

Contactar

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Aptitudes principales

Liderazgo de proyectos

GDSFactory

Tidy3D

Languages

Castellano (Native or Bilingual)

Inglés (Full Professional)

Polaco (Professional Working)

Alemán (Elementary)

Certifications

Certificate in Advanced English
(C.A.E.)

Goethe-Zertifikat A2

Welcome to Game Theory

6.00.1x: Introduction to Computer
Science and Programming Using
Python

Aitor López Hernández

PIC Layout and Photonic Engineer | PhD in Programmable Photonics

Valencia y alrededores

Extracto

According to ChatGPT, "Ikigai" is a Japanese concept referring to one's "reason for being" or "purpose in life", suggesting that the key to a fulfilling life is to find the intersection between what you love, what you are good at, what the world needs and what you can be paid for. It is said that, when you find your ikigai, you have a sense of purpose and fulfillment in life, and may experience increased longevity, health and happiness.

That sounds great, don't you think?

According to this, finding your ikigai would seem to be a very personal and individual process, and may take time and introspection to discover what true means meaning to our lives. As for myself, now in my thirties and after five years in academia applying for my PhD., I must confess I am not still pretty sure of what matches my ideal of ikigai. However, experience has given me several good insights to start from:

- I love to be surrounded by inspiring people that make me feel part of a team with a lust for success,
- I love to learn something new every day (related to my profession or not; from cooking to slavic languages),
- I love to teach everything I know, sharing my knowledge with anyone whom it may serve,
- ... for a reasonable salary!

All of this without forgetting the most important thing to achieve happiness: a healthy balance between personal and professional life.

Are you aligned with this thinking? If so, please do not hesitate to reach me and help me find my ikigai at aitor.lopez.hernandez@gmail.com.

Thank you so much for your attention!

Experiencia

Axiomatic_AI

7 meses

Project Lead

julio de 2025 - octubre de 2025 (4 meses)

Castelldefels, Cataluña, España

In this position, I led the successful launch of PIC Designer, the company's first photonic integrated circuit (PIC) design product, closely collaborating with AI and software engineering teams (6 people, remote), and defining the product roadmap and strategic objectives alongside business development and management divisions.

Additionally, I coordinated and executed alpha and beta user-testing sessions and prepared technical presentations delivered at international conferences and industry events. I was also responsible for technical reporting to grant administrations.

Photonics Domain Expert

abril de 2025 - octubre de 2025 (7 meses)

Castelldefels, Cataluña, España

At Axiomatic_AI, I developed a comprehensive parametric circuit library of filter architectures using GDSFactory for Cornerstone PDK and SAX, and enabling integration with AI-driven photonic design tools. Also, I developed a circuit layout benchmark to assess performance.

Alcyon Photonics

Photonic Engineer

mayo de 2024 - marzo de 2025 (11 meses)

Madrid, Comunidad de Madrid, España

At Alcyon Photonics, I developed a comprehensive testing pipeline for design layouts, significantly enhancing the efficiency and accuracy of our processes. I actively contributed to circuit tapeouts with three top-10 worldwide foundries, designing subsystems and collaborating on mask layout design to ensure seamless integration and manufacturability. My work involved utilizing industry-leading tools such as OptoCompiler, IPKISS, and Lumerical for advanced photonic circuit design, simulation, and optimization.

Additionally, I represented the company at several industry events, engaging with experts and stakeholders to stay at the forefront of technological advancements and industry trends.

Kenmei Technologies

Innovation Engineer

mayo de 2023 - mayo de 2024 (1 año 1 mes)

Valencia y alrededores

In my initial project at Kenmei, I led the design of a dashboard to monitor radio network metrics concerning energy consumption and savings, while also detecting inconsistencies or malfunctions. Leveraging Looker Studio, I developed the dashboard, with data provided periodically through an Apache Airflow job. To manage the substantial data volumes, I utilized Pyspark, BigQuery, and PostgreSQL.

Additionally, I contributed to a generative AI project involving a bot assistant tasked with retrieving information from internal databases via Microsoft Teams. My responsibilities included enhancing the model's accuracy by programming an internal testing tool, enabling it to handle multiple queries and user stops simultaneously through multiprocessing, and refining its performance via prompt engineering and the creation of auxiliary agents to ensure clarity when querying databases.

After that, I simulated a setup to localize objects within a standalone 5G network by merging signaling traces with prior fingerprinting measurements. This involved utilizing the Eclipse Mosquitto MQTT library for handling both data sources, and Pandas for merging them effectively.

Lastly, I helped out developing a geolocation algorithm using mobile networks' signalling traces and propagation models through PostGIS.

Universitat Politècnica de València (UPV)

PHD Researcher

enero de 2018 - abril de 2023 (5 años 4 meses)

Valencia/València, Comunidad Valenciana / Comunitat Valenciana, España

Member of 'Photonics Research Labs' research group (PRL), within the Institute of Telecommunications and Multimedia Applications (ITEAM) at the Polytechnic University of Valencia (UPV). During that time, I obtained a PhD in Telecommunication Engineering.

My initial research focused on the automated synthesis of optical filters on integrated photonic waveguide meshes using mixture density networks. The findings of this investigation were published in my Master's Thesis at the Polytechnic University of Madrid (UPM) in 2019. During this phase, I gained lab expertise in optical set-ups with horizontal and vertical alignment.

Subsequently, we explored first-order optimization techniques such as single gradient descent (SGD), SGD with momentum, RMSprop, ADAM, etc., to address this challenge. This methodology was presented at the Conference of Lasers and Electro Optics in 2020 and further elaborated in a Nature Communications article published the same year. Additionally, I contributed to the layout design of the first prototype of a general-purpose photonic processor using Synopsis Optodesigner and simulated its optical components using Proton Design. This design laid the foundation for today's first commercial product, offering a wide range of microwave photonic applications, as outlined in a second Nature Communications article in 2024.

During this period, we also devised an alternative method for programming photonic circuits on waveguide meshes based on graph theory with bidirectional search. This approach was initially proposed in an Optics Express article (2020) and later extended to include the simulation of these structures in a subsequent article in the Journal of Lightwave Technology (2022).

In the final stage of my thesis, I contributed to the design of automated software routines for rapid checks on the status of optical components in these devices. Results were presented at the IEEE Photonics Conference in 2022 and during my thesis dissertation in 2023.

Universidad Europea de Valencia

Professor

septiembre de 2022 - diciembre de 2022 (4 meses)

Valencia/València, Comunidad Valenciana / Comunitat Valenciana, España

As a professor at the university during a teaching semester, I assumed the sole responsibility for instructing a laboratory course attended by 25 second-year Physics students. This course encompassed experiments spanning mechanics, thermodynamics, and optics.

Throughout the semester, my role involved guiding students through practical measurements in the laboratory, overseeing data collection, and assisting them in translating their findings into comprehensive written reports.

Additionally, students were tasked with selecting and presenting one of the experiments they conducted to their peers, who actively participated in a peer-review process. To evaluate their comprehension and mastery of the subject matter, students were required to successfully pass a final examination. Throughout the semester, I provided mentorship, support, and feedback, resulting in highly positive critiques from the students.

Universidad Politécnica de Madrid

Intern

octubre de 2015 - mayo de 2016 (8 meses)

Madrid y alrededores, España

Collaboration scholarship in the Department of Signals, Systems and Radiocommunication (SSR), within Data Processing and Simulation Group (GPDS).

During that time, I was in charge of piloting an unmanned aerial vehicle (DJI Phantom drone) through software written on C++ to make it land on specified landmarks recognizable through OpenCV library.

Telefónica

Intern

septiembre de 2014 - agosto de 2015 (1 año)

Madrid y alrededores, España

During my one-year internship at Telefonica gCTO in Distrito Telefonica, I was responsible for analyzing throughput and power consumption data of mobile devices from various countries, categorized by model. I conducted ANOVA tests to extract significant insights from the data. Additionally, I facilitated meetings with mobile vendors twice a year to gather updates, which I subsequently summarized in reports.

Furthermore, I conducted experiments in the laboratory to evaluate device performance and categorize them by vendor, involving measurements of signaling and throughput traces as well as power consumption analysis.

Educación

Universitat Politècnica de València (UPV)

Doctorado, Ingeniería de telecomunicaciones · (septiembre de 2019 - julio de 2023)

Universidad Politécnica de Madrid
Master's degree, Master Universitario en Ingeniería de
Telecomunicación · (septiembre de 2015 - julio de 2019)

Universidad Politécnica de Madrid
Engineer's degree, Grado en Ingeniería de Tecnologías y Servicios de
Telecomunicación, Grado en Ingeniería de Tecnologías y Servicios de
Telecomunicación · (septiembre de 2010 - junio de 2015)

Universidad Nacional de Educación a Distancia - U.N.E.D.
Grado, Física · (2014)