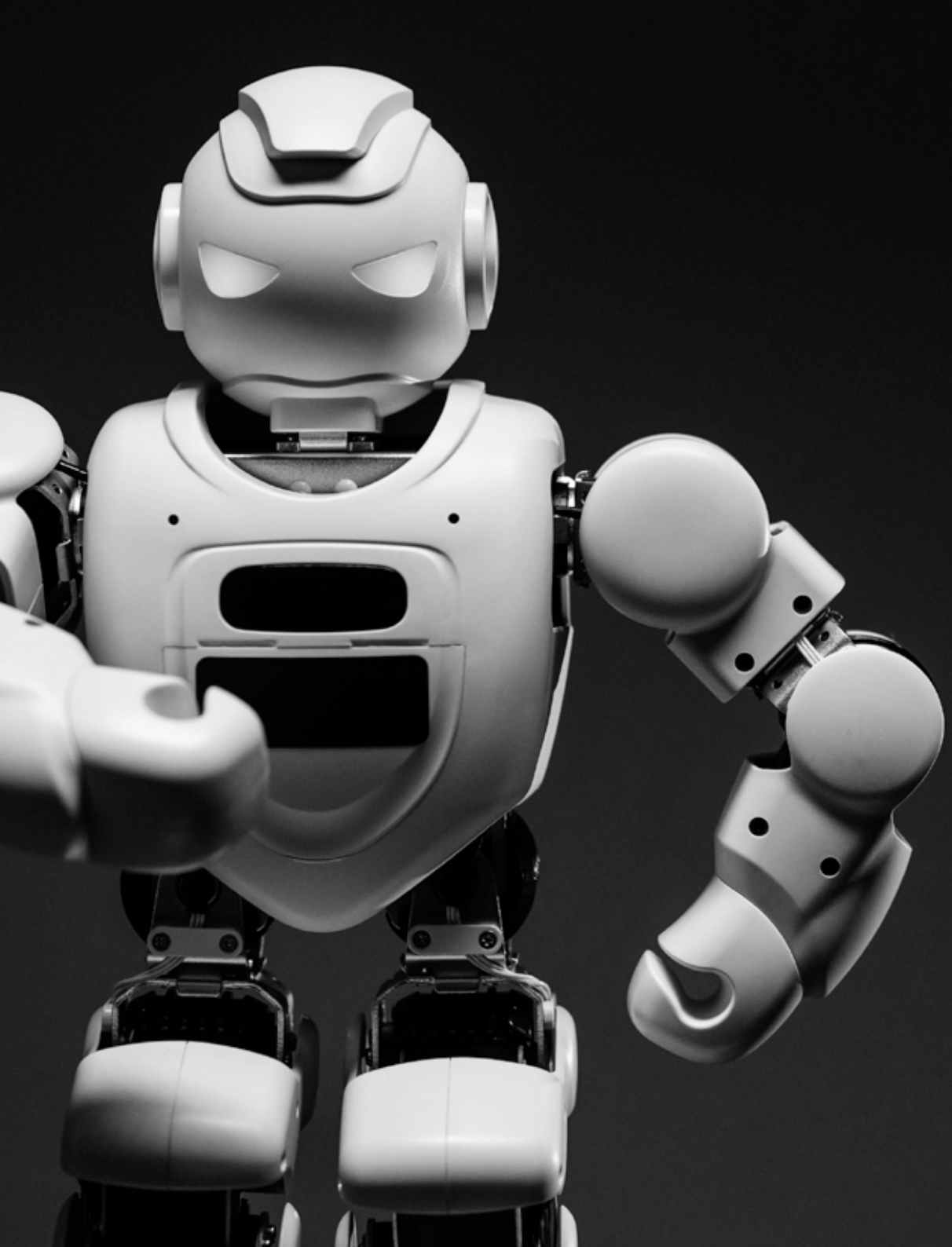


AIFI
ARTIFICIAL INTELLIGENCE
FINANCE INSTITUTE

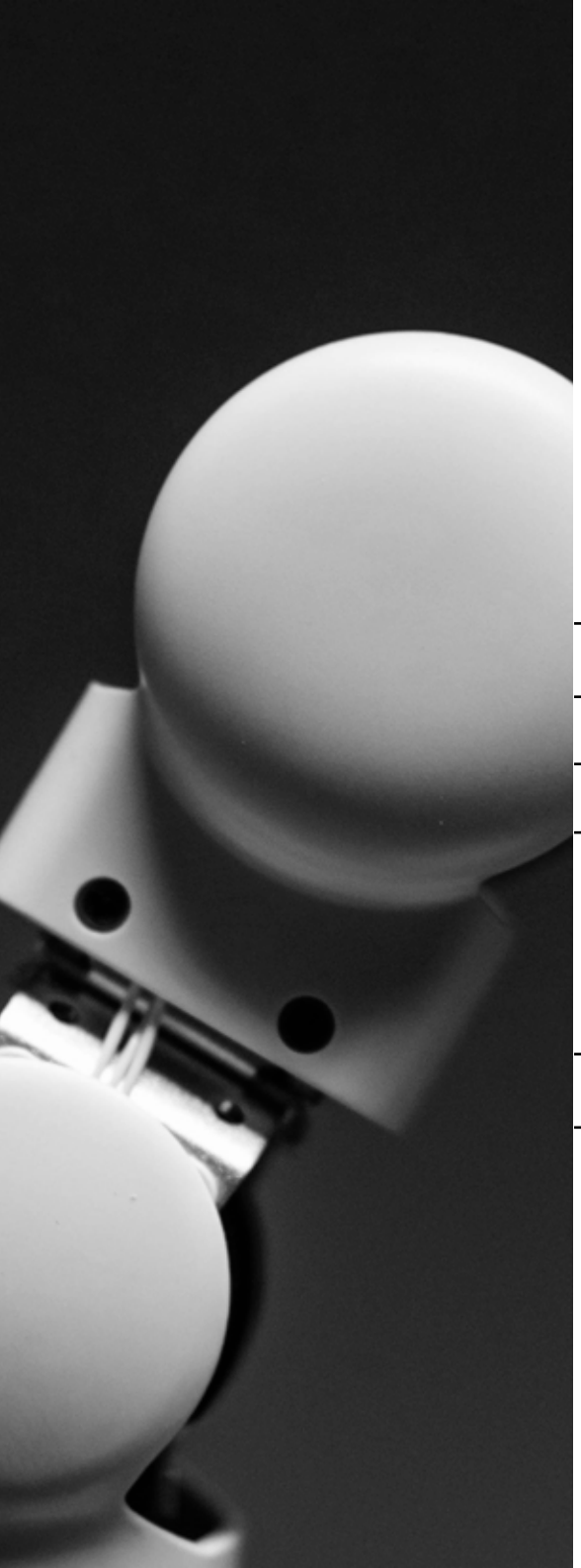
LLMs in Finance Certificate

June 2024

COURSE DESCRIPTION

The integration of Large Language Models (LLMs) into finance is revolutionizing the industry, offering new ways to process information, analyze data, and interact with customers. This course by the Artificial Intelligence Finance Institute delves into the essentials of LLMs, their practical applications in finance, and hands-on implementation techniques. From understanding the architecture of LLMs to deploying them for financial analysis and customer service, participants will learn to harness the power of AI to innovate and improve efficiency in the financial sector. Whether you're a finance professional, a developer, or a student, this course provides the knowledge and skills needed to navigate the future of finance with AI.

This course will guide participants through the essentials of LLMs, including their architecture, operation, and the latest advancements in the field. It will delve into the practical aspects of deploying these models for financial tasks, such as fine-tuning for domain-specific applications, implementing retrieval-augmented generation for enhanced information processing, and evaluating model performance. Through a series of hands-on examples and projects, learners will gain the skills necessary to apply LLMs effectively within the fi- nance sector, addressing real-world challenges and unlocking new opportunities.



COURSE DETAILS

Timeline Starting on Monday 10th June 2024

Duration 20 hours

Format Online Streaming

Instructors Miquel Noguer Alonso
Hanane Dupouy
Nicole Koenigstein
David Pacheco Aznar

Course Fee 2,000 USD

Super Early Bird Discount

- 20% discount Friday 26th April

Early Bird Discount

- 10% discount Friday 24th May

COURSE LECTURES

LECTURE 1 Introduction to LLMs (2 hours)

_ Introduction (30 minutes)

_ LLMs Foundations (1 hour and 30 minutes)
    _ What is an LLM? (Overview, Transformer architecture, Encoder + Decoder Architecture, etc.)

LECTURE 2 Applications and Limitations of LLMs (2 hours)

_ Continuation of LLM Foundations (30 minutes)
    _ Examples of LLMs, Tokenization and Embedding

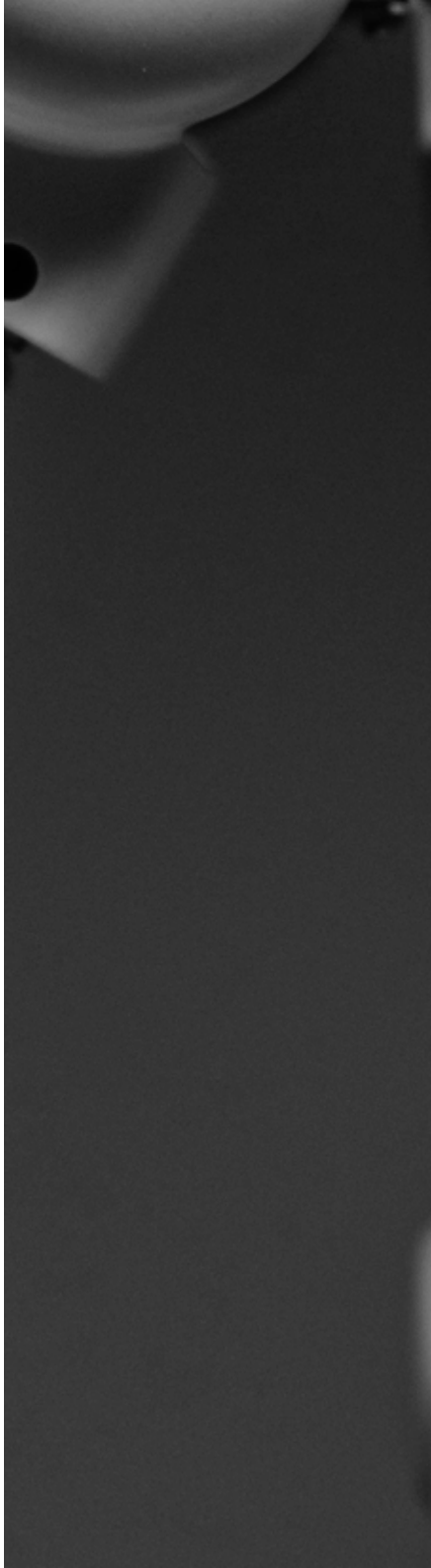
_ Limitations of LLMs (30 minutes)
    - Knowledge Cutoff, Domain Specific Challenges, Solutions

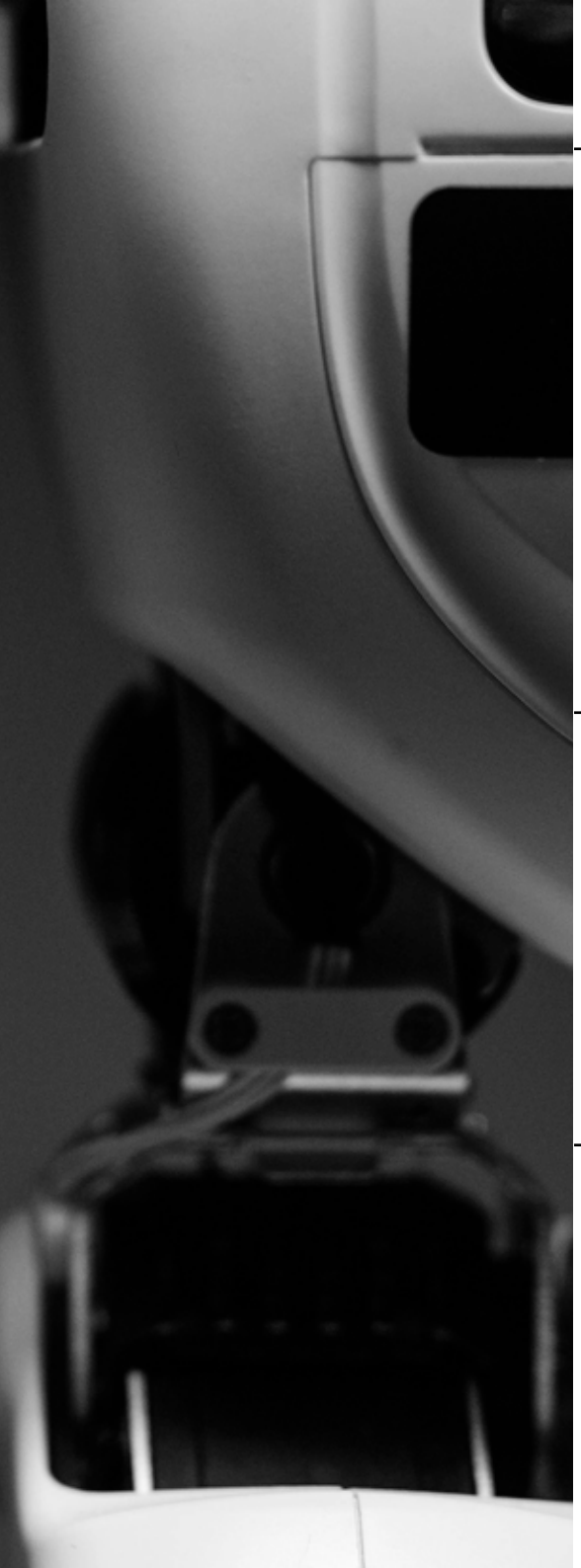
_ Running LLM Locally (1 hour)

LECTURE 3 Advanced Techniques with LLMs (2 hours)

_ Prompt Engineering (1 hour and 30 minutes)
    _ Exploration of techniques such as zero-shot learning, few-shot learning, etc.

_ Fine-Tuning Introduction (30 minutes)
    _ Introduction to Fine-Tuning, PEFT





→ **LECTURE 4** Quantization and Sharding for LLMs (2 hours)

_ Introduction to Quantization (1 hour)
- _ What is Quantization?
- _ Benefits of Quantization in LLMs
- _ Practical Examples of Quantization in Finance

_ Introduction to Sharding (1 hour)
- _ What is Sharding?
- _ How Sharding Optimizes LLM Performance
- _ Implementing Sharding in Financial LLM Applications

→ **LECTURE 5** Fine-Tuning and RAG Introduction (3 hours)

_ Continuation of Fine-Tuning (1 hour)
- _ RLHF, LoRa, QLoRa, Practical Examples
- _ DPO,KTO

_ RAG (Retrieval-Augmented Generation) (2 hour)
- _ RAG Explanation, Why to Use RAG?

→ **LECTURE 6** Deep Dive into RAG and Evaluation (2 hours)

_ Continuation of RAG (1 hour)
- _ RAG Components, Last RAG Advancement Techniques, Practical Examples

_ Evaluation (1 hour)
- _ Introduction to LLM Evaluation, Evaluation Metrics and Methods, Using Trulens

→ LECTURE 7 LLMs Agents, AI Safety and Finance Examples (3 hours)

_ LLM Agents (1 hour)
  _ Introduction to LLM Agents in Finance
  _ Use Cases and Implementation Strategies
  _ Building and Deploying LLM Agents for Financial Services

_ AI Safety (1 hour)
  _ Understanding AI Safety
  _ Tools and Strategies for AI Safety
  _ AI Safety in Finance

_ LLMs in Finance: Practical Examples (1 hour)
  _ Financial Report Parsing, Sentiment Analysis

→ LECTURE 8 Practical Applications and Real World Project (2 hours)

_ Continuation of LLMs in Finance: Practical Examples (1 hour)
  _ Extracting Insights: Trends and Analysis, Trading

_ Real World Project (1 hour)
  _ **Option 1**: Parsing Financial Reports
  Option 2: FullStack Application

→ LECTURE 9 Real World Project (2 hours)

_ Continuation of Real World Project (2 hours)
  _ Completion of chosen project

THE FACULTY

Miquel Noguer Alonso

Co-Founder & Chief Science Officer, Artificial Intelligence Finance Institute – AIFI

Miquel Noguer is a financial markets practitioner with more than 20 years of experience in asset management, he is currently Head of Development at Global AI (Big Data Artificial Intelligence in Finance company) and I+D FinAlpro.

He worked for UBS AG (Switzerland) as Executive Director.for the last 10 years. He worked as a Chief Investment Office and CIO for Andbank from 2000 to 2006.

He is professor of Big Data in Finace at ESADE and Adjunct Professor at Columbia University teaching Asset Allocation, Big Data in Finance and Fintech. He received an MBA and a Degree in business administration and economics in ESADE in 1993. In 2010 he earned a PhD in quantitative finance with a Summa Cum Laude distinction (UNED – Madrid Spain).

Hanane Dupouy

Hanane Dupouy is an algorithmic trader in a french bank based in Paris.

She has a rich and multifaceted career spanning over 13 years in investment banking, where she has held various roles of increasing responsibility. She progressed through positions such as data scientist, business Intelligence analyst, and eventually assumed roles as an algorithmic trader director, showcasing a deep understanding of equity derivatives and trading strategies.

Hanane Dupouy is a dynamic and innovative professional with a deep passion for artificial intelligence, specializing in Generative AI and Large Language Models. With a solid foundation in engineering from prestigious French institutions, including Arts et Métiers ParisTech, TelecomParisTech and a specialized postgraduate degree in financial techniques from ESSEC Business School, she has carved a niche in the intersection of AI and finance.

THE FACULTY

Nicole Königstein

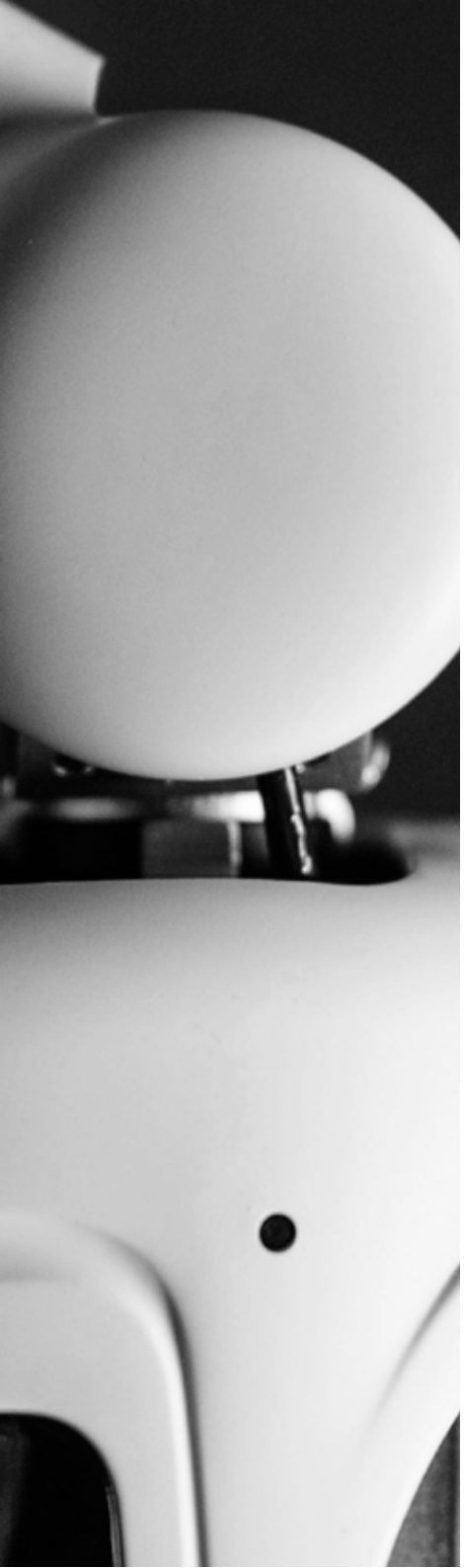
Nicole Königstein is a distinguished Data Scientist and Quantitative Researcher, currently working as Data Science and Technology Lead at impactvise, an ESG analytics company, and as Head of AI and Quantitative Research at Quantmate, an innovative FinTech startup focused on alternative data in predictive modeling. Alongside her roles in these organizations, she serves as an AI consultant across diverse industries, leading workshops and guiding companies from the conceptual stages of AI implementation through to final deployment.

As a guest lecturer, Nicole shares her expertise in Python, machine learning, and deep learning at various universities. She is a regular speaker at renowned AI and Data Science conferences, where she conducts workshops and educational sessions. In addition, she is an influential voice in the data science community, regularly reviewing books in her field and offering her insights and critiques. Nicole is also the author of the well-received online couse, “Math for Machine Learning.

David Pacheco Aznar

David Pacheco Aznar is the Chief of AI Research and Development at RavenRisk AI, where he is developing a custom pipeline for the application of Large Language Models in corporate credit risk in the US market. He is also a faculty member at the AI in Finance Institute, where he has given multiple conferences on Generative Models and Reinforcement Learning, in addition to having published two papers with AIFI on those topics. He also developed a custom deep reinforcement learning architecture for equities portfolio management, which he presented at QuantMinds and other conferences.

Finally, in the academic realm, he was a teaching fellow at Columbia University on Big Data and Recommender Systems. He is the co-author of two upcoming books: “AI in Finance” for Risk Editorial and “Large Language Models” for Springer Nature, and he studied Computational Mathematics and Data Science at the Autonomous University of Barcelona.



REGISTRATION FORM

Starting on **Monday 10th June 2024**

Regular Course Fee

☐ Full Course Fee 2,000 USD

Super Early Bird Discount

☐ 20% discount Friday 26th April

Early Bird Discount

☐ 10% discount Friday 24th May

Discount code

VOLUME DISCOUNT: If 2 or more people from your institution wish to take the course please contact us.

REGISTRATION FORM

DELEGATE DETAILS

NAME
ORGANISATION
JOB TITLE
DEPARTMENT
ADDRESS
ZIPCODE
TELEPHONE
E-MAIL
NATIONALITY
DATE
SIGNATURE

To register, please scan and email the completed booking form to:

E-mail: info@aifinanceinstitute.com

Register Online:

www.aifinanceinstitute.com/register-online

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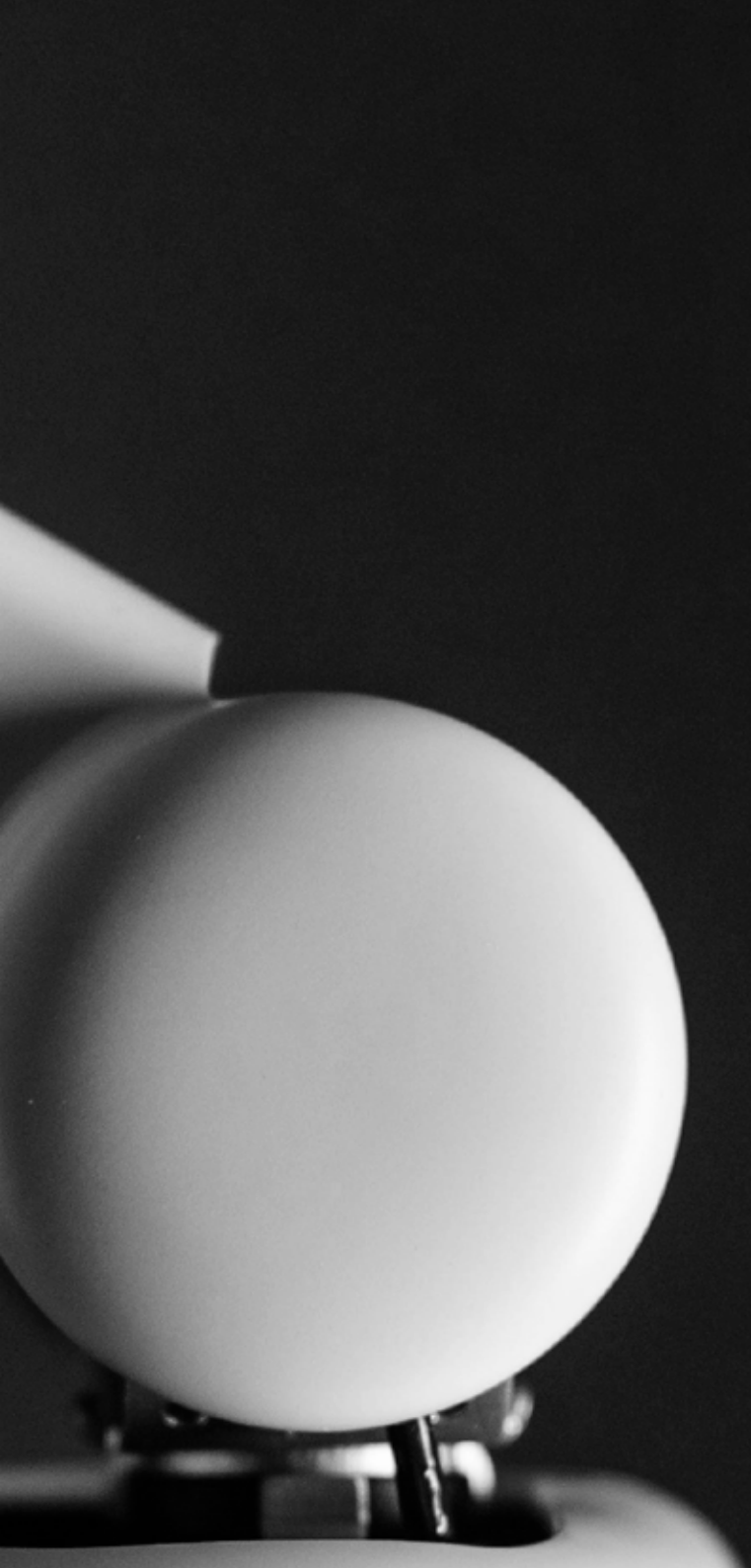

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