Personal information:
· Argentinean and French citizen
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· born: 05.02.1985

Ernesto Horne

Research & Development: Physics, Data and AI.
Scientific modeling and quantitative analysis; Expert in artificial intelligence, with deep experience in machine learning, signal processing, and large-scale data analysis; Perception and remote sensing; Continuous media: Global climate systems and sports physics.

Professional experience

(15 Feb. 2026–) **Hatticore GmbH**, Berlin, Germany.
Chief Technology Officer (CTO)

•Leading the technology strategy, overseeing product development, and ensuring the systems are scalable, secure, and aligned with business goals.

(2022-2025) **Teraki GmbH**, Berlin, Germany.
2024/5 *Lead Data-Research and Development*
2022/4 *Senior Data Scientist*

• Planning and development of research for next generation perception and Advance Driver-Assistance Systems (ADAS).

(2021) **École Normale Supérieure de Lyon**, Physics Lab, France. Collaboration with GFZ Centre for Geosci.
Postdoctoral research associate in modelling of boundary layer and aerodynamics of cyclists.

• Optimized physical parameters to reduce drag of the french-team cyclist competing in the Olympics 2024.

(2017–2020) **École Polytechnique**, LadHyX, Paris, France
Postdoctoral research associate in large scale turbulence and geophysical flows

• Successfully planned, developed and implemented a novel experimental setup for demonstrating a theoretical model for global geophysical flow-predictions.

(2016–2017) **École Centrale**, Lyon, France
Postdoctoral research associate in modelling of environmental flows

• Verified stratified flow processes by developing a Python post processing library for analysing large datasets.

(2007–2009) **Universidad de Buenos Aires**, Geology Department, Argentine
Undergradute researcher

• Developed stations for measuring observational volcanic seismic data for volcanic forecast.

Education

(2012–2015) **École Normale Supérieure de Lyon**, Physics Lab., France.

• PhD, Geophysical Fluid Dynamics: "Transport properties of internal gravity waves", *Thesis graded with honours*.

(2005–2012) **Universidad de Buenos Aires**, Physics Department, Argentine

• Masters Thesis: *Numerical modelling in fluids*. "Cancellation exponent in rotating flows", graded 10/10.
• Degree studies: *Sc. Physics* (equivalent to Bachelor and Masters degree). Major in fluid dynamics.

IT-Skills

Programming: Proficient in Python, Matlab and version control systems.

Numerics and big data: Experienced running and analysing large numerical simulations. Experienced with high-performance computing (Fortran, C++), parallel (MPI) and cloud computing.

Data visualization: Matplotlib, Seaborn and large numerical simulation rendering.

Machine learning: algorithm/classification/clustering methods, regression models. SciKitLearn.

Deep learning and AI: TensorFlow, Keras, Reinforcement learning.

Research activities

• Worked within teams of fundamental, applied, and industrial IT teams.
• Published +10 international peer review and conference articles.
• Multiple industrial patents on radar perception in the automotive industry.
• Multiple expositions at international conferences and seminars in renowned universities.
• Selected for participating in 4 international workshops.
• Reviewer of the Journal of Fluid Mechanics (Cambridge Press).

Awards and scholarships

(10.2018) **Workshop invitation**, EuroTech Postdoc Workshop, TUE, Eindhoven, Netherlands. *All fees considered*.
(08.2017) **Workshop invitation**, Turbulent Flows in Climate Dynamics, Les Houches, France. *All fees considered*.
(08.2016) **Young Researchers' Financial support**, ICTAM Congress, Montreal, Canada. *Travel support*.
(09.2016) **Financial support**, ISSF Symposium, San Diego, USA. *Lodging support*.
(09.2014) **Financial support**, FDSE Workshop, Cambridge, UK. *Inscription fees support*.
(2007–2009) **Scholarship**, VOLUME project, European Comision. Univ. Buenos Aires, Argentine. *monthly income*.

Publications

Selected articles

- D. KUMLU, E. HORNE 2025. V2V-Aided Adaptive FMCW Radar Interference Mitigation. *IEEE Vehicular Networking Conference (VNC)*.
- D. KUMLU, T. VINCON, M. ARSALAN, E. HORNE 2025. A Novel Hybrid TDMA-DDMA Approach for Imaging Automotive Radar Systems. *IEEE Sensors Letters*.
- E. HORNE et al. 2021. Variational mode decomposition for estimating critical reflected internal wave in stratified fluid. *Exp Fluids* 62, 110.
- E. HORNE et al. 2019. Particle transport induced by internal wave beam streaming in lateral boundary layers. *JFM*. 870, 848-869.
- E. HORNE AND P. MININNI 2013. Sign cancellation and scaling in the vertical component of velocity and vorticity in rotating turbulence. *Phy Rev E*. 88, 013011.

Selected patents

- D. KUMLU, E. HORNE, D. RICHART Method and system for interference mitigation in radar signals. 2023.
- D. KUMLU, E. HORNE, D. RICHART. Machine-Learning-based processing of radar data for enhanced target detection. 2024.

Teaching

Lectures: Environmental hydrodynamics (Master 1 course), École Polytechnique, France (2019).
Lectures: Physics high school level. ECOS high school, Buenos Aires, Argentine (2011-2012).

Supervision: Multiple master projects in both academic and industrial contexts.

Languages

Spanish: Native.
English: Written, spoken and read fluently.
French: Written, spoken and read fluently.
German: Intermediate (B1).

Miscellaneous

Field campaigns: Andes, Antarctica and Atlantic ocean.
Interests: Underwater hockey national player and Berlin coach. Sailing. Geopolitics.