



# Valerio Gherardi

Valencia, España

+34 681 904 907 | [vgherard@sissa.it](mailto:vgherard@sissa.it) | [vgherard.github.io](https://github.com/valeriogherardi) | [vgherard](#) | [vgherard](#) | [ValerioGherardi](#)

*Theoretical Physicist from Italy, looking for Data Science / Engineering job opportunities.*

## Description

My educational background provides me with a strong scientific and analytical mindset, which I love applying to problems and challenges coming from different areas. I have a wide experience with Data and Data Analysis, partly as a result of my physicist career, partly due to my passion for Machine Learning and Statistical Software Development.

During my PhD in Trieste I have had the privilege to study in an international, multicultural and multidisciplinary environment. I love and get motivation from finding myself surrounded by people with heterogeneous backgrounds and life experiences.

I am a fast learner and motivate worker, looking for job opportunities in Data Science / Engineering, starting from the end of my doctoral studies in October 2021.

## Education

### PhD in Theoretical Particle Physics

INTERNATIONAL SCHOOL FOR ADVANCED STUDIES (SISSA)

- Expected: September 2021

*Trieste, Italy*

*2017-now*

### Laurea Magistrale in Fisica

UNIVERSITÀ LA SAPIENZA

- Final Grade: 110/110 cum laude

*Rome, Italy*

*2015-2017*

### Laurea Triennale in Fisica

UNIVERSITÀ LA SAPIENZA

- Final Grade: 110/110 cum laude

*Rome, Italy*

*2012-15*

## Technical skills

**General.** Mathematical and statistical model building / Data Analysis / Scientific communication

**Programming languages.** R / C++ / Python / SQL / Wolfram / Fortran

**Data Science and Machine Learning.** Deep learning frameworks and APIs (TensorFlow, Keras, Trax) / Recurrent and Convolutional Neural Networks / Natural Language Processing / Classical Predictive Models

### Algorithmic coding.

Classical Data Structures (queues, stacks, heaps, trees, hash maps) / String algorithms / Graph and network algorithms / NP problems and SAT solvers

**Software Development.** Unit testing / Version control (Git) / CI-CD / R Package Development

**Content creation.** RStudio Shiny / (R) Markdown / LaTeX

## Language Skills

**Italian** Mother tongue | **English** Professional | **Spanish** Advanced

## Personal Projects

**r2r** ([vgherard.github.io/r2r/](https://vgherard.github.io/r2r/))

Implementation of hash tables in the R programming language.

**kgrams** ([vgherard.github.io/kgrams/](https://vgherard.github.io/kgrams/))

Tools for training and evaluating  $k$ -gram language models, R package with C++ backend. See also the associated blog post at [datascienceplus.com/an-introduction-to-k-gram-language-models-in-r/](https://datascienceplus.com/an-introduction-to-k-gram-language-models-in-r/). This software is currently awaiting for peer-review at [rOpenSci.org](https://rOpenSci.org).

**runiv** ([github.com/vgherard/runiv](https://github.com/vgherard/runiv))

An R client for R-universe APIs.

**hepscape** ([github.com/vgherard/hepscape](https://github.com/vgherard/hepscape))

An arXiv scraper built using R, Python and GitHub Actions.

**fcci** ([vgherard.github.io/fcci/](https://vgherard.github.io/fcci/))

Support for Feldman-Cousins Confidence Intervals; R/C++ implementation.

## Certifications

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### Data Structures and Algorithms Specialization

UNIVERSITY OF CALIFORNIA SAN DIEGO

[Coursera.org](#)

2021

- Course description and certificate: <https://coursera.org/share/4fe6c2e914585cb813c93488d20d8f52>

### Natural Language Processing Specialization

DEEPLARNING.AI

[Coursera.org](#)

2021

- Course description and certificate: <https://coursera.org/share/903e270df65d75737d6c884743509e84>

### Deep Learning Specialization

DEEPLARNING.AI

[Coursera.org](#)

2020

- Course description and certificate: <https://coursera.org/share/1a79776ec145f7d140c93b95281f5250>

### Data Science Specialization

JOHNS HOPKINS UNIVERSITY

[Coursera.org](#)

2020

- Course description and certificate: <https://coursera.org/share/3d64e7b0e1038f16fdb2103a71878e53>

## Publications

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1. Feruglio, F., Gherardi, V., Romanino, A., & Titov, A. (2021). Modular invariant dynamics and fermion mass hierarchies around  $\bar{u}=i$ . *JHEP*, 05, 242. [https://doi.org/10.1007/JHEP05\(2021\)242](https://doi.org/10.1007/JHEP05(2021)242)
2. Gherardi, V., Marzocca, D., & Venturini, E. (2021). Low-energy phenomenology of scalar leptoquarks at one-loop accuracy. *JHEP*, 01, 138. [https://doi.org/10.1007/JHEP01\(2021\)138](https://doi.org/10.1007/JHEP01(2021)138)
3. Gherardi, V., Marzocca, D., & Venturini, E. (2020). Matching scalar leptoquarks to the SMEFT at one loop. *JHEP*, 07, 225. [https://doi.org/10.1007/JHEP07\(2020\)225](https://doi.org/10.1007/JHEP07(2020)225)
4. Gherardi, V. (2020). General correlations to  $b \rightarrow s \ell^+ \ell^-$  anomalies from a rank condition. *Nuovo Cim. C*, 43(2-3), 45. <https://doi.org/10.1393/ncc/i2020-20045-0>
5. Alvarenga Nogueira, J. H., Colasante, D., Gherardi, V., Frederico, T., Pace, E., & Salmè, G. (2019). Solving the Bethe-Salpeter Equation in Minkowski Space for a Fermion-Scalar system. *Phys. Rev. D*, 100(1), 016021. <https://doi.org/10.1103/PhysRevD.100.016021>
6. Gherardi, V., Marzocca, D., Nardecchia, M., & Romanino, A. (2019). Rank-One Flavor Violation and B-meson anomalies. *JHEP*, 10, 112. [https://doi.org/10.1007/JHEP10\(2019\)112](https://doi.org/10.1007/JHEP10(2019)112)

## Awards

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***“Admeto Pettinari e Paolo Andreini” Scholarship (01/10/2019)***

*Awarded by Cassa di Sovvenzione e Risparmio per i dipendenti della Banca d'Italia*