Guille Cornejo

AI/ML & Cloud Solutions Consultant

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I offer consulting services for AI/ML & Cloud solutions development; with high ROI and value creation; at low tech cost, admin overheat and contractual obligations

See next sections for more details

Projects examples

- Technical debt repayment
- AI/ML proof-of-concept development
- Data-driven strategy
- Cloud infrastructure development

Working philosophy

- Fees at risk: only pay for successfully delivered work
- Full tech stack for Data Science, AI/ML, Web and Cloud
- Open source and Serverless as preferred design choice
- Concrete deliverables and clear work plan from day 1

Experience

- **Independent Consultant**
  2023 - present
- **Critical Mass** — Senior Data Scientist
  2022 - 2023 — Marketing Sciences
- **Accenture** — Senior Data Scientist
  2021 - 2022 — Marketing Operations
- **McKinsey & Company** — Data Scientist
  2018 - 2021 — Marketing & Sales Practice
- **CNCA - CeNAT** — Researcher
  2016 - 2018 — High Performance Computing
- **PrisLab - UCR** — Research assistant
  2014 - 2016 — Human Motion & Health Care

Education

- **TEC** — Computer Science
  2017 - 2020 — Master (thesis pending)
- **UCR** — Electrical Engineering
  2012 - 2016 — Bachelor

Project examples

Illustrative cases based on real experience

Repaying technical debt for a spending optimization solution

Illustrative project based on real experience

We developed a spending optimization solution for one of our clients. We faced some challenges when trying to scale it up to serve other clients:

- The code was very challenging to maintain and modify. It contained multiple hard-coded values, used programming abstractions sparsely and had no documentation
- The optimization procedure relied on "magic values" hand-picked to work with the data from the initial client only
- There was no established process to update the solution. A colleague had to manually collect new data and re-run the solution, which was labor intensive, time-expensive and wouldn't scale cost-wise

Ndeye
Marketing Director

Solution outline

- Refactored the code, exporting all hard-code values to external configuration files, re-structuring with appropriate abstractions (modules, classes and functions) and adding project and source code documentation
- Devised a suitable hyperparameters tuning methodology to enable the optimization solution to work with other client's data
- Created a templated ETL pipeline that could be instanced programmatically from the configuration files
- Aligned efforts with engineering staff to productionize the output from the optimization solution

My value proposition

- I have ample experience in data science engineering
- My fees are lower compared to annualized compensation for full-time staff
- From a cost-opportunity perspective, it's more effective to allow full-time staff to focus on innovation and new revenue source creation, instead of technical debt repayment

Data-driven strategy for compensation bands adjustment

Illustrative project based on real experience

In the past few years, we've been aggressively expanding across the APAC region, mostly through small acquisitions. To ease the transition for employees coming from the acquisitions, we tried to maintain labor conditions relatively unchanged. But, as a consequence, our compensations are all over the place. This pose a two prone financial risk:

- We could be overpaying to a significant share of our employees. Compounded over time, this could erode our baseline profit
- We could also be underpaying our employees, which poses reputational and talent drain risk, and could lead to very high recruiting cost in the future

We want to fix this issue, but we're concerned that a blinded, not data-driven approach would make things even worse.

Míngzé
HR & Talent VP

Solution outline

- Produced a boosted descriptive model of current compensation, informed by bespoke compensation bands for the industry and controlled by macroeconomic signals and regional market distortions
- This model provided a rational argument for compensation bands adjustment across the organization
- Moreover, it could be leveraged in an individualized level, providing guidance for a fair compensation adjustment overtime, reducing the impact to employees' morale and professional development

My value proposition

- I aim to become a thought partner for colleagues in different business functions, beyond just technical staff
- As I work closely with colleagues within the organization, the know-how remains in-house after the engagement ends. This enables future internal data-driven initiatives, without external support
- My fees are appropriate for modest value-at-stake problems
- Fees for traditional management consultant firms could be prohibitively expensive compared to the value-at-stake

Proof of concept for Machine Learning optimized product credit allocation

Illustrative project based on real experience

We manufacture and distribute personal care products. We usually give our products to the sellers as credit and assume the loss of not sold products. Because of their nature, our products have very long shelf-life. Hence, rather than logistics, our challenge is to appropriately assort point of sales (POS). We use each POS size and type to decide how much credit to allocate. But we have noticed that there is huge variability between POS that seem very similar. This means we're losing possible sales from POS with under-credit and at the same time we're assuming losses from over-allocated credit. This could be fixed very easily and significantly improve our revenue and profit figures, if we could accurately forecast the actual sales for each POS.

Gretel
Sales Director

Solution outline

- Worked alongside sales, finance and IT colleagues to consolidate different data streams into an unified view of the sales-credit process for the whole business
- Created a forecast model for the sales at each POS, leveraging historic data, as well as location, POS characteristics and macroeconomic signals
- Developed an optimization methodology to allocate credit for each POS, considering forecasted performance as well as business constraints and expert provided rules

My value proposition

- I have experience working with colleagues from different business functions to bridge between data silos
- These new in-house capabilities could support future data-driven strategies and closer collaboration between business functions
- My fees are more cost-effective, compared to hiring a permanent Data Science team or specialized consulting firm

Cost reduction by load-balancing a Machine Learning microservice

Illustrative project based on real experience

We productionized a ML microservice a few months ago. It's a very simple Flask app (docker containerized) running on an EC2 VM. At the moment, it seemed like the easiest way to productionize the work coming from our Data Science colleagues. We noticed that demand is sporadic, with very high but unpredictable bursts. We provisioned a huge VM to make sure it always responds, but that means we're paying a lot for a resource that is mostly idle.
One app isn't that much of a problem, but as we grow as data-driven organization, we expect many of such apps to come our way. We would like to have a standardized, best practice architecture that would work for our Data Science colleagues, but also for us, cost-wise and engineering-effort-wise.

Mustafa
Tech Lead

Solution outline

- Worked alongside engineering colleagues to profile the microservice demand (cloudwatch logs)
- Identified a synchronous call as the key bottleneck in current architecture
- Reimplemented the UI/presentation components leveraging a distribution network and low-memory AWS Lambdas
- Reimplemented the ML functionalities as an asynchronous job, leveraging Simple Queue, high-memory Lambda, DynamoDB and S3
- Produced documentation to help guide future app designs and deployments

My value proposition

- I have experience crafting cloud solutions well suited for AI/ML applications
- As I work alongside engineering colleagues within the organization, the knowledge remains in-house after the end of the engagement and could be leveraged for future use cases
- I prioritize designing cost effective cloud solutions, that closely match the ML demand
- My fees are usually lower than software development firms

Working philosophy

In more detail

No risk, just bliss

Fees at risk

- The financial risk is on me
- I only get paid for work delivered successfully
- After receiving the payment, I hand-over the final deliverables for each milestone

Full stack, full support

Data Science, AI/ML full tech stack

- Data lakes and databases
  - SQL
  - Databricks
  - Snowflake
  - GCP BigQuery
  - AWS MongoDB
- AI/ML
  - Python
  - Pandas, Scipy & Numpy
  - SkLearn
  - PyTorch
- Cloud
  - AWS Serverless
  - GCP Vertex AI
  - HTML, CSS, Javascript

First things first: Open source & Serverless

As preferred design choice

- Open source makes for better software, full stop
- It ensures the project will enjoy continuous support and enhancements from the community
- Serverless is simple and cost-effective for most AI/ML applications
- It accelerates development by focusing efforts in the value creation aspects of the project, instead of infrastructure challenges

Clear work plan, crisp results

I'll propose a work plan at the project's kick-off

From the very beginning of the engagement, we agree on

- Business problem and pain-points to solve
- Technical and functional requirements
- Workstreams, milestones and deliverables
- Review and approval for each deliverable

This ensures transparency and accountability; and help us build a trust-based relationship focused on value creation and tangible results

Want to get in touch or know more?

Drop a line anywhere you like

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See a work plan example

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