David Salas Videla

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CONTACT INFORMATION	*Phone (Chile):* +56 (9) 85275721 *e-mail:* david.salas@uoh.cl
NATIONALITY	Chilean.
PERSONAL INFORMATION	*Full Name:* David Sebastián Salas Videla. *RUT:* 17.024.935-6 *Birthday:* October 22th, 1988.
SPEAKING LANGUAGES	Spanish (Native); English (Proficient); French (Independent).

STUDIES

Ph. D. studies: Applied Mathematics and Modeling [Thesis' advisor: Lionel Thibault], October 2013 - December 2016:
Institut Montpelliérain Alexander Grothendieck, Université de Montpellier, Montpellier, France.

Professional title: Mathematical engineer [Master's thesis' advisors: R. Correa, A. Hantoute - Graduated with Maximal Distinction], 2007 - 2013:
Departamento de Ingeniería Matemática, Facultad de Ciencias Físicas y Matemáticas (FCFM), Universidad de Chile. Santiago, Chile.

License in engineering science, mention in mathematics [Graduated with Maximal Distinction], 2007 - 2012
Departamento de Ingeniería Matemática, Facultad de Ciencias Físicas y Matemáticas (FCFM), Universidad de Chile. Santiago, Chile.

ACADEMIC POSITIONS

Assistant professor at Instituto de Ciencias de la Ingeniería, Universidad de O'Higgins, Rancagua, Chile. March 2020 - Present.

Post-Doctorate FONDECYT at Centro de Modelamiento Matemático (CMM), Universidad de Chile, Santiago, Chile. April 2019 - March 2020.

Post-Doctorate at Instituto de Ciencias de la Ingeniería, Universidad de O'Higgins, Rancagua, Chile. September, 2018 - April 2019.

Post-Doctorate (Chercheur Contractuel) at INP - ENSIACET, Toulouse, France. September, 2017 - August 2018.

Post-Doctorate (Chercheur Contractuel) at PROMES CNRS, Perpignan, France. October, 2016 - July 2017.

FIELDS OF INTEREST	Optimization, Dynamical Systems and Differential Geometry: Specifically on *Variational Analysis*, *Optimization*, *Functional Analysis*, *Banach Spaces Geometry*, *Nonlinear Geometry*, *Convex Analysis*, *Subdifferential Calculus*, *Nonconvex and Nonsmooth Optimization*, *Differential Inclusions*, *Optimal Control* and *Optimization in Manifolds*.
	Applied optimization research: Particularly in *Game theory*, *bi-level optimization*, *Variational Inequalities*, *stochastic optimization and control theory*, *Complex systems of engineering*, *Energy market modeling* and *Renewable Energy*.

TEACHING EXPERIENCE

Lecturer at Universidad de O'Higgins, in the following courses (and their semesters):

- Non-linear Optimization - Spring 2020.
- Advanced Calculus - Fall 2020, Fall 2021.
- Probability and Statistics - Fall 2020.
- Linear Algebra - Spring 2018, Spring 2020.
- Game Theory - Fall 2021.

Lecturer at the École d'Ingénieurs Énergies Renouvelables - Sup'EnR (Perpignan), in the following courses (and their semesters):

- Probability and Statistics (Mathematics 3 - 4th year) - Fall 2017.

Lecturer at the Mathematical Engineering Department (Universidad de Chile), in the following courses (and their semesters):

- Real Analysis **(Doctorate school)** - Fall 2019.
- Multivariable Calculus - Spring 2018, Spring 2019.
- Linear Algebra - Spring 2015.

Assistant teaching at the Mathematical Engineering Department (Universidad de Chile), in several courses (480 hours, approx.), between 2010 and 2015.

PUBLICATIONS

N. Dkhili, D. Salas; J. Eynard; S. Thil; S. Grieu. Innovative Application of Model-Based Predictive Control for Low-Voltage Power Distribution Grids with Significant Distributed Generation. *Energies*, Vol. 14, nº 6, pp. 1773 (2021). https://doi.org/10.3390/en14061773

D. Salas and L. Thibault. Quantitative characterizations of nonconvex bodies with smooth boundaries in Hilbert spaces via the metric projection. *Journal of Mathematical Analysis and Applications*, Vol. 494, nº 2, 2021 (Available online).

P. Pérez-Aros, D. Salas and E. Vilches. Determination of convex functions via subgradients of minimal norm. *Mathematical Programming - Series A*, 2020 (Available online).

D. Salas, K. Cao Van, D. Aussel and L. Montastruc. Optimal design of exchange networks with blind inputs and its application to Eco-industrial parks. *Computers & Chemical Engineering*, Vol. 143, 2020.

P. Pérez-Aros, D. Salas and E. Vilches. On formulae for the Ioffe geometric subdifferential of supremum function. *Journal of Convex Analisis*, Vol. 27, n°2, pp. 487-508, 2020.

D. Aussel, K. Cao Van, and D. Salas. Existence results for solutions of quasi-variational inequalities over product sets with quasi-monotone operators, *SIAM Journal on Optimization*, Vol. 29, n° 2, pp. 1558-1577, 2019.

D. Salas and L. Thibault. On characterizations of submanifolds via smoothness of the distance function in Hilbert spaces. *Journal of Optimization Theory and Applications*, Vol. 189, n°1, pp. 189-210, 2019.

D. Salas, L. Thibault and E. Vilches. On Smoothness of solutions to projected differential equations. *Discrete and Continuous Dynamical Systems - Series A*, Vol. 39, n° 4, pp. 2255-2283, 2019.

E. Tapachès, D. Salas, M. Pierre-Muzet, S. Mauran, D. Aussel, and M. Mazet. The value of thermo-chemical storage for CSP: Relevance of peak production strategy on both dimensional and operational optimization. *Energy Conversion and Management*, Vol. 198, 2019.

D. Salas, E. Tapachès, M. Mazet and D. Aussel. Pre-scenarios as economic evaluation technique for thermo-chemical storage in solar plants. *Energy Conversion and Management*, Vol. 174, pp. 932-954, 2018.

R. Correa, D. Salas and L. Thibault. Smoothness of the Metric Projection onto Nonconvex Bodies in Hilbert Spaces. *Journal of Mathematical Analysis and Applications*, Vol. 457, n° 2, pp. 1307-1332, 2018.

D. Salas. Convex smooth-like properties and Faces Radon-Nikodým property in Banach spaces. *Studia Mathematica*, Vol. 240, n° 3, pp. 231-253, 2018.

D. Salas and S. Tapia-García. Extended Seminorms and Extended Topological Vector Spaces. *Topology and its Applications*, Vol. 210, pp. 317-354, 2016.

R. Correa, A. Hantoute and D. Salas. Integration of nonconvex epi-pointed functions in locally convex spaces. *Journal of Convex Analysis*, Vol. 23, n° 2, pp. 511-530, 2016.

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CONFERENCE PAPERS

N. Dkhili, D. Salas, J. Eynard, S. Thil, S. Grieu. An Application of Model-based Predictive Control for Renewables-intensive Power Distribution Grids. *21st IFAC-V World Congress*, Berlin, Germany, July 12-17, 2020. In: *IFAC-PapersOnline*, Vol. 53, Issue 2, pp.13262-13268, 2020. https://doi.org/10.1016/j.ifacol.2020.12.155

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SUBMITTED WORKS	D. Aussel, K. Cao Van and D. Salas. Existence results for Generalized Nash Equilibrium Problems under continuity-like properties of sublevel sets.
	D. Salas and A. Svensson. Well-posedness of deterministic bilevel games through a general stochastic approach. arXiv:2010.05368
	A. Jofré, A. Pardo, D. Salas, V. Verdugo and J. Verschae. The Convergence Rates of Blockchain Mining Games: A Markovian Approach.
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MANUSCRIPTS	**Ph.D thesis**: *Détermination sous-différentielle, propriété Radon-Nikodým de faces, et structure différentielle des ensembles prox-réguliers*, Université de Montpellier, Montpellier, France, 2016.
	Master's thesis: *Fórmula de integración en espacios con la propiedad de continuidad del subdiferencial*, Universidad de Chile, Santiago, Chile. 2013.
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WORK IN PROGRESS	G. Liberona, D. Salas and L. von Niederhëusern. Stochastic bounds for bilevel programming (in development).
	A. Daniilidis and D. Salas. Metric determination of nonconvex functionals with smooth sublevel sets. (in development)
FUNDINGS AND AWARDS	FONDECYT Post-doctorate fellowship 3190229: *Nonsmooth dynamical system involving regular structures*. 2019-2021. Responsible Researcher.
	Math-Amsud project 20-MATH-08: *Stochastic Optimization, Chance Constraints and Applications to Energy*. 2020-2021. Co-Researcher.
RESEARCH ADVISING	Ph.D. Co-Advisor of **Daniel Lasluisa**. Mathematical Engineering Department, Universidad de Chile. 2020-Present.
	Post-doctorate supervisor of **Léonard von Niederhaürsern**. Center of Mathematical Modeling, Universidad de Chile / Instituto de Ciencias de la Ingeniería, Universidad de O'Higgins. June 2020-February 2021.
	Sponsor Researcher of **Anton Svensson** with the project FONDECYT post-doctorado call 2021. *Stochasticity aspects in bilevel games and applications to water resource management*. Instituto de Ciencias de la Ingeniería, Universidad de O'Higgins. 2020-Present.
SELECTED CONFERENCES	*14th International Seminar on Optimization and Related Areas - ISORA*. October 7-10, 2019. Líma, Perú [Talk]
	LXXXVII encuentro anual de la Sociedad Matemática de Chile. December 19-21, 2018. Rancagua, Chile [Organizing Committee, Talk]

ISMP2018 - 23rd International Symposium on Mathematical Programming. July 1-6, 2018. Bordeaux, France. [Talk]

International Workshop on Optimization and Variational Analysis. January 10-11, 2018. Rancagua, Chile. [Organizing Committee, Talk]

Variational Analysis and Applications for Modelling of Energy Exchange. Mai 4-5, 2017. Perpignan, France. [Organizing Committee]

Congreso Bienal de la Real Sociedad Matemática Española. January 30 - February 03, 2017. Zaragoza, Spain. [Talk]

Last Edition: February, 2021.