Dr.-Ing. Felipe Salinas Barros

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Professional Experience

• Technical University of Berlin, EET **Berlin, Germany**
Research fellow *July 2021 – now*

Signals and features are studied for the estimation of the state of health of Lithium-ion batteries. Project is funded by BMWi through innovation program ZIM.

• Technical University of Berlin, EET **Berlin, Germany**
PhD *August 2017 – April 2021*

A novel methodology to grade second life batteries was developed, consisting in the creation of a dataset to train a classification model that can be applied to a continued selection of aged batteries. Using this method and data science techniques, relevant features can be determined for a model, limiting test time and resulting in an expected classification accuracy, for a known performance under specific second life operating conditions. Scholarship holder for four years to obtain the doctoral degree. The funds were provided by the chilean comission of science and technology (former CONICYT, now ANID) and the german exchange service (DAAD) for the project *Second life storage of Lithium-ion batteries for micro-grid energy storage*.

• Deutsche Gesellschaft für Zusammen Arbeit GmbH **Santiago, Chile**
Advisor for the project "Solar energy enforcement" *August 2015 – June 2017*

Technical advisor in the project *Solar energy enforcement with focus on CSP technologies*. The work involved collaborations with the Chilean electricity regulator in modifications to the grid code (NTSyCS), to enforce a grid-friendly connection of wind and photovoltaic power plants in Chile, as well as analyses of wind and photovoltaic power forecasts to improve their quality for the Chilean system operator. The project ended with the implementation of a centralized forecasting system. The work also involved analysis of flexibility measures for the electrical grid, and the study of new technologies such as hydrogen.

• CDEC-SING Ltda. Santiago, Chile **Santiago, Chile**
R+D Department, Research Engineer *June 2014 – July 2015*

The position involves the proposal and development of new studies for the grid operator CDEC-SING (now Coordinador eléctrico nacional), focusing on the integration of variable renewable energies such as wind and photovoltaic, the in-site retrieval of technical parameters of steam and gas turbines for the development of an automatic generation control project, the calculation of performance metrics for renewable energies quality output, the creation of a dynamic model of an automatic generation control and dynamic studies in DIgSILENT for the interconnection of the SING system with the Argentinean electricity network.

• Sysred S.A. **Santiago, Chile**
Project Engineer *January 2014 – May 2014*

Worked as a consultant conducting studies for the development of new generation units in the Chilean electricity network.

Education

• Technical University of Berlin, EET **Berlin, Germany**
PhD *August 2017 – April 2021*

Obtained the degree of doctor in engineering sciences, awarded with *Sehr gut* (Magna Cum Laude).

• University of Chile **Santiago, Chile**
Faculty of Physical and Mathematical Sciences, Electrical Engineering *2008 – 2013*

Obtained the degree of electrical engineer awarded with Magna Cum Laude (6.3 /7.0) and receives the maximum grade (7.0) in his thesis. Received the award *Distinguished Student* on 2008, 2009, 2011, 2012, which considers the students with an average grade above 5.5 out of 7.0 during the year.

Skills

Languages: Spanish **(**Native), English (Advanced), German (Advanced, estimated C1), French (A1).

Published Scientific contributions

Articles (4)

F. Salinas and J. Kowal (2020). Discharge Rate Capability in Aged Li-Ion Batteries. Journal of The Electrochemical Society, Volume 167, Number 14.

F. Salinas and J. Kowal (2020). Classifying Aged Li-Ion Cells from Notebook Batteries. Sustainability 2020, 12(9), 3620

F. Salinas, L. Krüger, S. Neupert and J. Kowal (2019). A second life for li-ion cells rescued from notebook batteries. Journal of Energy Storage Vol. 24, 100747.

F. Salinas, C. Rahmann y L. Vargas (2016). Análisis de oscilaciones interárea ante distintas alternativas de interconexión SIC-SING. Ingeniare. 2016, vol.24, n.3, pp.366-376. ISSN 0718-3305.

Books (1)

L. Vargas, J. Haas, L. Reyes, F. Salinas y D. Murata (2020). Generación de energía eléctrica con fuentes renovables. Editorial Universitaria. 2020.

Technical Reports (3)

R. Vásquez y F. Salinas (2018). Tecnologías del hidrógeno y perspectivas para Chile. GIZ.

F. Salinas (2016). Pronósticos de la generación renovable eólica y solar fotovoltaica. GIZ.

J. Avalos R. Galvez, F. Salinas, C. Leyton (2015). Efectos Técnico-Económico de la Integración Eólica y Solar en el SING. CDEC-SING

Thesis (2)

F. Salinas (2021). Second life assessment of Lithium-ion cells obtained from portable electronics. TU Berlin

F. Salinas (2014). Análisis de oscilaciones interárea ante distintas alternativas de interconexión SIC-SING.

Posters and talks (3)

F. Salinas and J. Kowal (2020). A View on Battery Production from Reutilization. IBPC conference, Online, Germany.

F. Salinas and J. Kowal (2019). A Second Life for Lithium-ion Cells Used in Notebook Batteries: A Technical Assessment. IRES conference, Düsseldorf, Germany.

F. Salinas and J. Kowal (2018). Capacity fade assessment of used Lithium-ion cells in notebook batteries. Advanced Battery Power Conference, Munster, Germany.