



PROGRAMMING SKILLS

Python



C



NumPy, Pandas



Matlab



LabView



L^AT_EX



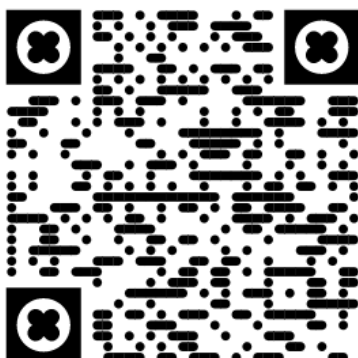
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CONTACT

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MIGUEL A. SOLIS

Head at Automation and Robotics Engineering,
Universidad Andrés Bello.

WORK EXPERIENCE

Head at Automation and Robotics Engineering
Assistant Professor

Universidad Andrés Bello. Santiago, Chile

Feb. 20 - Today

Undergraduate courses:

- Thesis supervision 17 students
- Industrial Process Control 2020
- Introduction to Automatic Control 2020
- Electric Circuits and Machines 2020

Graduate courses:

- Thesis supervision 3 students
- Internet of Things 2021
- Advanced Digital Networks 2021-2022
- Data Science Projects 2022
- Reinforcement Learning for Autonomous Agents 2022

Invited Lecturer

Universidad Central. Santiago, Chile

2022

Graduate courses:

- Internet of Things 2022
- Robotics Fundamentals 2022

Interim Academic

Universidad Católica del Norte. Antofagasta, Chile

Jul. 18 - Jan. 20

Taught courses:

- Operating Systems 2018-2019
- Robotics Fundamentals 2018-2019
- Internet of Things 2019

Instructor

Universidad Andrés Bello. Viña del Mar, Chile

Apr. 17 - Jun. 18

Undergraduate thesis supervision (4 students).

Taught courses:

- Computers Programming (Python) 2014-2018

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

- Computers Programming (C) 2016-2017
- Computer Architecture 2014-2017
- Operating Systems 2014-2017
- Computer Networks 2014-2017

Part-time lecturer

Universidad Técnica Federico Santa María. Valparaíso, Chile

Aug. 12 - Jun. 18

Taught courses:

- Computers Programming (Python) 2012-2018

PUBLICATIONS

Journals

Web of Science

[1] R. Torres, **M.A. Solis**, R. Salas and A.F. Bariviera. A Dynamic Linguistic Decision Making Approach for a Cryptocurrency Investment Scenario. IEEE Access, vol.8: 228514-228524, **2020**. (e)ISSN 2169-3536.

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

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

[4] 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**.

CONFERENCES

LACORO 2023

Organizer

Latin American Summer School
on Cognitive Robotics

ALA 2022

Program Committee

Adaptive and Learning Agents
Workshop at AAMAS 2022

ISR 2022

Technical Committee

International Symposium on
Robotics

SENTI Workshop 2022

Technical Committee

International Workshop on Sen-
timent Analysis and Emotion
Recognition for Social Robots

IWoSR 2021

Technical Committee

International Workshop on Ser-
vice Robotics

TICXED 2021

Program Committee

Chilean Congress on IT and Ed-
ucation

HARL 2021

Co-organizer

Workshop on Human-aligned
Reinforcement Learning for Au-
tonomous Agents and Robots at
IEEE ICDL 2021

IEEE ICDL 2020

Workshops Chair

International Conference on De-
velopment and Learning

LACORO 2020

Organizer

Latin American Summer School
on Cognitive Robotics

Book Chapters

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

PROJECTS

Principal Investigator

2023

exploreCSR program (explore Computer Science Research) + Supple-
mental REU Funding (research experience for undergraduates).

Funded by: Google Research.

Principal Researcher from Chilean group

2021-2023

Red de prevención, mitigación y rehabilitación de áreas afectadas por in-
cendios forestales (REDPREMIA).

Funded by: Programa Iberoamericano de Ciencia y Tecnología para el
Desarrollo CYTED.

Advisor

2020-2022

Robótica educativa a distancia para actividades docentes a través de lab-
oratorios 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).

EDITORIAL ACTIVITIES

Guest editor

2022-2023

Neural Computing and Applications

Part of the guests editors for Topical Collection (Special Issue) on Human-
aligned Reinforcement Learning for Autonomous Agents and Robots.

Guest editor

2022-2023

Frontiers in Neurorobotics

Part of the guests editors for Research Topic on Cognitive Inspired As-
pects of Robot Learning.

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 2018

CRoNe 2016

Organizer

2nd Congress on Robotics and Neuroscience

CRoNe 2015

Organizer

1st Congress on Robotics and Neuroscience

AWARDS

2022

Senior Membership Elevation
IEEE

Journal Reviews

- IEEE Latin America Transactions.
- IEEE Transactions on Smart Grid.
- IEEE Transactions on Systems, Man and Cybernetics: Systems.
- BioMedical Engineering Online.
- Neural Computing and Applications.

INVITED TALKS

Tutorial

Arduino Day 2022 Chile

Programación de Arduino mediante CLI.

Plenary Talk

CIIS 2021: XXII Congreso Internacional de Informática y Sistemas.

Toma de decisiones con un enfoque difuso para transacciones con criptomonedas.

Tutorial

Arduino Day 2021 Chile

Programación de Arduino mediante CLI.

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.

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

2011

Scientific Research Initiation Program
Universidad Técnica Federico Santa María

2009-2012

List of Honor of Students
Universidad Técnica Federico Santa María

MEMBERSHIPS

IEEE, Member +14 years

IEEE RAS, Member +8 years

Centro de Innovación y Robótica +5 years

IEEE T.C. on Neuro-Robotics Systems +4 years

Aprendizaje reforzado: conceptos básicos y aplicaciones en robótica.

Tutorial

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

JURY COMMITTEE (INVITED)

Dr.Sc. on Automation Engineering

Universidad de Santiago de Chile.
Oscar Loyola, 2021.

Nueva metodología para la interacción entre múltiples robots cognitivos basados en elementos jerárquicos.
Advisor: Prof. John Kern.

M.Sc. on Biomedical Engineering

Universidad de Valparaíso.
Mailyn Calderón, 2020.

Biomechanical signal processing and machine learning frameworks for the human movement analysis.
Advisor: Prof. Carolina Saavedra.

M.Sc. on Informatics Engineering

Universidad Católica del Norte.
Rubén Castro, 2019.

Diseño e implementación de un sistema de control de nivel no lineal para ensayos de controladores basados en sistemas inteligentes.
Advisor: Prof. José Gallardo.

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 barométrica del centro de masa de una persona a partir de videos de caídas.

Advisor: Prof. Pablo Reyes.

MISCELLANEOUS

President

2022-2023

President of the Executive Committee at Technical Chapter IEEE Robotics and Automation Society Chile Centro Section.

Cybersecurity Board at Senate of Chile

2022

Part of the Cybersecurity Board within the Future Challenges, Science, Technology and Innovation Committee at Senate of Chile.

Academic Committee at Professional Master

2021 - Today

Part of the Academic Committee at Professional Master degree Magister en Tecnologías de la Información y Telecomunicaciones. UNAB.

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