






ALI HAMZA

Generative Artificial Intelligence Specialist

CONTACT

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TECHNICAL SKILLS

- **Machine Learning Models:** Proficient in developing and fine-tuning diverse ML models, including generative and discriminative models for computer vision and natural language processing.
- **Programming and Scripting:** Experienced in developing applications using Python for ML and C++ for system-level programming, with a focus on optimizing performance and scalability.
- **Data Science and Analytics:** Skilled in predictive analytics and data segmentation, employing statistical techniques to interpret data trends and enhance decision-making accuracy.
- **Cloud Computing and IoT Integration:** Hands-on experience with AWS IoT and cloud solutions for real-time data processing and scalable AI deployment.

KEY PROJECTS

- **AI Applications Showcasing:** Developed and demonstrated a series of AI-powered applications, available on YouTube, to illustrate the capabilities of generative models in real-world scenarios, including advanced computer vision and automation solutions.
- **Custom GPT Model Development:** Engineered a Generative Pre-trained Transformer (GPT) model from the ground up, underscoring deep technical expertise in natural language processing and domain-specific model tuning.

EDUCATION


University of the Basque Country (UPV/EHU)

Ph.D. in Generative Artificial Intelligence

 2023 – Expected 2026


University of the Basque Country (UPV/EHU)

Master's Degree in Artificial Intelligence

 2020 – 2021

University of the Basque Country (UPV/EHU)

Bachelor's Degree in Computer Engineering

 2016 – 2020

SUMMARY

I am a strategic and solutions-oriented Artificial Intelligence Specialist with an extensive background in machine learning and generative AI, currently advancing my expertise as a Ph.D. candidate in Generative Artificial Intelligence. With a blend of academic research and hands-on industry experience, I have successfully designed and implemented sophisticated AI models, including custom GPT frameworks, GANs, and Autoencoders. My work is characterized by a focus on data-driven decision-making, predictive analytics, and scalable cloud-based deployment, creating impactful solutions across various industry sectors.

My proficiency spans Python, C++, and advanced machine learning libraries such as TensorFlow and PyTorch, enabling me to develop high-impact applications in fields like computer vision, IoT integration, and industrial automation. In my recent research, I am exploring multimodal AI systems and transformer-based architectures, pushing the boundaries of what AI can accomplish in real-world applications. Passionate about innovation and committed to advancing AI technologies, I am eager to contribute meaningful insights and cutting-edge solutions to organizations at the forefront of AI development.

CORE COMPETENCIES

- **Programming & Scripting:** Skilled in Python, C++, and SQL for AI and ML development, with experience in Qt for application performance optimization.
- **Machine Learning & AI Frameworks:** Proficient in TensorFlow, PyTorch, and Keras for training and deploying models, including transformers, GANs, and autoencoders.
- **Generative & Predictive Modeling:** Expertise in generative models like GANs and custom GPT, with strong capabilities in predictive analytics and data segmentation.
- **Cloud Computing & IoT:** Experience with AWS services (Lambda, CDK, API Gateway) for scalable cloud deployment and IoT integration for real-time data processing.
- **Data Science & Analysis:** Skilled in statistical analysis and time-series forecasting, providing actionable insights for data-driven decisions.
- **Computer Vision:** Developed image and video processing applications using OpenCV for industrial automation and quality control.

PROFESSIONAL EXPERIENCE

IKERLAN

Ph.D. Student in Generative Multimodal Artificial Intelligence

 Oct 2023 – Present

 Mondragón, Basque Country, Spain

- Conducting pioneering research focused on multimodal AI integration and the optimization of Large Language Models (LLMs). Exploring Parameter-Efficient Fine-Tuning (PEFT) to enhance resource efficiency, as well as Diffusion Models to facilitate innovative approaches in data synthesis and representation across diverse domains.
- Leading projects utilizing transformer-based architectures such as LLaMA, with a focus on improving model accuracy and reducing computational costs. These initiatives aim to push the boundaries of multimodal AI, applying techniques that enable the model to understand and process text, visual, and structured data simultaneously.
- Regularly collaborating with AI researchers and industry experts to stay at the forefront of generative AI advancements. Actively publishing research findings and presenting novel methodologies that contribute to the evolving landscape of generative and multimodal AI applications.

RESEARCHER

 Mar 2022 – Present


 Mondragón, Basque Country, Spain

- Designed and deployed sophisticated cloud-based AI applications on AWS leveraging Lambda, CDK, and API Gateway, achieving a scalable infrastructure capable of handling extensive data processing and analytics for industrial clients.
- Led the creation of computer vision solutions for automated quality control, employing deep learning models such as YOLO and Autoencoders to perform accurate object detection, classification, and segmentation. These applications improved defect detection rates by 35% and decreased manual inspection requirements.
- Pioneered IoT-integrated predictive maintenance systems, combining machine learning and IoT data streams to identify potential system failures in advance. This proactive approach significantly reduced downtime, lowered maintenance costs by 25%, and enhanced the reliability of industrial operations.
- Developed comprehensive, full-stack solutions that bridged the gap between AI-driven backend analytics and user-facing frontend systems, ensuring seamless user interactions with complex ML models through intuitive interfaces.

PUBLICATIONS

- Research Paper in Generative AI: Published in a peer-reviewed journal, focusing on innovations in multimodal generative AI, with findings contributing valuable knowledge to the field of machine learning.

LORTEK Researcher

 Jun 2021 – Feb 2022

 Mondragón, Basque Country, Spain

- Developed advanced custom machine learning models tailored for industrial applications, particularly in predictive analytics and quality control for manufacturing. Leveraged Keras and PyTorch to implement algorithms such as GANs, Autoencoders, and data segmentation techniques, enabling effective data interpretation and classification.
- Enhanced predictive accuracy and efficiency in process optimization through time-series analysis, creating forecasting models that facilitated maintenance planning and resource allocation, contributing to a 20% improvement in operational efficiency.
- Played a crucial role in digital transformation initiatives, working cross-functionally to identify key areas where AI and machine learning could optimize production. This effort resulted in an improved manufacturing workflow and minimized production bottlenecks.
- Conducted data preprocessing and analysis, ensuring model reliability and adaptability in real-time scenarios. This groundwork enhanced data quality and model interpretability, ultimately supporting more informed decision-making.

MACARBOX Software Developer

 Sep 2020 – Mar 2021

 Guipúzcoa, Basque Country, Spain

- Designed and implemented a high-performance industrial digital printing system, incorporating C++, Qt, and OpenCV for image processing and real-time data analysis, which contributed to a 30% improvement in operational throughput.
- Integrated SQL databases and multithreading to support extensive data management capabilities, allowing for real-time analytics and feedback mechanisms, which improved workflow automation and significantly enhanced system responsiveness and stability.
- Collaborated with engineering teams to refine user interfaces and optimize backend functionality, ensuring a smooth and user-friendly experience. The upgraded system reduced training time for new operators and minimized human error by 15%.
- Actively engaged in system optimization, identifying and resolving potential performance issues, thereby extending the system's lifespan and reliability under high operational demand.

SEPROTEC / OFILINGUA SL Language Interpreter

 Apr 2016 – Oct 2019

 Guipúzcoa, Basque Country, Spain

- Delivered accurate interpretation across high-stakes environments, including medical, legal, and governmental settings, ensuring critical information was conveyed with precision and cultural sensitivity.
- Built strong rapport with clients, enabling effective and respectful communication across linguistic and cultural barriers, and establishing a reputation for reliability and professionalism in challenging situations.
- Developed a deep understanding of specialized terminology and protocol, quickly adapting to different fields and scenarios, which facilitated clear and effective communication in time-sensitive contexts.