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Personal Information

Full name: Rodrigo Alejandro González Vidal
Date of birth: 24th of September of 1992
Place of birth: Viña del Mar, Chile
Citizenship: Chilean
Professional Degree: Ingeniero Civil Electrónico (Electronics Engineer)

Research Interests

- Identification of continuous-time stochastic dynamical systems
- Finite sample analysis of system identification methods
- Non-parametric system identification
- Control over Networks

Education

- **KTH Royal Institute of Technology** — Stockholm, Sweden
  Ph.D. student, Division of Decision and Control Systems — *2017 - 2022 (Projected)*
  - Supervisor: Asoc. Prof. Cristian R. Rojas.
- **Universidad Técnica Federico Santa María** — Valparaíso, Chile
  Master of Science of Electronic Engineering (Major: Automatic Control) — *2015 - 2016*
  - Title: *Imposition of Causality and Passivity in Spectral Analysis* (in Spanish).
  - Supervisor: Prof. Ricardo A. Rojas.
  - Committee: Ph.D. Ricardo A. Rojas (UTFSM, Chile), Ph.D. Cristian R. Rojas (KTH, Sweden), Ph.Dc. Patricio E. Valenzuela (KTH, Sweden), Ph.D. Daniel Sbárbaro (U. Concepción, Chile).
  - Completed: November 2016.
- **Universidad Técnica Federico Santa María** — Valparaíso, Chile
  Electronics Engineering Degree (6-year degree) — *2011 - 2016*
  - Supervisor: Prof. Ricardo A. Rojas.
  - GPA of 92% (Maximum: 100%). Ranking: 1st out of 70 students.
  - Completed: November 2016.

Ph.D. Courses

- **Ph.D. Courses taken at KTH, Sweden:**
  - FJL3380, Theoretical Foundations of Machine Learning (Spring 2019)
  - FEL3311, Distributed Optimization (Spring 2019)
  - FAK3127, The Sustainable Scientist (Spring 2019)
  - FEL3202, Data Driven Modeling - Extended Course (Spring 2019)
  - FEL3370, Mathematical Method in Signals, Systems and Control (Spring 2019)
  - FAK3014, Theory and Methodology of Science (Spring 2019)
  - FEM3200, Optimal Filtering (Autumn 2018)
  - FEM3220, Matrix Algebra (Spring 2018)
  - FDS3103, Introduction to Scientific Writing (Spring 2018)
  - FSF3862, Nonlinear Systems, Analysis and Control (Spring 2018)
  - FLH3000, Basic Communication and Teaching (Spring 2018)
  - FEL3210, Multivariable Feedback Control Systems (Autumn 2017)
  - FEF3301, Computational Game Theory (Autumn 2017)
- **MSc./Ph.D. Courses taken at UTFSM, Chile:**
  - MAT235, Functional Analysis (attended lectures Semester 2017-1)
  - MAT379, Optimization and Control (attended lectures Semester 2017-1)
  - MAT263, Probability Theory and Stochastic Processes (attended lectures Semester 2016-1)
  - MAT226, Measure Theory (attended lectures Semester 2015-2)
  - MAT235, Complex Variables (Semester 2015-2)
  - IPD476, Multivariable Control (Semester 2015-2)
  - MAT225, Real Analysis (Semester 2015-1)
  - IPD469, Models for Control (Semester 2015-1)
  - IPD462, Advanced Design of Control Systems (Semester 2015-1)
  - IPD468, System Dynamics (Semester 2014-2)
  - IPD460, Information Theory (Semester 2014-2)
  - IPD431, Probability and Random Processes (Semester 2014-1)
  - IPD410, Mathematical Methods in Automatic Control (Semester 2013-2)

Research Experience

- **Ph.D. student** — Stockholm, Sweden
  Division of Decision and Control Systems, KTH — *Oct. 2017 - 2022 (Projected)*
  - Under the supervision of Asoc. Prof. Cristian R. Rojas.
- **Reviewer** — Stockholm, Sweden
  IEEE-IFAC — *2017 -*

- Reviewer for IFAC Automatica Journal, Elsevier Signal Processing Journal, IEEE Control Systems Letters.

- **Research Assistant** — Valparaíso, Chile
  Department of Electronics, UTFSM — *Feb. 2017 - Sept. 2017*
  - Hired by Project FONDECYT 1161241, 'Optimal estimation and control over communication channels subject to data loss'.
  - Under the supervision of Prof. Francisco Vargas.
  - Output: One conference paper (ECC2018), two Journal papers (TAC and L-CSS).

- **Research Intern** — Berlin, Germany
  Control Systems Group, TU Berlin — *Jan. 2016 - Feb. 2016*
  - 8-week internship.
  - Funded by CONICYT's 'Scholarship for short internships abroad'.

- **Visitor** — Stockholm, Sweden
  Division of Decision and Control Systems, KTH — *Mar. 2016*
  - 2-week visit to the System Identification Group of KTH, invited by Asoc. Prof. Cristian Rojas.

Teaching and Supervision Experience

- **Teaching Assistant** — KTH, Sweden
  EL2820 'Modelling of Dynamical Systems' (Masters Course) — *Autumns 2018-2019*

- **Supervisor of Bachelor Thesis projects** — KTH, Sweden
  Bachelor Thesis Course, Electrical Engineering Program — *Springs 2018-2019*
  - Project 2018: 'Evaluating different algorithms for detecting change-points in Time Series', by Henrik Eriksson and Victor Löfgren.
  - Project 2019: 'Evaluating LASSO and ARIMA algorithms for financial forecasting', by Oskar Erlandsson and Andrej Wilczek.

- **Supervisor of MSc. Theses** — KTH, Sweden
  Master Programme in System, Control and Robotics — *Springs 2018-2019*
  - Thesis 2018: 'Hydraulic Closed Loop Control', by Maria Elfving.
  - Thesis 2019: 'Online maximum capacity estimation of a propulsion battery on heavy duty vehicles', by Nikolaos Karavalakis.

- **Teaching Assistant** — Department of Electronics, UTFSM, Chile
  ELO-370 'Automatic Control II'(Digital Control) — *2nd Semester 2016*

- **Teaching Assistant** — Department of Electronics, UTFSM, Chile
  ELO-104 'Linear Systems Analysis' (four times) — *2015 - 2016*

- **Teaching Assistant** — Department of Mathematics, UTFSM, Chile
  MAT-024 'Multivariable Integration and PDEs' — *2nd Semester 2015*

- **Teaching Assistant** — Department of Mathematics, UTFSM, Chile
  MAT-023 'Multivariable Differential Calculus and ODEs' — *1st Semester 2014*

- **Teaching Assistant** — Department of Physics, UTFSM, Chile
  FIS-120 'Electromagnetism' — *2nd Semester 2013*

- **Teaching Assistant** — Department of Mathematics, UTFSM, Chile
  MAT-021 'Algebra and Elementary Calculus' — *1st Semester 2013*

- **Teaching Assistant** Department of Mathematics, UTFSM, Chile
  MAT-022 'Linear Algebra and Single Variable Integration' (twice) *2nd Semester 2012-2013*

Other working experience

- **Volunteer in the organizing crew of SYSID'18** Stockholm, Sweden
  KTH Royal institute of Technology *2018*
  - In charge of solving technical issues and support during the IFAC Symposium on System Identification (SYSID'18), held in Stockholm.
- **Report Assistant** Valparaíso, Chile
  Department of Electronics, UTFSM *2016*
  - Report assistant and member of the committee of the accreditation process of the Master of Science degree in Electronic Engineering.
  - After 1 year of work, we obtained 2 extra years of accreditation of the program (from 6 to 8).
- **Vicepresident of the Student Union** Valparaíso, Chile
  Department of Electronics, UTFSM *2015*
  - Vicepresident of the association of all ∼650 students of Electronic and Telematic Engineering of the UTFSM. The position lasts one year.
- **Summer intern** Ventanas, Chile
  Codelco, Ventanas division *Jan. 2015 - March. 2015*
  - Summer intern for 8 weeks in the Refinement section of Codelco (National Corporation of Copper).
- **Summer intern** Santiago, Chile
  Honeywell Chile S.A. *Jan. 2014 - March. 2014*
  - Summer intern for 8 weeks in Honeywell Chile S.A. Automatic Control Area.
- **PSU practice test corrector** Valparaíso, Chile
  Admission team, UTFSM *2011 - 2016*
  - In charge of the validation and listing of format and mathematical errors of the PSU (National University Selection Test) practice tests of the UTFSM.
  - Over 30 practice exams validated.

Merits and Awards

- **Recipient of the 'Esfuerzo es Progreso' award** Valparaíso, Chile
  UTFSM *2019*
  - Testamentary donation/award given to the best Electronic Engineering student of UTFSM graduated in 2016.
- **Recipient of Complex Dynamic Systems and Control (CDSC) Scholarship** Newcastle, Australia
  University of Newcastle, Australia *2019*
  - Research scholarship of $AUD5000 for visiting the University of Newcastle during November 2019.
- **Recipient of grant by The Ericsson Research Foundation** Stockholm, Sweden
  Ericsson *2019*
  - Grant of 10000 SEK to attend the 2019 Summer School of High Dimensional Probability and Algorithms, held in Paris, France, 1-5th July.

- **Recipient of the 'Marcos Orrego Puelma' award** Santiago, Chile
  Institute of Engineers of Chile *2017*
  - Award given to the best Engineering student of UTFSM graduated in 2016 (among ∼1000 students).
- **Recipient of the 'Mejor titulado Ing. Civil Electrónica promoción 2016' award** Valparaíso, Chile
  School of Engineers of Chile *2017*
  - Distinction given to the best Electronic Engineer of UTFSM graduated in 2016, in recognition of his academic performance and his conditions of leadership and participation.
- **Recipient of the Distinción Académica 'Federico Santa María'** Valparaíso, Chile
  UTFSM *2016*
  - Award given to the best student of Electronics Engineering graduated in 2016.
- **Outstanding student of Master studies in Electronic Engineering** Valparaíso, Chile
  UTFSM *2016*
  - Award given to the best student of Master of Science of Electronic Engineering graduated in 2016.
- **Recipient of the CONICYT 'Scholarship for short internships abroad'** Santiago, Chile
  CONICYT *2016*
  - National scholarship given to approximately 90 students of Chile per year to afford a short internship in a university abroad.
- **Recipient of the CONICYT 'Scholarship for Master studies in Chile'** Santiago, Chile
  CONICYT *2015-2016*
  - National scholarship given to approximately 250 students of Chile per year to economically support their MSc. studies in a Chilean university.
- **1st place in the Honor list** Valparaíso, Chile
  UTFSM *2014 and 2015*
  - Honor given to the student with the best academical performance of all the University (among ∼10000 students).
- **2nd place in the Honor list** Valparaíso, Chile
  UTFSM *2013 and 2016*
  - Honor given to the student with the second best academical performance of all the University (among ∼10000 students).
- **Recipient of the Academic Merit of the Electronics Department Award** Valparaíso, Chile
  Department of Electronics, UTFSM *2012-2017*
  - Award given to all the students of the Electronics Department with average academic qualifications of over 80 out of 100.
  - Award won six consecutive times (all the times possible).
- **Recipient of the 'Premio al Mérito Académico UTFSM'** Valparaíso, Chile
  UTFSM *2012-2016*
  - Award given to the two students with highest academic qualifications of all their generation in the University (around 1000 students per generation).
  - Award won five consecutive times (all the times possible).
- **'Puntaje Nacional' Scholarship** Valparaíso, Chile
  UTFSM *2011-2016*
  - Full undergraduate and postgraduate scholarship given to the student with perfect score in any PSU test (National University Selection Test) of 2010.

- **Highest PSU score of the UTFSM in 2011** Valparaíso, Chile
  UTFSM *2011*
  - Honor given to the student with highest average PSU (National University Selection Test) score who entered the UTFSM in 2011.
- **Perfect PSU score in Mathematics** Valparaíso, Chile
  Ministry of Education of Chile *2010*
  - Honor given to the student with perfect score in the PSU (National University Selection Test) of Mathematics of 2010.

Skills

- **Computer Skills**: MATLAB (advanced), LaTeX(advanced), Python (Intermediate), HTML (Basic).
- **Languages**: Spanish (Native), English (fluent), German (basic), Swedish (basic).
- Hold a Chilean driver's license (B).

Publications

Journals

- Francisco J. Vargas and **Rodrigo A. González**. On the existence of a stabilizing solution of Modified Algebraic Riccati Equations in terms of standard Algebraic Riccati Equations and Linear Matrix Inequalities. In *IEEE Control Systems Letters*, 2019.
- **Rodrigo A. González**, Francisco J. Vargas and Jie Chen. Necessary and sufficient conditions for mean square stabilization over MIMO SNR-Constrained channels with colored and spatially correlated additive noises. In *IEEE Transactions on Automatic Control*, 2019.
- **Rodrigo A. González**, Patricio E. Valenzuela, Cristian R. Rojas and Ricardo A. Rojas. Optimal enforcement of causality in non-parametric transfer function estimation. In *IEEE Control Systems Letters*, 1(2): 268-273, 2017.

Conferences

- **Rodrigo A. González**, James S. Welsh and Cristian R. Rojas. An asymptotically optimal indirect approach to continuous-time system identification. In *Proceedings of the 57th IEEE Conference on Decision and Control (CDC'18)*, Miami Beach, FL, USA, 2018.
- **Rodrigo A. González** and Cristian R. Rojas. A fully Bayesian approach to kernel-based regularization for impulse response estimation. In *Proceedings of the 18th IFAC Symposium on System Identification (SYSID'18)*, Stockholm, Sweden, 2018.
- **Rodrigo A. González**, Francisco J. Vargas and Jie Chen. Stabilization of MIMO systems over additive correlated noise channels subject to multiple SNR-constraints. In *Proceedings of the 16th European Control Conference (ECC'18)*, Limassol, Cyprus, 2018.

Theses

- **Rodrigo A. González**, *Enforcement of Causality and Passivity in Spectral Analysis* (in Spanish) Master's Thesis, Universidad Técnica Federico Santa María, Valparaíso, Chile, November 2016. Supervisors: Prof. Ricardo A. Rojas, Cristian R. Rojas and Patricio E. Valenzuela.

Books

- **Rodrigo A. González**, *Exercise Compendium of Linear Systems Analysis* (in Spanish). July 2019.

Others

- **Rodrigo A. González**, Siqi Pan, Cristian R. Rojas and James S. Welsh. *Consistency of the Simplified Refined Instrumental Variable Method for Continuous-time Systems: Analysis and Design*. Poster at the 2019 Workshop of the European Research Network on System Identification (ERNSI), September, Maastricht, Netherlands.
- **Rodrigo A. González**, James S. Welsh and Cristian R. Rojas. *An asymptotically optimal indirect approach to continuous-time system identification*. Poster at the 2018 Workshop of the European Research Network on System Identification (ERNSI), September, Cambridge, U.K.
- **Rodrigo A. González** and Cristian R. Rojas. *An asymptotically optimal indirect approach to continuous-time system identification*. Presentation at the 2018 Swedish Control Conference (Reglermötet), June, Stockholm, Sweden.

Interests

- **Sports**: Soccer, Basketball, running.
- **Music**: Guitar (acoustic, electric), Bass (fretted and fretless), Keyboards.
- **Other interests**: Chess, reading, travelling.