

Alejandro Maass M.

Curriculum Vitae

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Personal Data

Date and Place of Birth April 25, 1989, Santiago, Chile

Citizenship Chilean

Education

2015–Present **Doctor of Philosophy in Electrical and Electronic Engineering.**
The University of Melbourne, Melbourne, Australia

2011–2013 **Master of Science in Electronic Engineering.**
Universidad Técnica Federico Santa María (UTFSM), Valparaíso, Chile

– MASTER THESIS
Title *Optimal Control of Linear Systems over Fading Channels*

2007–2013 **Electronic Engineering, specialization in automatic control.**
UTFSM, Valparaíso, Chile

Academic and Work Experience

Teaching

2016–Present Jul. **Head Tutor**, “*ELEN90064 Advanced Control Systems*”, Department of Electrical and Electronic Engineering, The University of Melbourne.
Oversee tutors, prepare exercises and teach master students to apply state-space techniques in the analysis and design of control systems. Formulate and solve constrained optimization problems supporting this analysis with simulation and practical laboratory experiments.

2015–Nov. Jul. **Tutor**, “*ELEN90064 Advanced Control Systems*”, Department of Electrical and Electronic Engineering, The University of Melbourne.

2015 Teaching master students to apply state-space techniques in the analysis and design of control systems. Formulate and solve constrained optimization problems supporting this analysis with simulation and practical laboratory experiments.

2014–Jul. Mar. **Lecturer**, “*Control Automático I (Analysis and design of control systems)*”, Department of Electronic Engineering, UTFSM.
2014 Evaluation: 4.49/5

2010–Jul. Mar. **Head Tutor**, “*Física General II (Electromagnetism)*”, Physics Department, UTFSM.
2012 Oversee tutors, organize and elaborate exams and exercises.

2010–Dec. Mar. **Basic Electronics Teacher**, “*Descubridores*” Workshop, Department of Electronic Engineering, UTFSM.
2010 Course of basic electronics to high school students.

Mar. **Tutor**, “*Física General II*” (*Electromagnetism*), Physics Department, UTFSM.
2009–Dec. Teach and elaborate electromagnetism exercises to undergraduate students.
2009

Research

Mar. **Research Assistant**, Department of Electronic Engineering, UTFSM.
2014–Jan.
2015

Research Networked Control Systems, Optimal Linear Control.
topics

Jan. **Internship**, Basque Center for Applied Mathematics, Bilbao, Spain.
2011–Feb.
2011

Supervisor Enrique Zuazua

Research Partial Differential Equations: Analysis, Control, Numerics and Applications
Project

Jan. **Internship**, Universidad Técnica Federico Santa María, Valparaíso, Chile.
2012–Feb.
2012

Supervisor Eduardo Silva

Description - Using Information Theory to characterize the transmission rate on a Networked Control System.
- Implementation of a Networked Control System closed over a digital channel in Matlab.

Others

Mar. **Finance Manager**, *Electronics Student Organization*, Department of Electronic
2012–Dec. Engineering, UTFSM.
2012

Carrying out the organization accounting.

Mar. **Electronics Engineering promotion**, *Electronics Student Organization*, Depart-
2011–Dec. ment of Electronic Engineering, UTFSM.
2012

Oversee the promotion of the Electronics Engineering career along Chilean schools.

Research Projects

2013–2014 **Support Researcher**, *FONDECYT project N° 1130459*, “Optimal Control over Fading Channels”.

2011–2013 **Support Researcher**, *Associative research project: Anillo ACT-053*, “Modeling, optimization and control with applications to networked systems using wireless communications”.

Publications

Journals

A.I. Maass, D. Nesic, R. Postoyan, P.M. Dower, Observer design for networked control systems with persistently exciting protocols, In preparation to be submitted in August 2018.

A.I. Maass, D. Nesic, R. Postoyan, P.M. Dower, Lp stability of networked control systems implemented on WirelessHART, submitted to Automatica, March 2018.

A.I. Maass, F.J. Vargas, E.I. Silva, Optimal control over multiple erasure channels using a data dropout compensation scheme, Automatica, June 2016.

A.I. Maass, E.I. Silva, Performance limits in the control of SIMO LTI plants over fading channels, IET Control Theory & Applications, September 2014.

International Conferences

A.I. Maass, D. Nesic, R. Postoyan, P.M. Dower, Observer design for networked control systems implemented over WirelessHART. Accepted in the 57th IEEE Conference on Decision and Control, Miami, FL, USA, 2018.

A.I. Maass, D. Nesic, R. Postoyan, P.M. Dower, V.S. Varma, Emulation-based stabilisation of networked control systems over WirelessHART. 56th IEEE Conference on Decision and Control, Melbourne, Australia, 2017.

F. Cid, F.J. Vargas, A.I. Maass, Feedback control over lossy channels: optimal estimation considering data-loss compensation strategies. 56th IEEE Conference on Decision and Control, Melbourne, Australia, 2017.

F.J. Vargas, F. Cid, A.I. Maass, Optimal estimation in feedback control loops with packet dropouts compensation strategies. 25th Mediterranean Conference on Control and Automation (MED), Valletta, Malta, 2017.

A.I. Maass, F.J. Vargas, Control with erasure channels: performance characterization using an equivalent SNR constrained problem. 20th IFAC World Congress, Toulouse, France, 2017.

A.I. Maass, D. Nešić, P.M. Dower, A hybrid model of networked control systems implemented on WirelessHART networks under source routing configuration. Australian Control Conference (AUCC), Newcastle, Australia, 2016.

E.I. Silva, A.I. Maass, F.J. Vargas, Optimal design of remote controllers for LTI plants over erasure channels. 19th IFAC World Congress, Cape Town, South Africa, 2013.

A.I. Maass, E.I. Silva, Performance limitations in the control of LTI plants over fading channels. 9th Asian Control Conference, Istanbul, Turkey, 2013.

E.I. Silva, F.J. Vargas, A.I. Maass, Optimal design of a class of controllers and data-dropout compensators for LTI plants controlled over erasure channels. 52nd IEEE Conference on Decision and Control, Florence, Italy, 2013.

Acknowledgments

S. Ervedoza, E. Zuazua, The Wave Equation: Control and Numeric, Control of Partial Differential Equations, P. M. Cannarsa and J. M. Coron, eds., Lecture Notes in Mathematics, CIME Subseries, Springer Verlag..

Improve plots and also run the numerical experiments of the article.

Memberships

2014–to date **IEEE Member**, *The Institute of Electrical and Electronics Engineers (IEEE)*.
2018–to date **IEEE CSS Member**, *IEEE Control Systems Society (IEEE CSS)*.

Awards and Honors

2015–2018 **BECAS CHILE Scholarship**, *Advanced Human Capital Training Program*.
Scholarship for PhD studies

2011–2013 **CONICYT Scholarship**, *Advanced Human Capital Training Program*.
Scholarship for Master studies

2011–2013 **UTFSM Scholarship**, *Department of research and postgraduate students*.
Scholarship for Master studies

2008–2013 **The List of Honor of Students of UTFSM**.
Award given to all students that achieve academic excellence levels

Computer Skills

Basic C, Verilog, Assembler, LabVIEW
Intermediate Linux, Mathematica, Simulink, MS Office
Expert Matlab, L^AT_EX

Languages

Spanish **Spoken & written (Mother Tongue)**.
English **Spoken & written (IELTS Overall Band Score 7.5)**.
French **Basic**.

Others

- Jul 2015–Sep 2015 **Tutor & Demonstrator Professional Development Program**, *The University of Melbourne*, Australia.
The aim of the program is to help tutors develop practical teaching skills based on the principles of exemplary educational practice in Higher Education.
- January 2010 **English Course (916A)**, *North American Institute of Languages*, Chile.
- January 2009 **English Course (915A)**, *North American Institute of Languages*, Chile.
- January 2007 **Math. Course (Matemáticas III)**, *Summer school, Universidad de Chile*, Chile.