

**Alberto Hernández Espinosa**  
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## 1 Professional Summary

- 10+ years leading AI research and software development for universities and industry.
- Expert in ML, deep learning, and causal AI, with proven impact (e.g., 53% cloud cost reduction).
- Published with Oxford University and Oxford Immune Algorithmics on AI and complexity.
- 7+ years of global remote collaboration; adept with interdisciplinary AI teams.
- AI Engineer Lead at K-Square Group, driving AI innovation.

## 2 Skills & Expertise

- AI/ML: Python, TensorFlow, PyTorch, Scikit-learn, Keras, LangGraph, Ollama, RAG, Agents
- Languages: Python, R, C++, SQL, Mathematica, FastAPI, React
- Cloud/DevOps: GCP, AWS, Docker
- Data Science: Big Data, SQL/NoSQL, ETL, Pandas, NumPy
- Domains: AI, Complexity Science, Cognitive Science, Reinforcement Learning

## 3 Professional Experience

### 3.1 AI Engineer Lead, K-Square Group (Remote)

Nov 2024–Present

- Lead AI project teams, enhancing collaboration and execution.
- Drive R&D of AI/ML solutions for industry-specific challenges.
- Oversee integration of advanced AI technologies and pipelines.
- Develop strategic frameworks for rapid prototyping.
- Mentor teams in AI tool utilization and innovation.

### 3.2 Chief AI Scientist, MilkStraw AI, San Francisco, CA (Remote)

Oct 2022–Sep 2024

- Led AI-driven cloud optimization on AWS, saving 53% costs.
- Designed ML pipelines with Python, TensorFlow, PyTorch.
- Collaborated globally on scalable AI solutions.

### 3.3 Research Director, Laxford Capital (Remote)

Jun 2019–Jul 2022

- Directed AI trading with reinforcement learning agents.
- Oversaw model design in Python and PyTorch.
- Improved trading via causal AI approaches.

### 3.4 Research Collaborator, Oxford Immune Algorithmics & Oxford University (Remote)

2015–Nov 2024

- Contributed to AI and complexity publications.
- Implemented models in Mathematica and Python.
- Co-authored with Oxford researchers.

## 4 Education

### 4.1 PhD in Philosophy of Science, UNAM, Mexico City

2015–2019 (Specialization: AI and Cognitive Science)

- Focused on integrated information theory.
- CONACyT Scholarship, collaborated with Oxford.

### 4.2 Master in Computer Sciences, UNAM, Mexico City

2012–2014 (Specialization: AI)

- Thesis on computational creativity.
- CONACyT Scholarship.

## 5 Selected Projects

- Noesis: AI/ML platform for regression, classification, clustering (GitHub: <https://github.com/KSProjectX/test-xx>, restricted).
- KS-Onboarding: Agentic project control with OCR and RAG (GitHub: <https://github.com/KSProjectX/KS-onboarding>, restricted; arXiv: <https://arxiv.org/abs/2505.02581>).
- Test Automation Agents: Dynamic pytest generation (GitHub: <https://github.com/Sucharita8/KS-qe-platform>, restricted).
- Stock Prices Prediction: RL and ML for forecasting (GitHub: [https://github.com/albertoHdzE/finance\\_1](https://github.com/albertoHdzE/finance_1)).
- Tononi's Phi: Consciousness measure in Mathematica (GitHub: <https://github.com/albertoHdzE/Alpha>).
- MOSAICA: DNA complexity analysis (GitHub: <https://github.com/albertoHdzE/MOSAICA>).

## 6 Publications

- 2025: <https://arxiv.org/abs/2505.02581>
- 2025: <https://arxiv.org/abs/2503.16743>
- 2021: [https://www.worldscientific.com/doi/10.1142/9789811235726\\_0005](https://www.worldscientific.com/doi/10.1142/9789811235726_0005)
- 2017: [https://link.springer.com/chapter/10.1007/978-3-319-58741-7\\_2](https://link.springer.com/chapter/10.1007/978-3-319-58741-7_2)
- 2013: [https://link.springer.com/chapter/10.1007/978-3-642-37225-4\\_14](https://link.springer.com/chapter/10.1007/978-3-642-37225-4_14)

## 7 Certifications

- Mathematics for Machine Learning
- AI for Finance
- Google Cloud Specialization

Full list of 47 certifications: <https://www.linkedin.com/in/alberto-hernandeze/details/certifications/>

## 8 Languages

- Spanish (mother language)
- English (advanced)
- German (Basic)
- French (Basic)
- Japanese (Basic)

Details: <https://www.linkedin.com/in/alberto-hernandeze/details/languages/>