Francisco Perez-Sorrosal

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"Strive not to be a success, but rather to be of value."

— Albert Einstein

Profile and Objectives

I am a reliable, goal-oriented, and detail-focused professional with extensive experience in research and software engineering across both academic and industry settings, specializing in machine learning, artificial intelligence, and distributed systems. As a Research Engineer, I love exploring and implementing with cutting-edge technologies, particularly in AI/ML, to tackle complex challenges and foster innovation. As a Software Engineer, I can design, develop, and ensure the maintainability of robust and scalable big data applications, whether on-prem or cloud, always prioritizing high availability, scalability, performance, and reliability. I am adaptable, capable of taking initiative and leading efforts with a strategic approach when needed, or collaborating as a communicative, supportive, and empathetic team player to achieve shared goals. I thrive in open, dynamic, and multidisciplinary environments, integrating visionary and practical insights to deliver impactful results while empowering others and fostering collaboration.

Professional Experience

2023-Now

Principal Research Engineer, Knowledge Graph Science @ Yahoo Inc., Sunnyvale

YKG, Dev/Test Dataset Quality Improvement, 2024, Roles: ML/AI Expert

Goal Since many dataset labels were semi-supervised generated for most pairs, I developed an LLM-based solution to validate and enhance the labeling accuracy of the dev and test datasets **Achievement** I implemented a generative Entity Matching solution with Llama 2 to identify and fix (by re-labeling) misclassified examples in the dev/test sets

YKG, Entity Reconciliation Model Training, 2023-2024, Roles: Machine Learning/AI Expert Fine-tuned transformer-based language models (LMs) on heter labeled datasets, integrating editorially curated data with automatically labeled data through entity linking via common identifiers. This approach aimed to deduplicate and reconcile meta-entities related to People and Creative Works.

Goal Improve current production metrics on both categories

Achievements

- I trained and optimized a unified, type-agnostic LM model for entity matching/reconciliation, replacing tens of type-specific production models and simplifying the maintenance of the reconciliation stage in the Knowledge Graph
- Metric improvements:
- 1) Overall increases of 22.23% and 16.11% in precision and recall for Person
- 2) Overall increases of 5% and 4% in precision and recall for Creative Works
- Reduced model size by 33%, lowering the model's storage requirements and improving efficiency without compromising its entity matching accuracy

YKG, Entity Reconciliation Pipeline, 2023, Roles: Machine Learning/AI Expert, MLOps

- Built pipelines for distributed sampling, preprocessing, and transformation of large-scale entity data extracted from various complementary sources that that accurately reflect user search behavior.
- Developed an automated pipeline for training entity reconciliation models for YK, from data curation to inference testing

Goal/Achievements

- We devised a solution to reduce the current number of models maintained in production from $\tilde{3}0$ heterogeneous (heuristic-based, SVMs, Tree-based...) to just 4, which encompass the main 4 meta-entity types in YK
- We expanded entity type coverage to 20 new types of people entities (e.g., directors, producers, composers, writers, politicians, etc.) and 32 new types of creative works (e.g., visual works, theatrical works, critic's reviews, periodicals, poems, etc.)

YKG, Entity Reconciliation Inference, 2023, Roles: MLOps

Goal Designed and architected a PoC solution for cloud-based inference

Achievement I implemented a Ray Serve-based solution to deploy new YK models in the cloud, optimizing for cost efficiency by evaluating CPU and GPU-based approaches

Jun-Dec 2022 Principal Research Engineer, Yahoo Mail, Sunnyvale

Science @ Mail, Kamino Project - mail classification system, Roles: Machine Learning/AI Expert

Goal Upgraded legacy production models to a new generation of deep learning-based, small distilled models optimized for large-scale deployment. These models were designed to classify incoming mail using a newly developed multilabel taxonomy tailored to the mail team's specific use cases

Approach

I developed a deep learning based pipeline with Hugging Face to train/evaluate deep learning models performing knowledge distillation following thDeveloped a deep learning pipeline using Hugging Face to train and evaluate models based on the Teacher/Student knowledge distillation framework. Starting with limited human-labeled training data, a large and complex teacher model was created to achieve high accuracy. This model was then used to generate teacher-labeled data for training lightweight student models optimized for deployment. Two types of student models were produced: (1) online models, optimized for speed and suitable for real-time classification tasks, and (2) offline models, designed to include richer information for improved accuracy in non-real-time applications

Achievements

The resulting student models for an expanded taxonomy, more than doubling the number of deployable categories in the taxonomy while improving performance on existing categories in production by 3.1-5.9%

Apr-Sep 2022 Principal Research Engineer, Digital Transformation Office @ Yahoo, Sunnyvale

AI/ML Working Group, *AI/ML future strategy definition in the cloud*, **Roles**: ML/AI Expert, Strategy

As Yahoo transitioned its infrastructure from on-premises data centers to a fully cloud-based environment, scientists and research engineers required modern tools to streamline their workflows. These tools needed to facilitate dataset and model sharing, ensure reproducibility of experiments, enable rapid experimentation and iteration on new models, and support seamless publishing and deployment into pre-production/production environments

Goal Specifically, the Model Development subgroup was dedicated to establishing the requirements, standards, tools, and frameworks needed to scale ML/DL applications effectively across the company

Achievements

- I led the discussions on the Model Development subgroup, although I participated actively in the remaining three (Data Management, Model Management, and Model Serving)
- We delivered a set of recommendations (prioritized and categorized in topics) and tasks to do (internal processes, external relations, tools, etc.) to guarantee that ML/DL practitioners could work with less friction in the new cloud environments

2021–2022 Principal Research Engineer, Ads @ Yahoo, Sunnyvale

Science @ Ads, Contextual Targeting Solution, Roles: ML/AI Expert, Strategy

In the Ads platform, as we were moving towards a cookie-less world, the ability to track users' online signals for behavioral targeting was be drastically reduced, making contextual targeting an appealing alternative for advertising platforms. Using our experience in hierarchical multilabel classification in other contexts, we helped the Ads team to use it in category-based contextual targeting at Yahoo. We proposed and implemented a multilingual model that can accurately classify web pages into a hierarchical taxonomy (specifically, the Yahoo Interest Categories taxonomy) without crawling their content

Goal Transfer the knowledge and experience in taxonomy-based multi-label classification into Ads team and build a platform for training/evaluating the models

Achievements

- I helped the Ads team to develop a pipeline for training models for the task at hand
- Multilingual taxonomic web page classification for contextual targeting at Yahoo paper. In the 28th ACM SIGKDD Conference, 2022 **7 Citations**

2018–2023 Principal Research Engineer, Science @ Content Platform @ Yahoo Inc., Sunnyvale

Science @ CAP, Deep Learning-based Muiti-label Classification, 2020-2021, Roles: ML/DL Engineer, Research Engineer

Goal Modernize the production models and infrastructure using new deep learning models Achievements

- I developed modern pipeline based on Hugging Face Transformers to train/evaluate multi-label, multi-class and binary classification problems
- I built tool for plugin taxonomies for the multi-label configurations
- I trained new models obtaining significant better metrics over the ones in production (+10% over baseline)
- We developed a serving pipeline based on NVDIA's Triton Server to deploy in production

Science @ CAP, Scalable Few-shot Classification with Parallel Prefix Conditioning, 2021, Roles: ML/DL Engineer, Research Engineer

Goal Modify a transformer architecture (e.g. BERT) to achieve fast and effective few-shot classification by prefixing multiple category labels to the input.

Method Class representations are encoded in parallel but produce independent binary labels for each input through a shared classification output layer.

Achievements

- I conducted experiments on the DBPedia dataset demonstrated improved few-shot performance over standard multi-class classifiers and a speedup over binarized formulations.
- Further analysis showed that the approach could be scaled to a large number of categories and may hold promise for zero-shot learning of unseen categories.

Science @ CAP, Clickbait Classifier based on Transformers, 2019, Roles: ML/DL Engineer, Research Engineer

 $\textbf{Goal} \ \ \text{Improve the current SVM-based model in production using a BERT-based model} \ \ \textbf{Achievements}$

- We proposed an integration strategy for serving the model in production using the existing pipeline
- The F1 metric was improved over 5% over current classifier in production
- PoC of a generative-based clickbait classification approach using Google's T5

Science @ CAP, Hierarchical Transfer Learning for Multi-label Text Classification, 2018, Roles: ML/DL Engineer, Research Engineer

Goal Propose a novel transfer learning based strategy where binary classifiers at lower levels in a hierarchy of classes are initialized using parameters of the parent classifier and subsequently fine-tuned on the child categories for the classification task

Achievement Paper published in ACL 2019

- Hierarchical transfer learning for multi-label text classification. In ACL, 2019 127 Citations

2015–2018 Senior Research Engineer, Content Ingestion Platform (CAP) @ Yahoo Inc., Sunnyvale

CAP, DL-based multi-class Classification for Content Ingestion, 2018, Roles: ML/DL Engineer

- I experimented with LSTM/GRU-based models for multi-class classification using TF/Keras
- We explored transfer learning techniques for multi-label text classification

CAP, Machine Learning Content Classification Pipeline, 2017, **Roles**: ML Engineer I built a pipeline for easy data ingestion, model training and evaluation based on SVMs for the Sieve platform

CAP, ML Pipeline Scalability, 2017, Roles: ML Engineer

We build k8s-make, a tool and a worflow-based framework to harness the compute-power in Yahooś on-prem clusters to deploy a tailor-made Kubernetes cluster to parallelize the training of our SVM-based pipeline in a simple way

2015–2017 Senior Research Engineer, Sieve @ Yahoo Inc., Sunnyvale

Sieve, Twitter Firehose: At scale, ingestion streaming system for Tweets, 2017, Roles: Distributed Systems Expert, Research Engineer

- I reimplemented the new Twitter API (v2.0) in the firehose
- I re-architected previous solution to be more performant yet keeping the backwards compatibility
- I collaborated with the Sports team for the productization of the new firehose

Sieve, Scalable Content Ingestion Platform, 2016, Roles: Distributed Systems Expert, Research Engineer

- I transfered Omid as full open-source project into the Apache Software Foundation (ASF)
- I continued supporting the Omid transaction manager project in production
- Omid presented at Hadoop Summit. 2016, San Jose, CA (USA) Omid, reloaded: scalable and Highly-Available transaction processing paper. In USENIX FAST, 2017 20 Citations

Sieve, $Scalable\ Content\ Ingestion\ Platform,\ 2015,\ {\bf Roles}$: Distributed Systems Expert, Research Engineer

- I worked at the multi-tenant content ingestion platform at Search organization
- I added High Availability to the Omid Transaction Manager for HBase
- We scaled Omid in multi-core architectures
- I supported the Omid transaction manager in the production infrastructure of the content ingestion platform
- I started exploring the transfer of Omid as open-source project to the Apache Software Foundation

2012–2015 Research Engineer, Scalable Computing Group @ Yahoo Labs., Spain

Omid, Transaction Manager for Big Datastores, 2014, **Roles**: Distributed Systems Expert, Research Software Engineer

- I re-architected the original codebase and implementated new features
- I supported the Omid integration in Sieve project (Yahoo's large scale Internet content ingestion platform)
- I presented Omid and its poster at Yahoo's internal technical conference (Techpulse Conf. 2014)

Edentity/Pachiderm, Ubiquitous content access and management of personal data (images, video...) held on 3rd party services (Flickr, GDrive, Dropbox...)., 2014, Roles: Distributed Systems Expert, Research Engineer

- I designed and implementated a scalable synchronization data module
- I defined and implemented a RESTful API for each module defined (User Registration, Search, Content Fetching)

RiddlR, Percolator-like incremental processing system., 2013, **Roles**: Distributed Systems Expert, Research Engineer

- I prototyped the framework and build an multi-stage example application on top of it
- I presented RiddlR and its poster at Yahoo's Techpulse Conf. 2013

CumuloNimbo, 7th European Framework Programme (FP7-257993), 2012–2013, **Roles**: Distributed Systems Expert, Research Engineer

- I designed and implementated of a prototype of an incremental processing system for Big Datastores
- I added durability guarantees to HBase through BookKeeper
- I represented Yahoo in project meetings and evaluation sessions

2011–2012 **Software Architect**, Lumata, Spain

SONY Socialife application. High Scalable Big-Data Backend Platform for web and social content ingestion and aggregation

Giddra Project, 2012, Roles: Distributed Systems Expert, Architect

- I contributed to the architectural definition of the platform
- I did coordination over multiple teams
- I defined the REST API for allowing clients to access/use the backend

2010–2011 Freelance Software Architect/Engineer, Local Greenhouse Cooperative in Zaragoza, Spain

Analysis, design and Ruby/Rails implementation of a web application to manage the different domains of a greenhouse farm. LoC ${\simeq}20.000$

2003–2010 Software Architect/Research Engineer, School of CS at Univ. Politécnica de Madrid (UPM), Spain

I participated in European and national research projects that included the analysis, design, implementation and testing of different kinds of middleware architectures and applications.

NEXOF-RA: NESSI Open Framework - Reference Architecture, 7th European Framework Programme (FP7-216446), 2008–2010, Roles: Software Architect

- I contributed to a reference architecture (RA) for a European service platform. I build the specification of a set of architectural patterns for non-functional attributes and analysis of how to integrate cloud platforms in the RA.

Highly Scalable Platform for the Construction of Dependable and Ubiquitous Services, Spanish Ministry of Education and Science (TIN2007-67353-C02), 2007–2010, Roles: Software Engineer

- I did analysis and tests of consistency problems that arised in end-user applications when second-level caches (e.g. Coherence, JBoss cache, etc.) are combined with object persistence mechanisms (e.g. Hibernate)

AUTOMAN: Autonomic Management of Grid-Based Enterprise Services, 2006-2007

- I did the integration of self-configuration and self-repair properties of autonomic computing in the core of a cloud platform at INRIA (France).

High Performance Distributed Systems, Community of Madrid (S-0505/TIC/000285), 2006–2009, **Roles**: Software Architect, Software Engineer

- I developed a high-available and scalable service for the JOnAS J(2)EE application server. It provided high availability for critical applications deployed in application server clusters, scaling-out the cluster when is overloaded. UPM & BULL signed a pre-agreement to include it in the commercial version. LoC Java (HA&S Service) $\simeq 4.000$

S4ALL (Services for All), 5th European Framework Programme (IST-2001-37126), 2005–2007, Roles: Software Architect, Software Engineer

- I developed a high-available service for the JOnAS application server maintained by Bull SAS (France). Available since v.4.8. LoC Java (JOnAS) $\simeq 150.000$

AUTONOMIC: Autonomic, Dependable and Middleware for Scalable, Distributed, Ubiquitous and Highly Available e-Services, Spanish Ministry of Education and Science (TIN2004-07474-C02-01), 2004–2007, Roles: Software Architect, Software Engineer

- I built an open-source reference implementation of the WS-CAF specification for adding transactions to SOAP Web Services. LoC $\simeq 50.000$

ADAPT: Middleware for Adaptive and Composable Distributed Components, EUREKA/ITEA project (Label 04025), 2002–2005, Roles: Software Architect, Software Engineer

- I implemented a transactional-aware replication architecture for stateful EJBs for JBoss. LoC Java $\simeq 10.600$
- I open-sourced the implementation of the Activity Service specification to add advanced transactions models to J2EE. LoC Java $\simeq 10.000$
- 2001–2003 Lecturer, School of CS at Universidad Pontificia de Salamanca (Madrid Campus), Spain Courses on Operating Systems and Programming (C and Pascal)
- 2000–2001 **Systems Administrator**, School of CS at Universidad Pontificia de Salamanca (Madrid Campus), Spain

I managed and maintained UNIX/Linux servers and Windows workstations: task automation, security etc.

1999–1999 Quality Analyst, Meta 4 S.A. (now Cegid), Madrid, Spain

I tested the database connection modules of Meta4's ERP suite (now Cegid), gaining hands-on experience with multiple DBMSs, including Oracle, Microsoft SQL Server, Informix, and Sybase, as well as JDBC (Java Database Connectivity). My responsibilities included configuring database connections via JDBC, planning and executing tests, analyzing results, and reporting bugs to ensure system reliability and performance.

Academic Research Experience

2003–2011 **Researcher**, School of CS at Universidad Politécnica de Madrid (UPM), Spain Detailed achievements:

Ph.D. Thesis, Middleware for High Available and Scalable Multi-Tier and Service-Oriented Architectures, 2003–2009, Advisors: Prof. Marta Patiño-Martínez and Prof. Ricardo Jiménez-Péris (UPM)

Fields/Topics: Distributed Systems, Transactional Systems, Scalability, High Availability, SOAs

- I developed a brand-new approach to provide high availability and scalability to multi-tier architectures by combining snapshot-isolation and an innovative vertical replication approach.

Research Internship, SARDES Research Group at INRIA Grenoble (France), 2007, Advisor: Prof. Sara Bouchenak

- Integration of self-configuration and self-repair properties of autonomic computing in the core of a cloud platform.

Publications in top conferences and journals

- Elastic SI-Cache: Consistent and Scalable Caching in Multi-Tier Architectures. In VLDB Journal, 2011 44 Citations
- Scalability Evaluation of the Replication Support of JOnAS, an Industrial J2EE Application Server. In EDCC Conf., Valencia (Spain), 2010 10 Citations
- A System of Architectural Patterns for Scalable, Consistent and Highly Available Multi-tier Service Oriented Infrastructure. In Architecting Dependable Systems VI, Springer, 2009 13 Citations
- Consistent and Scalable Cache Replication for Multi-tier J2EE Applications. In ACM/IFIP/USENIX Middleware Conf., CA (USA), 2007 43 Citations
- WS-Replication: A Framework for Highly Available Web Services. In ACM WWW Conf., Edinburgh, 2006 230 Citations
- Highly Available Long Running Transactions and Activities for J2EE Applications. In IEEE ICDCS Conf., Lisbon (Portugal), 2006 **28 Citations**
- ZenFlow: A Visual Tool for Web Service Composition. In IEEE VL/HCC Conf., Dallas (USA), 2005 ${\bf 53}$ Citations

Technical Skills

O.O. design Design patterns, agile techniques, UML

 $Lang.\ \&\ Python,\ Pytorch/TF/Scikit,\ HFT,\ Langchain/Langgraph,\ Autogen,\ CrewAI,\ OAI\ Swarm,\ Java,$

Fmwk. Go, Rust, Ray, Pandas, Dask...

CI/CD tools VCS (Git/Github/GitLab)

and services

Cloud & Virt. AWS, GCloud, Docker, Kubernetes

DBMS Relational and NoSQL DBs

O.S. admin. UNIX flavors, Android, iOS, Windows

Misc. VSCode, IntelliJ, Vi, Emacs, UNIX shell scripting, LATEX, HTML, basic Javascript, etc.

Education

- 2024 Multi AI Agent Systems with CrewAI, DeepLearning.AI, MooC
- 2023 LLM102x: Large Language Models: Foundation Models from the Ground Up, edX/Databricks, MooC, Certification
- 2023 LLM101x: Large Language Models: Application through Production, edX/Databricks, MooC, Certification
- 2023 LLM Bootcamp, FSDL, In-Person, South San Francisco, CA (USA)
- 2022 Full Stack Deep Learning 22'Edition, FSDL, MooC, Course
- 2022 Machine Learning Specialization (3 Courses), Coursera/DeepLearning.AI/Stanford, MooC, Certification
- 2021 Full Stack Deep Learning 21'Edition, FSDL, MooC, Course
- 2019 Machine Learning Specialization (4 Courses), Coursera/Univ. Washington, MooC, Certification
- 2018 Mathematics for Machine Learning Specialization (3 Courses), Coursera/Imperial College London, MooC, Certification
- 2018 Deep Learning Specialization (5 Courses), Coursera/DeepLearning.AI, MooC, Certification
- 2011 Certificate of Training, Advanced Scala, Typesafe, Switzerland
- 2011 Certificate of Training, Scala, Typesafe, Switzerland

- 2011 Course in Business Administration and Economics (268 hours), Funded by Community of Madrid, Spain
- 2003-2009 Ph.D. in CS, School of CS at Universidad Politécnica de Madrid (UPM), Spain
 - 2004 **Postgraduate Certificate in Education**, Educational Sciences Institute at Universidad Complutense de Madrid (UCM), Spain
- 1994–2001 **B.Eng & M.Sc. in CS**, School of CS at Universidad Pontificia de Salamanca (Madrid Campus), Spain

Communication Skills

I delivered talks and presentations at both international and national conferences, effectively communicating complex ideas to diverse audiences. Presented research findings and project updates in internal meetings within corporate environments. Additionally, I demonstrated teaching and mentoring skills by conducting undergraduate and Ph.D.-level courses at the university, fostering understanding and engagement among students.

Languages

Spanish Mother tongue English Fluent (written and spoken)

French Intermediate proficiency (listening, reading, & speaking) Catalan Intermediate proficiency (listening, reading, & speaking)

Other Activities Related to Computer Science

Committer in the Apache Software Foundation

- Apache Omid project, a high-performant and scalable Transaction Manager for HBase

Reviewer in International Academic Conferences

- IEEE International Symposium on Reliable Distributed Systems (SRDS), 2008 and 2009
- IEEE International conference in Distributed Computing Systems (ICDCS), 2009
- International Conference on Parallel and Distributed Computing (Europar), 2007 and 2010
- ACM Symposium on Applied Computing (SAC), 2008 and 2010
- International Conference on Service-Oriented Computing (ICSOC), 2009
- EDBTs International Workshop on Data Management in Peer-to-peer Systems (DAMAP), 2009
- International Workshop on Assurance in Distributed Systems and Networks (ADSN), 2010

Speaker/Attendee in Academic/Technical Conferences

- Neurips 2024 conference, Dec 10th-15th. 2024, Vancouver, BC (Canada)
- ICML 2024 conference, Jul 21st-27th. 2024, Vienna (Austria)
- AI Engineer World's Fair, Jun 25th-27th. 2024, San Francisco, CA (USA)
- MLSys 2024 conference, May 13th-16th. 2024, Santa Clara, CA (USA)
- W&B Fully Connected Conference 2024, The Era of Generative AI, Apr 17th-18th. 2024, San Francisco, CA (USA)
- Neurips 2023 conference, Dec 10th. 2023, New Orleans, LA (USA)
- Amazon Re:Invent 2023, Nov 27th-30th. 2023, Las Vegas, NV (USA)
- Ray Summit 2023, Sep 18th-20th. 2023, San Francisco, CA (USA)
- ICML 2023 conference, Jul 23rd-29th. 2023, Honolulu, Hawaii (USA)
- MLSys 2023 conference, Jun 4th-8th. 2023, Miami, FL (USA)
- Ray Summit 2022, Aug 23th-24th. 2022, San Francisco, CA (USA)
- MLSys 2022 conference, Aug 31th-Sept 3rd. 2022, Santa Clara, CA (USA)
- ACL 2019 conference (Speaker), Jul 28th-Aug 2nd. 2019, Florence (Italy)
- @Scale conference, 31st Aug. 2016, San Jose, CA (USA)
- Hadoop Summit (Speaker), 28th-30th Jun. 2016, San Jose, CA (USA)
- @Scale conference, 14th Sep. 2015, San Jose, CA (USA)
- Hadoop Summit Europe, 15th-16th Apr. 2015, Brussels (Belgium)
- Hadoop Summit Europe, 2nd-3rd Apr. 2014, Amsterdam (Netherlands)
- NoSQL Matters Conf., 21st-22nd Nov. 2014, Barcelona (Spain)
- NoSQL Matters Conf., 29th-30th Nov. 2013, Barcelona (Spain)
- NoSQL Matters Conf., 6th Oct. 2012, Barcelona (Spain)
- IEEE International Symposium on Reliable Distributed Systems (SRDS), 4-7th Oct. 2011, Madrid (Spain)
- World Wide Web Conference, 20-24th Apr. 2009, Madrid (Spain)
- Spanish Conference on Concurrency and Distributed Systems, 13-16th Sep. 2005, Granada (Spain)
- Object Web Con'05, 17-20th Jan. 2005, Lyon (France)
- ObjectWeb's Workshop on Transactions, 23-24th Feb. 2004, Grenoble (France)
- ObjectWeb's Architecture Meeting, 13-15th Jan. 2004, Sevilla (Spain)

Member

- Apache Software Foundation (ASF), https://www.apache.org/
- ObjectWeb Consortium, http://www.ow2.org
- Java Community Process program (JCP), http://jcp.org

Hobbies and Interests

Beyond my core professional focus, but some way related to it, I have a strong interest in the intersection of fields such as neuroscience, psychology, decision-making, cognitive sciences, learning techniques, behavioral economics, and philosophy, as they offer valuable insights into human behavior, intelligence, and how the brain works (and why!) I am deeply fascinated by the mechanisms of human thought, learning, and behavior, and how these insights can inform and inspire advancements in AI and our daily lives and wellbeing in general.

In my personal life, I enjoy staying active through activities like running, mountain biking, yoga, cold-plunging, and playing tennis, which not only keep me physically fit but also provide a sense of balance and focus.