MARTÍN HERNÁNDEZ SALINAS

Mathematical Engineering and Master of Science, Mathematics Mention from Technical University Federico Santa María, Chile. Currently, I am a PhD student at the Friedrich-Alexander-Universität Erlangen-Nürnberg in Germany. Independent researcher and professional with solid analytical capacities and skills to solve different problems related to engineering and mathematics.

CONTACT

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- ⚲ Erlangen, Germany
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- ○ @Martinshs
- in Martín Hernández

SKILLS

Programming
- **Python** ●●●●●
- **MATLAB** ●●●○○
- **C** ●●○○○
- **Office** ●●●○○
- **LaTeX** ●●●○○
- **Tableau** ●●●○○
- **ACL** ●●○○○

Python libraries
- **Visualization** ●●●●○
  (Matplotlib, Altair)
- **Data Analysis** ●●●○○
  (Pandas, Spark)
- **Mathematics** ●●●●○
  (Numpy, Gekko, Scipy, Fenics/Dolfin)
- **Machine Learning** ●●●●○
  (Pytorch, Tensorflow, sklearn, scikit-learn)

Languages
- **Spanish** ●●●●●
- **English** ●●●○○
- **Portuguese** ●●○○○

RESEARCH INTERESTS

- Control Theory
- Partial Differential Equations
- Optimization
- Programming
- Numerical Analysis
- Ordinary Differential Equations
- Machine Learning
- Deep Neuronal Network

🎓 EDUCATION

- 📅 09/2021 - Actual
  ⚲ Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany
  Dr. rer. nat. Student

- 📅 03/2019 - 03/2021
  ⚲ Technical University Federico Santa María, Valparaiso
  Master of Science, Mathematics Mention

- 📅 03/2015 - 03/2021
  ⚲ Technical University Federico Santa María, Valparaiso
  Mathematical Engineer

HONORS & AWARDS

- 🏆 (2016 - 2021) Honor roll member of the Technical University Federico Santa María. Student belonged to the USM Honor Roll, whose members by academic performance are located within the top 10% of students taking subjects

- 🏆 Mathematical Engineering degree with Highest Distinction (Maximum score in defense of thesis).

- 🏆 M.S. degree with Highest Distinction (Maximum score in defense of thesis).

⚙ TEACHING EXPERIENCE

- 📅 03/2021 - 12/2021
  ⚲ UTFSM, Valparaiso
  Teacher of Mathematics Department.
  Part Time Teacher

- 📅 03/2018 - 12/2020
  ⚲ UTFSM, Valparaiso
  Exercise Teacher of eight courses related with Differential/Integral Calculus, Ordinary/Partial Differential Equations.
  Exercise Teacher

⚙ PROFESSIONAL EXPERIENCE

- 📅 12/2022 - 06/2025
  ⚲ TRR154 subproject C07, Germany.
  Analysis of gas transport models, numerical implementations and random decomposition.
  Associated Ph.D. student

- 📅 02/2021 - 02/2022
  ⚲ Deloitte Spa. Santiago
  Specialist in financial risk models, statistics models and programming.
  Analyst in Financial Risk

- 📅 01/2020 - 03/2020
  ⚲ Bank Itaú, Santiago
  Analysis and data visualization using ACL and Tableau software. Internal Audit area.
  Analyst (intern)

- 📅 01/2019 - 03/2019
  ⚲ Deloite Spa, Santiago
  Estimation of provisions using the International Financial Reporting Standard. Financial Rick area.
  Analyst (intern)

FUNDING

2019-2021	Scholarship. Dirección de Postgrados y Programas (DPP) of the U. Técnica Federico Santa María.
2021-2022	Scholarship. Deutsche Forschungsgemeinschaft within Project ID 239904186 – TRR 154 Mathematical modeling, simulation and optimization using the example of gas networks.
2022-2026	Scholarship. Acuerdo Bilateral en el Extranjero ANID-DAAD.
2022-2026	SFB Transregio 154 Mathematische Modellierung, Simulation und Optimierung am Beispiel von Gasnetzwerken.
2023 - 2025	DAAD/CAPES Programs for ProjectRelated Personal, grant 57703041, Name: 'Control and numerical analysis of complex system'.

ACTIVITIES

- 26/08/2024 — Talk in X Partial differential equations, optimal design and numerics, Benasque, Spain.
- 23/08/2024 — Talk in X Partial differential equations, optimal design and numerics, Benasque, Spain.
- 19/08/2024 — Talk in X Partial differential equations, optimal design and numerics, Benasque, Spain.
- 06/2024 — Lecturing in EECI-IGSC 2024: Control and Machine Learning (M18), Dubrovnik, Coatia.
- 05/2024 — Lecturing in the ML&OC24: Machine Learning and Optimal Control summer school, Gaeta, Italy.
- 11/2023 — Attendance to the Workshop: Scientific Writing, Darmstadt, Germany.
- 11/2023 — Visit to Professor M. Lazar for a week at the University of Dubrovnik, Croatia.
- 10/2023 — Visit to the University of Deusto in Spain for a week together with Prof. Falk Hante from the Humboldt-Universität zu Berlin.
- 08/2023 — Talk in the 10th International Congress on Industrial and Applied Mathematics (ICIAM), Tokyo.
- 02/06/2023 — Talk in the 93rd Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), Germany.
- 01/06/2023 — Talk in the 93rd Annual Meeting of the International Association of Applied Mathematics and Mechanics (GAMM), Germany.
- 05/2023 — Talk in the "Orientierungswoche" for first-year students of the Data Science Department at FAU, Germany.
- 11/2022 — Attendance to the workshop in Good Scientific Practice, Bamberg, Germany.
- 09/2022 — Talk in the 25th International Symposium on Mathematical Theory of Networks and Systems, Germany.
- 08/2022 — Talk in the IX Partial differential equations, optimal design, and numerics, Spain.
- 08/2022 — Talk in the IX Partial differential equations, optimal design, and numerics, Spain.
- 04/2022 — Talk in South Zone Mathematics Conference, Chile.
- 01/2022 — Attendance to the workshop of the annual scientific event AIMS-Cameroon Mathematics and its Applications Meeting (ACMAM).
- 01/2022 — Attendance to rhetoric workshop Online (second part). Funded by the TRR154 project.
- 11/2021 — Workshop on Non-Linear Analysis and Control Theory in honor of Prof. Enrique Zuazua, Universidad de Chile, Chile.
- 10/2021 — Attendance to rhetoric workshop, Berlin, Germany. Funded by the TRR154 project.
- 04/2021 — Attendance to the workshop Deep Learning with MATLAB, for GMU CMAI and FAU MOD by the MathWorks.
- 04/2021 — Attendance to South Zone Mathematics Conference, Chile.
- 04/2021 — Deep Learning online course at Coursera.
- 10/2020 — Attendance to doctorate school, UC, Chile.
- 08/2020 — Attendance to the online course of introduction to moments method for Control of PDEs, UFPB.
- 2019-2020 — Member of the student council of Sciences, an organization that groups five careers of the Technical University Federico Santa María, which is in charge of the student representation.
- 2016-2019 — Attendance to the National Encounter of Mathematical Civil Engineers, Chile.
- 03/2019 — Attendance at the workshop of scientific diffusion and communication, UTFSM, Chile.
- 01/2018 - 03/2018 — Attendance to the summer school at Instituto de matemática pura e aplicada (IMPA).

PUBLICATIONS

Averaged turnpike property for differential equations with random constant coefficients.

Martín Hernández, Rodrigo Lecaros and Sebastián Zamorano

2023   Mathematical Control and Related Fields   AIMS

Uniform Turnpike Property and Singular Limits.

Martín Hernández and Enrique Zuazua.

2024   Acta Applicandae Mathematicae   springer

PREPRINTS

Averaged observations and turnpike phenomenon for parameter-dependent systems

👥 **Martín Hernández, Martin Lazar, Sebastián Zamorano.**

📅 2024   📕 Preprint

Mini-batch descent in semiflows.

👥 **Martín Hernández and Alberto Dominguez-Corella.**

📅 2024   📕 Preprint

IN PREPARATION

Multi-Classification and Universal Approximation Using Deep Neural Networks.

👥 **Martín Hernández and Enrique Zuazua.**

📅 2024   📕 Preprint

Random Batch Methods for PDE control on graphs.

👥 **Martín Hernández and Enrique Zuazua.**

📅 2024   📕 Preprint