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## OBJECTIVES

- Development of algorithms for next generation of autonomous mobility with the mission of saving lives through the incorporation of technology in the automotive area.
- Contribute with +6 years of experience in development of technology through the agile mindset (using tools like Jira). Increase experience in driving functions (vehicle control) and radar technology.
- Improve planning and coordination of development and testing activities for Driving Functions.
- Share the MATLAB-Simulink experience for implementation of controllers for linear and nonlinear systems (steering wheel and dynamic motion controllers, electric machines as induction motors). Offer the best solution to potential clients using analytical thinking.

## EXPERIENCE

### ADVANCED DRIVER ASSISTANCE SYSTEMS ALGORITHMS

**ENGINEER • COMPANY:** [Continental Autonomous Mobility US, LLC- USA](#) • JANUARY 2023 – CURRENT

**Scrum Master** (2024) – Leading stand up, sprint planning and retrospective meetings. PI planning support to Product Owner.

**SW Algorithm developer (2023/2024)**- SW development for tracking function team (environment model - perceptions). Requirements decomposition (L0-L3), architecture, code implementation and SW quality assurance (static and dynamic) - SWE.1 to SWE.4 (ASPICE model).

**SW Algorithm Architect (2023)** - Responsible for integration changes in algorithm modules for Long Large Radar (environment model, raw data process and detection interface). Experience with alignment methods and basic test bench functionality for radar.

### ADVANCED DRIVER ASSISTANCE SYSTEMS ALGORITHMS

**ENGINEER • COMPANY:** [CONTINENTAL R&D -MX](#) • AUGUST 2018 – JANUARY 2023

**Function/Component Owner (Trailer Reverse Assist)** – Participate in RFI and RFQ to provide feedback regarding possible implementations. Planning and delivery of work packages related to driving functions team.

**Function Delivery Owner** - End-to-end responsibility for Trailer Drive function (function/feature in system and vehicle). Planning activities regarding to function and main technical interface between the SW Core Team, Component Delegates and customer. Requirements engineering (L0-L3), SW quality and algorithm performance (KPIs).

**SW Algorithm developer** - Design and development of control algorithms using MATLAB-Simulink and to create autogenerated c-code.

**SW Algo Test Engineer** - Test cases design based on customer requirements and simulations performed in Carmaker.

## SKILLS

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Languages: Spanish (Mother tongue)  
• English (Advanced)

Computer Skills:

Basic: Python  
Visual Studio Code

Intermediate:

C++, C, Linux, VIM and Terminator  
Editors for Linux, putty, VMware,  
Virtual Box.  
Jira, CarMaker,  
DOORS Next Generation.

Advanced: Matlab-Simulink  
(+10 years of experience), Windows  
(office) , Ubuntu (Linux).

Control Version Tools:  
(GitHub, IMS).

Rational Dynamic Object  
Oriented Requirements System  
(DOORS  
Beyond  
Compare

## Soft skills

Teamwork • Critical Thinking •  
Communication • Positive attitude •  
Tolerance of change and uncertainty •  
Willingness to learn

**LINUX/UNIX SYS ADMIN • COMPANY: SOFTTEK • JAN – JULY 2018**

Responsible of Storage Area Network migration process by means of Logic  
Volume Manager and VxVM. Working for DXC HP account.

**TEST ENGINEER • COMPANY: KELLY SERVICES - IBM • OCT 2017– JAN 2018**

Responsible of the deployment of the ESS (Elastic Storage service) for the power 8  
series at power department of International Business Machines. Conducting tests  
and data collection activities of software integration and related component  
systems. Assisting with the development of the testing environment and making  
modifications as necessary in fulfillment of test objectives.

**ELECTRICAL TECHNICIAN • COMPANY: KUKA ASSEMBLY & TEST  
• JAN–SEP 2017**

Responsible of assembly manufacturing cells. Experience reading prints and wiring  
all types of electrical application such as gantries, test stands, auto-stations, wiring  
small junction boxes and multi-door main control panels. Also, installation of  
optical, inductive sensors and flow meters.

## EDUCATION

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**DOCTORATE OF ELECTRIC ENGINEERING SCIENCE • 2013-2017**

• CENTRO DE INVESTIGACION Y ESTUDIOS AVANZADOS  
(GUADALAJARA CAMPUS)

GPA: 9.9/10 · Area: Automatic control

Thesis: Inverse Optimal Control relation with passivity Description: Optimization  
of controllers for nonlinear discrete time systems using properties of optimal and  
inverse optimal control and its relation with passive systems. Design of algorithms  
for linear, rotatory induction motors and a wind turbine prototype. Testing designed  
algorithms using Matlab-Simulink software for their implementation.

**MASTER OF ELECTRIC ENGINEERING SCIENCE • 2010-2012 •**

CENTRO DE INVESTIGACION Y ESTUDIOS AVANZADOS  
(GUADALAJARA CAMPUS)

GPA: 9.2/10 · Area: Automatic control

Thesis: Inverse Optimal Neuronal Control for a Synchronous Generator  
Description: Responsible of elaborate the algorithm for a control law of a  
synchronous generator using Matlab as a tool for design.

**BACHELOR OF SCIENCE IN ELECTRONICS • 2004 - 2010 •**

BENEMERITA UNIVERSIDAD AUTONOMA DE PUEBLA

GPA: 8.8/10 · Area: Robotics specialization

Thesis: Opto-mechatronics system for characterization of laser emission profile  
Description: Responsible for the design and implementation of a software for the  
measurement of infra-red and visible laser beam diameter, using LabVIEW as  
acquisition data software

## AWARDS

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2013-2016 · Scholarship for  
Doctorate studies granted by  
CONACYT.

2010-2012 · Scholarship for  
Master studies granted by  
CONACYT.

2010 · Scholarship for Thesis Project  
granted by  
Benemérita Universidad Autónoma  
de Puebla.

2008 · Scholarship for Program  
Young research III granted by  
Benemérita Universidad Autónoma  
de Puebla.

2007 · Scholarship for Program  
Science in your hands VII granted by  
Benemérita Universidad  
Autónoma de Puebla

## STAYS

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Georgia Institute of  
Technology, Atlanta,  
Georgia

Date: 01/03/2016 –  
30/06/2016

Project: Robust Inverse  
Optimal control for Doubly Fed  
Induction Generators Description:  
Design a robust inverse optimal  
controller for the wind turbine  
prototype that consists of a doubly  
fed induction generator and a direct  
current link.

Responsible: Dr. Ronald H. Harley

## PATENTS

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MX2021000619 - Safety override function

<https://patents.google.com/patent/MX2021000619A/en?q=MX2021000619>

MX2023001713A - Rearview mirrors, rearview mirrors, and adaptive polarized  
anti-high light rearview mirrors.

<https://patents.google.com/patent/MX2021000619A/en>

## PUBLICATIONS

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Title: Control Neuronal Optimo Inverso Con Gradiente De  
Velocidad para un Sistema Eléctrico De Potencia. Oct 2012 Congress: Congreso  
Nacional de la Asociación de México de Control Automático.

Title: Inverse optimal neural control with speed gradient for a power electric system  
with changes in loads. Sep 2012 Congress: Computing Science and Automatic  
Control Conference.

Title: Inverse Optimal Control with Speed Gradient for a Power Electric System  
Using a Neural Reduced Model. Jan 2014 Journal: Mathematical Problems in  
Engineering.

Title: Passivity Analysis of Discrete Inverse Optimal Control Based on Control  
Lyapunov Functions CLF. October 2014 Congress: 19th World Congress of the  
International Federation of Automatic Control.

Title: Passivity Analysis of Discrete-Time Inverse Optimal Control for Trajectory  
Tracking. May 2016 Journal: Franklin Journal Institute.

Title: Robustness of Discrete-Time Inverse Optimal Control for  
Trajectory Tracking. May 2016  
Congress: World Automation Congress 2016.