

Francisco J. Mata Carlos

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<http://cmosedu.com/jbaker/students/francisco/francisco.htm>

(702) 563-9640

WORK EXPERIENCE

Electrical Engineer

August 2018 – current

Vorpal Research Systems, LLC

- Responsible for managing manufacturing line which includes a high-end Yamaha pick and place machine, stencil printers, AOI machines, and reflow ovens, along with maintaining up-to-date inventory operations. Provide support with the facility electrical power distribution and wiring of manufacturing equipment.

Research Assistant

December 2016 – current

University of Nevada Las Vegas, Dr. Baker Research Group

- Collaborate with graduate and undergraduate students to accomplish ASICs design projects. Assist with PCB designing and testing equipment to test chips. Wirebond chips using K & S 4526 Manual Wire Bonder and populate components on PCB's. Design and 3D print different components using various CAD tools and Lulzbot mini printer, which are partly used on testing equipment.
- Publications
S. P. Namboodiri, G. Arteaga, J. Skelly, F. Mata-carlos, A. Roy and R. J. Baker, "A Current-Mode Photon Counting Circuit for Long- Range LiDAR Applications," 2020 IEEE 63rd International Midwest Symposium on Circuits and Systems (MWSCAS), 2020, pp. 146-149, doi: 10.1109/MWSCAS48704.2020.9184584.

Solar Installer

August 2014 – December 2015

SolarCity, Las Vegas, NV

- properly read and understand the installation plans and blueprints. Set up safety measures at each jobsite and identify safety hazards. In charge of crews on the roof to make sure proper installation according to plans and measurements are met. Mount electrical equipment, inverters, run conduit, and wired all equipment regarding electrical plans.

Licensing Petty Officer

January 2010 – June 2014

Navy/Marine Corps Reserve Center

- Specialized as an Equipment Operator for unit NMCB 17 under the NAVY and NAVY Reserve and oversaw the Licensing Department for that unit at Nellis Air Force Base.

MILITARY SERVICE

July 2006 – June 2014

Service Country: United States | **Branch:** Navy | **Rank:** E-5 | **Rate:** EO2 (Equipment Operator, 2nd Class Petty Officer)

Deployment: Deployed to Iraq from March 2008 to October 2008 – Served during OEF/OIF

Significant Military Projects

- **USAF Academy Project, Colorado Springs** - worked 360 man-hours with Air Force SSgt in charge using Air Force equipment to complete barracks for cadet training.
- **USAF Command Airlift Control Flight** - Supported training and conducted over a 60-hour mount out of airlift of 17 pieces of heavy and military equipment totaling over 770,600 pounds, and 93 personnel. Helped with equipment preparation, joint inspections, and simulated combat on-loads and off-loads of C-17, C-5 and C-130.
- **USMC and US Army contracts** - spend over 35 hours working on an intra-service contract with the Marines and Army to utilize HMMWVs, MTVRs and other equipment for training exercises.
- **Land Navigation Course** - utilized over 40 hours coordinating land navigation training using Air Force training site, Camp Cobra.

EDUCATION

Master of Science in Electrical Engineering

May 2022

University of Nevada Las Vegas - Las Vegas, NV

Bachelor of Science in Electrical Engineering

May 2020

University of Nevada Las Vegas - Las Vegas, NV

Diploma as Apprentice Electrician

November 2014

Advance Training Institute – Las Vegas, NV

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Academic Projects

Senior Design Project – Motor-Driven Laser Alignment Station

- A system that automatically aligns a lens with a laser diode to produce a product-ready laser.

CMOS Serial-to-Parallel Converter

- A serial-to-parallel converter was designed and tested using Cadence and C5 process, which takes a serial input data and an associated clock signal and generate an 8-bit output word and clock

CMOS Switching Power Supply (SPS), Boost Converter

- A Boost converter was designed to output a constant voltage of 7.5V for load currents ranging from 0 to 20mA while being powered with a VDD that can vary from 3.75 to 4.75V. The circuit design and layout was done using On'sC5 process.

CMOS Operational Amplifier Design Project

- An op-amp design was generated to operate between the range of VDD and 2V while driving a 100pF (max) and 1k (min) load.

CMOS Transimpedance Amplifier (TIA) Project

- This design is an analog front-end amplifier for converting current from an APD into output voltage. The model is composed of two stages with a minimum bandwidth of 250MHz and output swing between 1.5V and 2V.

SKILLS

Electrical skills – Residential wiring, conduit bending, photovoltaic installations, motor control and logic diagrams, circuit designing, circuit testing and debugging, PIC microcontrollers

Heavy and light equipment operations - Have worked and trained with different size construction equipment

Mechanical Skills – Have worked and replaced parts on vehicles such as starters, alternators, serpentine belts, brake pads

Leadership skills – Have served as a Squad Leader, unit leader, project leader, and have overseen several assignments, as well as military groups

Communication skills – Bilingual (Fluent in English and Spanish; writing, speaking, and reading) excellent communication skill within the Chain of Command and subordinates

Computer skills – Microsoft Word, Excel, PowerPoint, C++, Atmel Studio (ATmega328P)

EDA tools – Cadence Virtuoso

IDE- MPLAB X

Simulation tools – LTSpice, Cadence Spectre

Bonding skills - K & S 4526 Manual Wire Bonder

PCB skills – FreePCB, CircuitMaker and Altium tools

CAD tools – OpenScad, Solidworks

Soldering Skills – surface mount and through hole components