MIGUEL A. SOLIS

Head at Automation and Robotics Engineering, Universidad Andrés Bello.

PROGRAMMING SKILLS

Python

C

NumPy, Pandas

Matlab

LabView

LaTeX

Unix

CONTACT

Linacre 449, Valparaíso, Chile.

+56 9 8328 7452

miguel.solis@unab.cl

WORK EXPERIENCE

Head at Automation and Robotics Engineering
Universidad Andrés Bello. Santiago, Chile

Feb. 20 - Today

Taught courses:

- Introduction to Automatic Control.
- Electric Circuits and Machines.

Interim Academic
Universidad Católica del Norte. Antofagasta, Chile

Jul. 18 - Jan. 20

Taught courses:

- Operating Systems.
- Robotics Fundamentals.
- Internet of Things.

Instructor
Universidad Andrés Bello. Viña del Mar, Chile

Apr. 17 - Jun. 18

Undergraduate supervision (4 students).
Taught courses:

- Computers Architecture.
- Computers Programming (Python).
- Programming Fundamentals (C).
- Operating Systems.
- Computer Networks.
- Smart City Apps (co-taught).

Part-time lecturer
Universidad Técnica Federico Santa María. Valparaíso, Chile

Aug. 12 - Jun. 18

Taught courses:

- Computers Programming (Python).

EDUCATION

2012 - 2017

Dr.-Eng., Informatics
Universidad Técnica Federico Santa María
Reinforcement Learning on Control Systems with Unobserved States.
Supervisors:

- Prof. Héctor Allende, Informatics Dept.
- Prof. Manuel Olivares, Electronics Dept.

2010 - 2012

M.Sc., Electronics
Universidad Técnica Federico Santa María
State estimation of systems observed over erasure channels.
Supervisor:

- Prof. Eduardo I. Silva.

2006 - 2012

Electronics Engineering
Universidad Técnica Federico Santa María
Professional title with B.Sc. degree.

LANGUAGES

English

TOEFL
Sept. 2016

Reading

Listening

Writing

Speaking

PUBLICATIONS

Journals   Web of Science

[1] **M.A. Solis**, M. Olivares and H. Allende. A Switched Control Strategy for Swing-Up and StateRegulation for the Rotary Inverted Pendulum. Studies in Informatics and Control, 28(1): 45-54, **2019**. ISSN 1220-1766.

[2] **M.A. Solis**, M. Olivares and H. Allende. Stabilizing Dynamic State Feedback Controller Synthe-sis: A Reinforcement Learning Approach. Studies in Informatics and Control, 25(2): 245-254, **2016**. ISSN 1220-1766.

[3] E.I. Silva and **M.A. Solis**, An alternative look at the constant-gain Kalman filter for state estimation over erasure channels, IEEE Transactions on Automatic Control, 58(12): 3259-3265, **2013**. ISSN 0018-9286.

Conference Proceedings   Scopus

[1] F. Coiro, **M.A. Solis**, C.J. Nettle and A. Chila, Pre-robot: an open-source educational robotics platform for preschoolers. Proceedings of the 5th Congress on Robotics and Neuroscience, **2020**.

[2] F. Ollino, **M.A. Solis** and H. Allende, Batch Reinforcement Learning on a RoboCup SSL keep-away strategy learning problem. Proceedings of the 4th Congress on Robotics and Neuroscience, **2018**.

[3] P. Navarrete, C.J. Nettle, C. Oliva and **M.A. Solis**, Fostering Science and Technology Interest in Chilean Children with Educational Robot Kits. Proceedings of the 13rd IEEE Latin American Robotics Symposium, **2016**.

[4] G.A. Ahumada, C.J. Nettle and **M.A. Solis**, Accelerating Q-learning through Kalman Filter Estimations applied in a RoboCup SSL Simulation, Proceedings of the 10th IEEE Latin American Robotics Symposium, **2013**.

[5] E.I. Silva and **M.A. Solis**, An approach to stationary state estimation with missing data, Proceedings of the 9th IEEE International Conference on Control & Automation, **2011**.

Book Chapters

[1] O. Silva and **M.A. Solis**, Evolutionary Function Approximation for Gait Generation on Legged Robots. In Nature-Inspired Computing for Control Systems, Springer, **2016**. Editor: Hiram Ponce.

REVIEWS

- IEEE Latin America Transactions.
- IEEE Transactions on Smart Grid.
- IEEE Transactions on Systems, Man and Cybernetics: Systems.

CONFERENCES

IEEE ICDL-EpiRob 2020

Workshops Chair
International Conference on Development and Learning, and on Epigenetic Robotics

TICXED 2020

Program Committee
Chilean Congress on IT and Education

CRoNe 2019

Program Committee
5th Congress on Robotics and Neuroscience

INFONOR 2019

Track co-chair
10th International Conference on Computing and Informatics in Northern Chile

CRoNe 2018

Program Committee
4th Congress on Robotics and Neuroscience

WDKE 2018

Program Committee
2nd Workshop on Data and Knowledge Engineering at INFONOR 2018

TICXED 2018

Program Committee
19th Chilean Congress on IT and Education at JCCC 20188

CRoNe 2016

Organizer
2nd Congress on Robotics and Neuroscience

CRoNe 2015

Organizer
1st Congress on Robotics and Neuroscience

PROJECTS

Advisor `2020-2022`

Robótica educativa a distancia para actividades docentes a través de laboratorios remotos de alta disponibilidad y escalabilidad.
Funded by: Fundación Gabriel & Mary Mustakis.

Co-researcher `2016-2017`

Self-aware and self-organizing things for reconfiguring Web mashups of things during runtime.
Funded by: Universidad Andrés Bello.

Project leader `2012-2013`

Equipo RoboCup F-180 (students line)
Funded by: Mineduc (FDI 2011 and FDI 2012).

INVITED TALKS

Plenary Talk

CIIS 2019: XX Congreso Internacional de Informática y Sistemas.
Agregación de información con lógica difusa para la toma de decisiones en entornos dinámicos.

Plenary Talk

CIIS 2018: XIX Congreso Internacional de Informática y Sistemas.
Introducción al aprendizaje reforzado con Jupyterhub.

Plenary Talk

CRoNe 2018: IV Congress on Robotics and Neuroscience.
Introducción práctica al aprendizaje reforzado con aplicaciones en robótica.

Tutorial

CRoNe 2018: IV Congress on Robotics and Neuroscience.
Herramientas para cómputo y visualización de datos en Python 3.x.

Tutorial

EVIC 2017: XIII Escuela de Verano de Inteligencia Computacional.
Aprendizaje reforzado: conceptos básicos y aplicaciones en robótica.

Tutorial

CRoNe 2017: III Congress on Robotics and Neuroscience.
NumPy y herramientas de visualización en Python.

AWARDS

2020

Excellent Oral Presentation
5th Congress on Robotics and Neuroscience

2017

Academic Excellence Award
Graduate School, Universidad Técnica Federico Santa María

2015

Scientific Research Initiation Program
Universidad Técnica Federico Santa María

2012-2017

Doctoral Scholarship
Universidad Técnica Federico Santa María

2011

Scientific Research Initiation Program
Universidad Técnica Federico Santa María

2010-2012

Master in Science Scholarship
Universidad Técnica Federico Santa María

2009-2012

List of Honor of Students
Universidad Técnica Federico Santa María

MEMBERSHIPS

IEEE, Member +10 years

IEEE RAS, Member +7 years

Centro de Innovación y Robótica +4 years

IEEE T.C. on Neuro-Robotics Systems +2 years

JURY COMMITTEE (INVITED)

M.Sc. on Informatics Engineering

Universidad Católica del Norte.
Félix Nilo, 2019.

Navegación de un vehículo autónomo flotante (ASV) de bajo costo en un entorno semiestructurado.
Advisor: Prof. Ricardo Pérez.

M.Sc. on Informatics Engineering

Universidad Católica del Norte.
Carolina Silva, 2019.

Diseño, caracterización y fabricación de una pinza robótica interconectable modular con robótica blanda.
Advisor: Prof. José Gallardo.

M.Sc. on Electronics Engineering

Universidad Técnica Federico Santa María.
Hans Lehnert, 2019.

Mecanismos Bio-Inspirados Aplicados a Tareas de Navegación en Agentes Artificiales.
Advisor: Prof. María José Escobar.

M.Sc. on Biomedical Engineering

Universidad de Valparaíso.
Álvaro Jara, 2017.

Reproducción de la altitud baroméetrica del centro de masa de una persona a partir de videos de caídas.
Advisor: Prof. Pablo Reyes.

MISCELLANEOUS

Volunteer adviser at PAR Explora Antofagasta 2019

Volunteer adviser in *Investigación Científica Escolar* (Science Research for School Students) activity within PAR Explora Antofagasta.

Competitive Programming Coach 2017

Volunteer coaching for competitive programming groups from different schools, aiming to participate at the Olimpiadas Chilenas de Informática (Chilean Olympics on Informatics).

Member of Equipo RoboCup 2011-2014

Member of a SSL (Small Size League) Team, from the students initiative *Innovación y Robótica Estudiantil* (formerly known as Centro de Robótica) from Universidad Técnica Federico Santa María.