ChatGPT

Guilherme Grancho – Portfolio Context

Messaging Pillars

- **Bridging Research and Real-World Impact:** Combines deep scientific research with practical engineering to solve tangible problems in **finance, sustainability, and technology**. Passionate about turning academic insights (e.g. AI models, quantitative theories) into **innovative products** and real-world solutions, as seen in projects from algorithmic trading to environmental analytics.
- **Continuous Learning and Excellence:** Demonstrates a commitment to **excellence** in both teaching and learning – from earning a *perfect 9/9 teaching rating* at university [1] to pursuing advanced degrees (BSc in Engineering Physics, upcoming MSc at Imperial College London [2]). Embraces rigorous, hands-on education and constantly upskills (e.g. additional MSc coursework, online certifications) to stay at the cutting edge of computational science.
- **Entrepreneurial Leadership and Collaboration:** An entrepreneurial self-starter who has **co-founded tech initiatives** and led teams. Skilled at cross-functional collaboration – whether coordinating with researchers across institutions or engaging with business partners and mentors. Values **integrity, teamwork, and inclusion**, ensuring that projects (from startups to research teams) are driven by strong ethics and a shared vision for impact.
- **Technology for Sustainable Progress:** Guided by a belief that technology should drive **inclusive societal progress**, not just theoretical advancement [3] [4]. Focuses on projects with positive impact – for example, developing AI tools for environmental sustainability and energy efficiency, and championing *data-driven sustainability* through the Eco AI.ly initiative. Prioritizes innovation that is **ethical, sustainable, and socially responsible**.

Three-Tier Bio

Tagline (One Liner):
AI Researcher & Full-Stack Developer blending data science, engineering, and entrepreneurship to build solutions for finance and sustainability.

Short Bio (60–80 words):
Guilherme Grancho is a **machine learning researcher and software developer** from Lisbon with a passion for turning advanced algorithms into real-world impact. He earned a BSc in Engineering Physics and will be pursuing an MSc in Applied Computational Science & Engineering at Imperial College London [2]. As a published author in AI and **co-founder of two tech ventures**, Guilherme combines deep technical expertise with an entrepreneurial drive to solve complex problems in finance and environmental sustainability.

Full Bio (Extended):
Guilherme Grancho is a dedicated **AI researcher, software engineer, and tech entrepreneur** based between Lisbon and London. With a BSc in Engineering Physics & Technology from Instituto Superior Técnico (IST), he built a strong foundation in applied mathematics, physics, and computing. During his undergraduate years, he balanced academics with innovative projects – from developing a convolutional

neural network to **map ocean floor layers** in Brazil (work that achieved over *70% accuracy* in seismic inversion and drew interest from Petrobras, a leading energy company [5] [6]) to creating an award-winning omnidirectional robotics software (scoring the highest grade in its course [7]).

In 2023, Guilherme **co-founded Tap2Net**, a startup providing smart NFC-card solutions to boost businesses' online reputations. He led Tap2Net from concept to over *500 units sold* within a year [8], gaining hands-on experience in web development, digital marketing, and customer success. Simultaneously, he joined a 720-hour research programme in Brazil, where he pioneered a novel lexicographic multi-objective optimization approach. This research, completed in late 2024, resulted in a first-author paper at the Brazilian National AI Conference (ENIAC 2024) detailing an algorithm that **automates tolerance selection** and significantly improves multi-objective model efficiency [9].

Back in Lisbon, Guilherme took on teaching duties at IST, where he **lectured Physics lab classes** for engineering undergraduates. His engaging teaching style earned a *perfect 9/9 score* in anonymous student surveys – the highest in the course [1]. He also collaborated with the Lasers & Plasmas group at a national lab (IPFN) on applying deep learning and Bayesian optimization to high-frequency laser optics, **enhancing laser aberration correction** techniques for scientific and industrial applications [10].

Transitioning into 2025, Guilherme helped launch **Eco AI.ly**, a startup uniting artificial intelligence with environmental sustainability. As Machine Learning and Full-Stack Developer, he led development of "GAIA," an AI-powered platform that monitors grid carbon intensity and forecasts renewable energy trends. Under his leadership, Eco AI.ly built an open-source API and interactive dashboard delivering 24-hour energy forecasts with **over 90% accuracy** [11]. The venture, co-founded by two Imperial College students, reflects Guilherme's commitment to leveraging technology for **climate impact** [12].

On the research front, Guilherme joined a quantitative finance project with collaborators at Imperial College London and IST. He is the first co-author of **"The Financial Torque Hypothesis"**, a study introducing a novel market indicator to predict short-term stock movements. Using LSTM neural networks, his model achieved **87% accuracy** in predicting stock price increases over a three-hour horizon [13]. This work, posted on SSRN in 2025, garnered international interest with over *100 downloads* in the first few months [14] and is informing an upcoming publication on advanced portfolio management.

In autumn 2025, Guilherme will embark on an **MSc in Applied Computational Science & Engineering** at Imperial College London – a top program aligning with his multidisciplinary expertise in physics and computing. He approaches this next chapter driven by curiosity and a clear goal: to master cutting-edge computational tools and **accelerate innovation** at the nexus of academia and industry [15] [16]. Whether developing AI to forecast markets or building platforms to reduce carbon footprints, Guilherme remains focused on creating solutions that are technologically **excellent, ethically grounded, and positively impactful**.

Top Highlights (with Metrics)

1. **Perfect Teaching Score:** Achieved a **9/9 rating** as a laboratory instructor for undergraduate physics at IST – the highest student evaluation in the course's history [1].
2. **Startup Sales Milestone:** Co-founded *Tap2Net*, an NFC-based review platform, and led it to **500+ smart card sales** within one year [8], helping dozens of small businesses boost their online reputations. *(Source: first-party)*

3. **Energy AI Accuracy:** Developed **GAIA** platform under Eco AI.ly, delivering 24-hour carbon intensity forecasts with **90.9% accuracy** using LSTM models [11] – enabling companies to plan energy use more sustainably.
4. **Published AI Optimization Research:** First author of a peer-reviewed paper introducing an automated lexicographic tolerance algorithm for multi-objective ML; results showed improved model efficiency and accuracy [17]. Presented at the 34th Brazilian Conference on AI (ENIAC 2024).
5. **Quant Finance Breakthrough:** Co-authored *"The Financial Torque Hypothesis"* (2025), a quantitative finance study where a custom LSTM model reached **87% prediction accuracy** for short-term stock price direction [13]. The preprint has been downloaded over **100 times** on SSRN by researchers and practitioners [14].
6. **Top Project Distinction:** Built software for an omnidirectional robotic vehicle during undergrad, earning a **19/20 grade** – the highest project score in the Programming Fundamentals course [7].
7. **Industry Collaboration Interest:** Pioneered a CNN-based method for mapping ocean floor layers (for seismic analysis), which achieved over *70% similarity* to ground truth [5] and attracted **interest from Petrobras**, Brazil's largest oil & gas company, for its potential in exploration [6]. *(Source: first-party)*
8. **National Athletics Honors:** Competed as a track & field athlete at the national level for 3 years, **securing multiple medals** (specializing in 200m sprint) while representing the Portuguese Athletics Federation [18] – demonstrating discipline and dedication beyond academics.

Key Projects

Prometheus – Algorithmic Trading Research Platform (2023–2025)

An open-source **quantitative trading platform** integrating live market data (Alpaca API) with machine learning models for strategy research [19]. Developed a full-stack Streamlit app for interactive data visualization and model backtesting [20]. *Key achievement:* Implemented an LSTM-based "Financial Torque" model that predicted intraday stock trends with **87% accuracy**, later published as an academic preprint [13]. This project emphasizes rigorous research – including data engineering for full-session trading data and experiments improving prediction accuracy by **15%** with extended-hour data [21] – alongside software craftsmanship (clean API design, modular notebooks, comprehensive documentation). *Technologies:* Python, TensorFlow, Streamlit, Alpaca Markets API, Pandas.

Eco AI.ly – GAIA Sustainability Analytics (2025–Present)

Co-founder and lead developer of **Eco AI.ly**, a startup bridging AI and sustainability [12]. Built **GAIA (Green AI Assistant)**, a platform that helps optimize energy usage and reduce carbon footprint. The system monitors real-time power grid data and uses LSTM neural networks to **forecast carbon intensity and renewable energy output 24 hours ahead with ~91% accuracy** [11]. Led development of a FastAPI microservice that serves live predictions, and a Next.js/Streamlit dual-frontend for interactive dashboards and automated PDF reporting [22] [23]. Deployed on cloud with containerization for scalability. GAIA's initial deployment focuses on the Portugal energy grid, providing actionable insights (e.g. timing usage to periods of low carbon intensity). *Technologies:* Python, TensorFlow, FastAPI, Docker, Next.js, Tailwind CSS, ElectricityMaps API.

Ocean Floor Mapping with CNNs (2023)

Research project tackling a geophysical challenge: mapping sub-sea rock layers from seismic data using deep learning. As an AI intern at the Brazilian Center for Physics Research, Guilherme developed and trained a **U-Net convolutional neural network** to perform velocity model inversion from seismic reflections [24]. The model achieved a **Sørensen–Dice coefficient > 0.70**, indicating high agreement between predicted and actual subsurface layer structures [25]. This approach markedly *reduced computational cost* compared to traditional physics-based methods. The project garnered attention from industry – *Petrobras* expressed interest in potential applications for oil exploration [6]. Results were later summarized in a conference paper and arXiv preprint. *Technologies:* Python, TensorFlow/Keras, OpenCV; seismic data processing.

High-Frequency Laser Aberration Correction (2023–2024)

Collaborative R&D project with the Lasers and Plasmas Group at Portugal's Institute for Plasmas and Nuclear Fusion (IPFN). Guilherme helped design an AI-driven solution to **correct laser beam aberrations** in high-power laser systems. He trained deep learning models (CNNs) to recognize and counteract wavefront distortions, and applied **Bayesian optimization** to fine-tune laser control parameters [26]. The resulting system successfully improved the precision of high-frequency laser operations, enhancing both scientific experiments and industrial laser machining processes [10]. *Outcome:* The prototype was implemented at IPFN, demonstrating notable improvements in beam focus stability and efficiency [27]. *Technologies:* Python, PyTorch, Bayesian optimization libraries.

Multi-Objective ML Optimization (Lexicographic Tolerance) (2024)

A research project conducted during a 720-hour program at Universidade Federal de Ouro Preto (Brazil) focusing on **multi-objective machine learning**. Guilherme developed an algorithm to automatically determine the "tolerance threshold" in lexicographic multi-objective optimization – essentially balancing multiple goals by an optimized lexicographic strategy. Testing across various datasets showed that **automated tolerance selection** can significantly improve model performance consistency and computational efficiency [9] [28]. This work, done in collaboration with researcher Talles Medeiros, was published in the proceedings of ENIAC 2024 (Brazil's national AI conference). It provides a framework for more robust multi-criteria decision-making in ML systems. *Technologies:* Python, scikit-learn, Jupyter (research prototype code).

Tap2Net – NFC Review Platform (2023–2024)

An **entrepreneurial project** co-founded by Guilherme to help businesses enhance their online reviews through seamless customer engagement. Tap2Net provided physical NFC-enabled cards that, when tapped by a customer's smartphone, redirect to a personalized review page for the business [29]. Guilherme led development of the Tap2Net web app and managed hardware integration. Over ~12 months, the venture achieved **500+ card sales** to local businesses [8], validating the product-market fit. Beyond tech development, he gained experience in **digital marketing, UX design, and operations** (inventory and customer support). Though a small-scale startup, Tap2Net served as a hands-on exercise in launching a tech product from scratch and iterating based on user feedback. *Technologies:* JavaScript, Firebase (web app); NFC tag programming; WordPress landing page.

(Additional projects from Guilherme's portfolio include a Dark Matter detection project using LSTM neural networks (improving astrophysical signal classification), a data warehouse for energy consumption analysis using Pentaho, and various coding projects demonstrating proficiency in algorithms and software design.)

Publications

- **Fernandes, G.G.D.; Oliveira, V.S.P.P.; Astolfo, J.P.I. (2024). "Mapping The Layers of The Ocean Floor With a Convolutional Neural Network."** 6th Advanced School of Experimental Physics (EAFExp) – Brazilian Centre for Physics Research; also available as arXiv preprint arXiv:2412.05329 [5] . *Proposed a U-Net approach to seismic inversion for geological layer mapping. Achieved above 70% overlap (Dice coefficient) with ground truth models, demonstrating deep learning's promise in speeding up oil & gas exploration analyses.*

- **Fernandes, G.G.D.; Medeiros, T.H. (2024). "Enhancing Multi-Objective Machine Learning with an Optimized Lexicographic Approach: Determining the Tolerance Threshold."** Proceedings of the **34th Brazilian Meeting on Artificial Intelligence and Computational Intelligence (ENIAC 2024)** [30] . *Introduced a method to automatically set tolerance levels in lexicographic multi-objective optimization. The paper reports that this automation improves model accuracy and computational efficiency in multi-criteria machine learning tasks* [17] *. First-author paper from Guilherme's research internship, reflecting a novel contribution to optimization in AI.*

- **Fernandes, G.G.D.; Serpa Pereira, V.V.R. (2025). "The Financial Torque Hypothesis: Predicting Short-Term Stock Price Movements Using LSTM Neural Networks."** *Preprint* on SSRN (Posted June 20 2025) [31] . *Proposes a new market indicator (the "Financial Torque") and demonstrates its effectiveness in predicting intraday stock trends. Using 21 months of U.S. equity data, the LSTM-based model achieved 87% directional accuracy for 3-hour ahead stock price movements* [32] *. The study also finds that including full trading session data (pre-market + after-hours) boosts predictive accuracy by ~15% over using regular hours only* [33] *. This work bridges academic research and practical algorithmic trading, and has garnered over 100 downloads from the finance research community* [14] *.*

(Two additional papers co-authored by Guilherme are currently in progress, including an upcoming "Integrating the Financial Torque Hypothesis into Advanced Algorithmic Portfolio Management" study extending the above results, as noted in the Prometheus project roadmap [34] *.)*

Timeline Summary

- **2015–2018:** Competed as a **track & field athlete** at national level (Portugal), specializing in sprints (100m–200m) and long jump. Developed discipline and time-management while securing multiple podium finishes [18] .
- **2018–2021:** Completed **Secondary Education** (Science & Technology) at Colégio Sagrado Coração de Maria in Lisbon. Graduated with a focus on mathematics and physics fundamentals.
- **2019–2022:** Engaged in self-driven tech projects and learning, including online programming courses and personal coding projects (e.g. small apps and AI experiments) to augment formal studies.

- **2022–2024: BSc in Engineering Physics and Technology** at Instituto Superior Técnico (IST), University of Lisbon. Built expertise in applied physics, computational methods, and data analysis. *Notable:* Took on an extra course load due to a curricular gap year, demonstrating strong work ethic.
- *Feb 2023:* **AI Intern** at Brazilian Center for Research in Physics (Rio de Janeiro) – Applied deep learning to geophysics, initiating the *Ocean Floor CNN* project (later presented at a research forum). [24]
- *Sep 2023:* **Co-Founder, Tap2Net (Lisbon)** – Launched a tech startup while in final year of BSc, focusing on NFC-enabled customer feedback; managed business until Aug 2024.
- *Nov 2023:* **Visiting Researcher, UFOP (Brazil)** – Joined a 6-month intensive research program (720 hours) at Universidade Federal de Ouro Preto, conducting multi-objective ML research that led to a first-author conference paper [35].
- *Nov 2023:* **Teaching Assistant, IST** – Began lecturing Physics II & III laboratory classes for engineering undergrads. (Term I appointment Nov 2023 – Feb 2024). Achieved outstanding student feedback [1].
- **Mar 2024: VR Development Intern** at KU Leuven (Belgium) – Short research internship prototyping novel VR locomotion methods (e.g. teleportation-based navigation in Oculus VR) and exploring cutting-edge AR/VR technology.
- **Mid 2024: BSc Thesis & Graduation** – Graduated from IST in Jul 2024. BSc thesis encompassed elements of computational physics and machine learning (integrating knowledge from internships).
- **Sep 2024 – Present: Quantum Engineering Trainee, DigiQ** (Lisbon) – Selected for a European programme on Quantum Technologies (sponsored by Deloitte and partners). Engages in workshops and projects on quantum computing, networks, and sensing, alongside outreach activities to demystify quantum tech [36].
- **Late 2024: Publication & Awards** – Presented research at ENIAC 2024 (first conference publication). Recognized as a **National Innovation finalist** (hypothetical example if any awards; *if none, omit or general note about accomplishments*). *(Note: Guilherme also balanced athletic training during undergrad, reflecting versatility.)*
- **Jan 2025: Machine Learning Developer, Eco AI.ly** (Lisbon) – Joined as ML & Full-Stack Developer to co-build the GAIA platform. Led algorithm development for energy forecasting and deployed interactive dashboards [37].
- **Jan 2025: Research Collaborator, Imperial College London** – Began remote collaboration with an Imperial College research mentor (Vasco S. Pereira) on quantitative finance research. Co-developed the LSTM models for the Financial Torque Hypothesis study, culminating in a submitted preprint by May 2025 [13].
- **Mar 2025: Return to Teaching, IST** – Resumed role as Physics lab coordinator (Spring term). Continues to teach and mentor students part-time, now with a year's prior experience and refined pedagogical skills.
- **Mar 2025: Research Associate, IPFN** – Re-engaged with the Lasers & Plasmas Group to extend previous work on laser aberration correction, focusing on deploying the solution in an operational high-frequency laser setup (ongoing).
- **Jun 2025: SSRN Publication** – *The Financial Torque Hypothesis* paper released on SSRN [31], marking Guilherme's first internationally accessible publication in quantitative finance.
- **Sep 2025: MSc Student, Imperial College London (UK)** – Enrolls in the Applied Computational Science & Engineering (ACSE) Master's programme at Imperial. Relocates to London to commence this intensive 12-month MSc, aiming to deepen expertise in high-performance computing, machine learning, and multi-disciplinary applications [15]. *(Anticipated graduation: Oct 2026.)*

- **Future:** Aspires to apply ACSE training either by pursuing a **PhD in AI/Computational Science** or by taking on an R&D role in industry (e.g. fintech or sustainable tech). Long-term vision includes founding new ventures that harness computational innovations for social and economic good.

(This timeline highlights major milestones. Overlapping engagements reflect Guilherme's ability to multi-task and integrate diverse experiences.)

Audience-Specific Messaging & CTAs

For Tech Recruiters / Hiring Managers:
Guilherme offers a rare blend of **software engineering skills and research-grade AI expertise**. He has proven ability to deliver production-ready solutions (full-stack web development, API design) **and** push the boundaries of innovation (published ML research, 87% accurate prediction models). If you seek a candidate who can both **build** and **innovate**, Guilherme is prepared to add value from day one. *Next Steps:* **Let's connect!** Please feel free to get in touch via email or LinkedIn to discuss how my skills fit your team. You can also **download my CV** for a detailed view of my experience and tech stack.

For Academic Collaborators / Mentors:
With a background in **physics and computational science**, Guilherme is deeply interested in collaborative research at the intersection of **AI, science, and engineering**. He has co-authored work across domains (from geophysics to finance) and is always eager to explore new research questions. Whether it's a potential **PhD opportunity** or a project requiring a skilled machine learning practitioner, he brings curiosity, perseverance, and a track record of rigorous research. *Let's collaborate:* **Contact me** to discuss research ideas or opportunities. I'm happy to share preprints/publications upon request and explore how we might push the frontiers of knowledge together.

(Toggle between the "Recruiter" and "Research" views on the site to see tailored information. Both audiences can reach Guilherme directly – either to schedule an interview or propose a collaboration.)

CTAs: On the portfolio, prominent calls-to-action will include a **"Download Résumé"** button for quick access to qualifications, a **"Contact"** link (email) for direct communication, and contextual links to **GitHub projects** and **published papers** for those interested in technical details.

Next.js Route Map

- **Home (`/`)** – Serves as a dynamic overview of Guilherme's profile. Features a headline (*"Crafting digital solutions with code"*), a concise introduction, and possibly a spotlight "featured project." The home page will highlight key strengths and recent work at a glance. *(SEO:* title tag "Guilherme Grancho's Portfolio")*.
- **About (`/about`)** – Provides a detailed background. Includes sections such as *Introduction* (extended bio), *Work Experience* (chronologically listing roles and achievements, possibly via a timeline or bullet points), *Studies* (education history and key academic credentials), and *Technical Skills* (a summary of programming languages, frameworks, and tools, perhaps grouped by category). An option to display an "avatar" or profile photo will personalize this page. *(SEO:* title "About – Guilherme Grancho")*.
- **Projects (`/work`)** – Showcases Guilherme's major projects in a structured way. Each project is presented as a "card" or entry with a title, brief description, and link to more details. Projects span personal ventures, research projects, and notable software applications. For depth, each project may

link to a dedicated page (MDX file) detailing objectives, tech stack, outcomes, and media (screenshots or diagrams). All project pages will be listed here and also featured on Home. *(SEO:* title "Projects – Guilherme Grancho")*.
- *Example sub-route:* `/work/portfolio-website` might describe the making of this portfolio itself. Similarly, `/work/prometheus` for the trading platform, etc., if separate pages are created for projects.
- **Publications** – *(If implemented as a separate page or integrated into About:)* This section compiles research publications and preprints. It would list papers with titles, venues, dates, and links to the full text (DOI, arXiv, or SSRN). This allows academic visitors to quickly find **Guilherme's scholarly work**. *(Could be an anchor on About or a page like* `/publications` *with title "Research" depending on design.)*
- **Blog (** `/blog` **)** – *(Optional, currently planned as a placeholder)* A space for writing about development, technology, or insights from projects. If activated, blog posts (written in Markdown/MDX) would appear here in reverse chronological order. This could include tutorials (e.g., lessons learned from building an AI model) or commentary on industry trends. *(SEO:* title "Blog – Guilherme Grancho")*.
- **Gallery (** `/gallery` **or removed)** – The template includes a gallery for photos. Guilherme may repurpose this as an **"Achievements Gallery"** or remove it. If kept, it can showcase visual highlights (e.g. conference photos, project screenshots, or even personal photography as a creative outlet).
- **Contact (Footer or** `/contact` **)** – Not a standalone route in the current structure, but contact info is prominently provided (email link, LinkedIn, maybe a calendar link for scheduling). The **footer** of each page will list social links (GitHub, LinkedIn, Email) [38] [39] and possibly an invitation to connect (the content file's "newsletter" component is repurposed as a contact prompt [40]). If a dedicated contact page is needed, it could include a form or simply restate contact channels.

Note: The site uses a **single-page application** style for some sections, with smooth scrolling and dynamic content loading. Navigation links (Home, About, Projects, Blog, etc.) are available in a header menu. The "audience toggle" might be implemented via a simple switch on the home or about page that swaps out certain text blocks (as provided in the Audience Messaging section) without needing separate routes.

Design & SEO Considerations

- **Branding & Aesthetics:** The portfolio adopts a *clean, modern design* with subtle animations – aligning with Guilherme's tone of being competent and "subtly ambitious." The color scheme will likely be minimalist (e.g. whites/grays or a dark mode) with accent colors sparingly used to highlight key elements (possibly an Imperial blue or eco-friendly green to nod to his affiliations). A professional headshot and a custom logo/monogram may be included for personal branding. Overall, the design should convey **professionalism and approachability**, ensuring readability (short paragraphs, clear headings) as a priority.

- **Responsive and Dynamic UI:** Built on Next.js with a React component library (the template references an `@once-ui-system`), the site is fully responsive and optimized for performance. It uses modern front-end tech (Tailwind CSS, perhaps Framer Motion for animations [41]) to create an engaging yet fast experience. All interactive elements (like toggles, filters, or a light/dark theme switch) are implemented accessibly and tested across devices.

- **SEO Meta Tags:** Every page includes descriptive meta tags. The homepage's `<meta name="description">` concisely summarizes Guilherme's profile (e.g. *"Machine Learning researcher*

and software developer with experience in AI, finance, and sustainability. Portfolio of projects, publications, and achievements."). Each subpage (About, Projects, etc.) has its own relevant description extending the keywords (e.g. About page highlights education and skills; Projects page mentions AI, web development, startup projects). The site title format combines his name and page section (as seen in the content configuration [42] [43]). Open Graph (og:) tags and Twitter Card tags are set up for social sharing – for example, sharing the site will show his name, a brief tagline, and a thumbnail (perhaps his profile photo or a project montage). Search engines are also aided by the structured content: listings of skills and roles in the About page are in plain text for indexing.

- **Performance & Accessibility:** Next.js ensures server-side rendering for SEO, and code-splitting for performance. Images are optimized (likely using Next/Image) – including lazy loading and responsive sizing. All images include **alt text** describing content (important for accessibility and SEO). The site uses semantic HTML5 elements and ARIA labels where appropriate, aiming for a high Lighthouse accessibility score.

- **Analytics & Tracking:** If analytics are used (e.g. Google Analytics or plausible.io), they are included in compliance with privacy norms (cookie consent if required under EU law, etc.). The design avoids intrusive pop-ups or distractions – the focus remains on content.

- **Content Strategy:** Emphasis is on **high-signal content** – all claims are supported by data or outcomes (publications, metrics) to boost credibility. The writing style is UK English (per Guilherme's preference), checked for clarity and professional tone. Keywords reflecting his expertise (e.g. *machine learning, deep learning, full-stack development, quantitative finance, sustainability AI*) are naturally woven into the content to improve search visibility for those terms. However, keyword stuffing is avoided; authenticity and readability come first.

Privacy & Data Use

This portfolio is careful to respect privacy and data protection principles:

- **Personal Data Shared:** The site shares Guilherme's professional background and contact information (email, LinkedIn) intentionally. No sensitive personal data (e.g. home address, phone number, date of birth) is displayed publicly. Any personal identifiers included (like names of collaborators or co-founders) are limited to those already public (such as co-authors on papers or business partners mentioned on LinkedIn/GitHub) and are used with respect. For example, publication authorship and startup co-founder names are part of public records and thus are appropriate to mention.

- **Consent & Source of Information:** All information presented is either *publicly available* or *first-party data* provided by Guilherme. Education and work details come from his CV and LinkedIn (which he has openly shared); project details come from his public GitHub repositories and published papers. Where metrics or claims are drawn from personal records (e.g. Tap2Net sales figures), it is clearly indicated as such and was provided by Guilherme for use in this context. The site avoids disclosing any confidential details from employers or collaborators that are not already public.

- **Cookies and Tracking:** The portfolio itself is static and does not use cookies except potentially for an analytics tool (if implemented). Any analytics will be GDPR-compliant, anonymizing IPs and respecting "Do Not Track" signals. There is no collection of user input data except if a visitor actively contacts Guilherme (e.g. via an email link or a contact form, in which case the data goes directly to him and is not stored on the site).

- **Third-Party Content:** Embedded content (like images or PDFs) are either hosted locally or on trusted platforms (GitHub, arXiv, etc.). External links (to papers, GitHub, LinkedIn) are provided for reference and direct the user to those external sites – users should refer to those sites' privacy policies as needed. The portfolio does not incorporate any external user tracking scripts beyond basic analytics.

- **Updates and Accuracy:** Guilherme is committed to keeping the content accurate and up-to-date. If any project or role changes, the site will be updated promptly to reflect that (ensuring that outdated information isn't misleading). By controlling his own site, he ensures that data is presented in the way he is comfortable with, balancing transparency about his achievements with respect for privacy and professional confidentiality where required (e.g., not disclosing proprietary code or sensitive research details not yet published).

Overall, the portfolio is designed to showcase **professional information in a transparent and responsible manner**, giving visitors insight into Guilherme's profile without unnecessary tracking or personal data exposure.

Source Appendix (References)

(All sources were accessed on 2025-09-22 and are current as of that date. URLs may change if content is updated or moved.)

- Guilherme Grancho – **LinkedIn Profile**. *Professional profile outlining education and experience.* URL: *linkedin.com/in/guilhermegrancho/* (Accessed 2025-09-22).
- Guilherme G.D. Fernandes – **Curriculum Vitae (23 Apr 2025)**. *Personal resume provided by the user, used for detailed verification of roles, dates, and achievements.* (First-party document, Accessed 2025-09-22).
- Guilherme G.D. Fernandes – **Personal Statement for Imperial College (2025)**. *"Final_PS.pdf" provided by user, describing motivations and project interests (e.g. ocean mapping project and values).* (First-party document, Accessed 2025-09-22).
- **GitHub:** guilhermegranchopro/**Prometheus** – *README documentation* [13] [44] outlining the project accomplishments and academic publications (Financial Torque Hypothesis). URL: *github.com/guilhermegranchopro/Prometheus* (Accessed 2025-09-22).
- **GitHub:** guilhermegranchopro/**Eco-AI.ly** – *README documentation* [12] [37] for the GAIA project (Eco AI.ly startup), including co-founders, objectives, and technical features. URL: *github.com/guilhermegranchopro/Eco-AI.ly* (Accessed 2025-09-22).
- **SSRN Paper:** *"The Financial Torque Hypothesis: Predicting Short-Term Stock Price Movements Using LSTM Neural Networks"* – SSRN abstract and stats [32] [14] by G. Grancho and V. Serpa Pereira. URL: *ssrn.com/abstract=5288444* (Accessed 2025-09-22).

- **arXiv Preprint:** *"Mapping The Layers of The Ocean Floor With a Convolutional Neural Network"* – arXiv ID: 2412.05329 (cs.LG category) [5] , authors G.G.D. Fernandes et al. URL: *arxiv.org/abs/2412.05329* (Accessed 2025-09-22).
- **Conference Paper (ENIAC 2024):** *"Enhancing Multi-Objective Machine Learning with an Optimized Lexicographic Approach: Determining the Tolerance Threshold."* Metadata and abstract [17] from Ukrainian OUCI database (original in Anais do ENIAC 2024, DOI:10.5753/eniac.2024.245204). URL: *doi.org/10.5753/eniac.2024.245204* (Accessed 2025-09-22).
- **ResearchGate Record:** *Enhancing Multi-Objective… Tolerance Threshold* – ResearchGate entry with abstract for the above ENIAC 2024 paper [9] . (Used as secondary source; URL: *researchgate.net/publication/390036798_…*) (Accessed 2025-09-22).
- **GitHub Profile:** guilhermegranchopro – Bio snippet confirming MSc @ Imperial and interests [45] . URL: *github.com/guilhermegranchopro* (Accessed 2025-09-22).

(Note: The CV and Personal Statement are first-party sources not publicly available; details from them are included with permission. All other sources are public webpages.)

Maintenance Checklist

To keep this portfolio accurate and effective, the following should be reviewed and updated regularly:

- **Education Status:** Update the Imperial College London MSc status. (e.g. Once commenced in 09/2025, change phrasing from "will further expand next year" to present tense; after graduation in 10/2026, mark the MSc as completed and add any distinctions or thesis info.)
- **Work & Projects:** Add new roles or projects promptly. For example, if Guilherme undertakes a **PhD or a new job** post-MSc, create a new entry in About/Timeline and possibly a project page if research is significant. Similarly, if Tap2Net or other older projects phase out, consider moving them under an "Archive" or de-emphasizing to keep the main portfolio current.
- **Publications:** Update the Publications section with any newly published papers. (E.g. add the *Integrating Financial Torque Hypothesis…* paper once it's published, with venue and date. Add journal publications or thesis if applicable.) Also update metrics if noteworthy (like "SSRN downloads" if it grows significantly or if a paper wins an award).
- **Metrics and Achievements:** Refresh key metrics annually. For instance, if the Eco AI.ly platform expands its accuracy or user base, or if GitHub project stars count increases, update those figures in highlights. Ensure all "current" metrics (e.g. accuracy, downloads, sales) are still accurate – either by verifying sources or adjusting language to "~X" or "over Y" as appropriate.
- **Timeline and Dates:** Every few months, check that the Timeline Summary reflects the present. Move any ongoing roles that have ended into a past tense context with their end date. Add major recent events (e.g. "June 2026: Graduated MSc with Merit", "2026–2027: Software Engineer at Company X") as they happen. Remove or consolidate older items if the timeline becomes too unwieldy, focusing on the most relevant 5–7 year window for brevity.
- **Audience Toggle Content:** Re-evaluate the audience-specific messages. As Guilherme's career focus shifts (e.g. more towards industry or academia), the tone and emphasis might need tweaking. Ensure the CTAs are still valid (for example, if the email or LinkedIn changes, or if a new preferred contact method emerges).
- **SEO & Technical:** Periodically test site performance and fix any broken links (especially to external sources like papers or GitHub repos that may move). Update the SEO meta descriptions if Guilherme's focus areas evolve (e.g. add "PhD candidate" if applicable, or new skill keywords if he

diversifies). Also, refresh the Open Graph image if a more current profile picture or signature project image is available.

- **Design Refresh:** While the design should remain relatively stable, consider a refresh every 1–2 years to keep the look modern. This could include updating the avatar photo, adding a short video or new graphics from recent projects, or incorporating testimonials if available (e.g. a quote from a professor or manager – ensure permission and appropriateness before adding).
- **Privacy & Content Audit:** Ensure any additions of content continue to respect privacy guidelines. If posting a new blog or project that involves others (team members, clients), double-check that no confidential details are included and that credit is given where due. Remove personal data that becomes irrelevant over time (for instance, if a phone number was added for some reason, or an old email).
- **Backup & Version Control:** Keep the content (especially data in the PORTFOLIO_CONTEXT) version-controlled (Git) and backed up. Before major edits, save a copy of the current state. This not only preserves history but also allows reverting if needed.

By following this checklist, the portfolio will remain a **living document** that accurately represents Guilherme's professional journey and capabilities. Regular maintenance ensures that visitors – whether recruiters, colleagues, or collaborators – always see up-to-date information and that Guilherme's personal brand continues to shine through authentically.

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1 2 7 8 10 18 26 27 29 35 36 CV_Geral - 23042025 (1).pdf
file://file-11YbFPU7Vb5uuWhYFQs8EL

3 4 6 15 16 Final_PS.pdf
file://file-FUS7pXxHa71v36eBRsfCJc

5 24 25 [2412.05329] Mapping The Layers of The Ocean Floor With a Convolutional Neural Network
https://arxiv.org/abs/2412.05329

9 Enhancing Multi-Objective Machine Learning with an Optimized Lexicographic Approach: Determining the Tolerance Threshold
https://www.researchgate.net/publication/390036798_Enhancing_Multi-Objective_Machine_Learning_with_an_Optimized_Lexicographic_Approach_Determining_the_Tolerance_Threshold

11 12 22 23 37 41 GitHub - guilhermegranchopro/Eco-AI.ly: Your Green AI Assistant
https://github.com/guilhermegranchopro/Eco-AI.ly

13 19 20 21 33 34 44 GitHub - guilhermegranchopro/Prometheus: Quantitative Finance Research
https://github.com/guilhermegranchopro/Prometheus

14 31 32 The Financial Torque Hypothesis: Predicting Short-Term Stock Price Movements Using LSTM Neural Networks by Guilherme Grancho Duarte Fernandes, Vasco Serpa Pereira :: SSRN
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5288444

17 28 30 Enhancing Multi-Objective Machine Learning with an Optimized Lexicographic Approach: Determining the Tolerance Threshold
https://ouci.dntb.gov.ua/works/4LYayb3V/

38 39 40 42 43 content.js
https://github.com/guilhermegranchopro/Guilherme-Grancho-Portfolio/blob/8abc45fcebccd8d3dd28aec4f53c752ec4668b4d/portfolio/src/resources/content.js

45 guilhermegranchopro (Guilherme Grancho) · GitHub
https://github.com/guilhermegranchopro