GCP LookerStudio, Tableau, MS Power BI.
- **Product development**: Prototyping (Figma, Bubble.io), Project management (JIRA, Asana, Linear), Analytics (Mixpanel, Posthog).
- **Language competencies**: Spanish (Native) and English (Advanced, 111/120 TOEFL), Portuguese (Beginner).
- **Other interests**: Trekking (achieved an 18,000 ft summit), trail running (ran a half-marathon on steep terrain), playing musical instruments (guitar, piano, charango, ukulele), blogging about AI here.