Benigno Maqueira, Ph.D. ▪ Hm: (407) 905-2541 ▪ Cell: (407) 284-7120
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Professional Summary & Objective:

Twenty years of regulated industry experience. Fifteen at Lockheed Martin and Texas Instruments in Systems EE/ME/SW Engineering, Controls/DSP as Research Engr. and Sr. Systems/Electrical Engineer technical lead. Recognized for U.S. Patents, initiative to unite teams and contributions to business success.

Objective: Senior Electrical/Mechanical/Software Engineering position in design, analysis or product development with opportunities for advancement as Corporate Technical Fellow. Exploring hands-on multi-disciplinary design and lead opportunities while providing cost effective direction, solutions and results.

Professional Experience & Skills:

Indotronix International Corp. – GN&C SW Engineer IV (Contract) ▪**1/2018 to 12/2018**

- GN&C Software engineer at Lockheed Martin developing and analyzing GNC algorithms and Inertial Tracking/Target State Estimation (Kalman filters) using IFS simulations. Designing closed-loop control systems and missile autopilot algorithms. Developing 6-DOF simulation models and simulation builds for flight software verification, flight motor trades and hardware-in-the-loop (HWIL) integration tests. Completed PCR's & Linux bash scripts for automating IFS Monte Carlo simulations & WEZ predictions. Investigating implementation of patent on adaptive notch filter to missile bending mode in support of preflight analysis. Patent is also being considered for implementation on Legion POD & Block II. Submitted flight test recommendations for evaluating patent performance. Created novel automated servo calibration algorithm for NextGen NSA & Green Wedge Focus Mechanism cogging torque compensation using adaptive feedforward to include mentoring and HW lab testing and implementation. Added controls and measurement filtering sections to Systems Training Course material used in internal training.

Skills: ▪ Linux, Windows; ▪Matlab/Simulink, Fortran, C++; ▪Common Simulation Framework (CSF)

Craig Technologies, Inc. (NASA, KSC) - Sr. Software & Controls Engineer ▪**5/2012 to 1/2018**

- Senior POC (Sr. Engineer 6) for Integrated HWIL Engineering of COTS PLC controllers (Allen Bradley,Rockwell), Realtime Models, Command and Control at NASA, Kennedy Space Center. Support of Operation Simulation/Software Build sustaining, active development and design specification of Launch Control System. Subject matter expert on automated Perl module code for transcoding field PLC code into simulation HWIL/SoftLogix compatible PLC code interfacing with Trick/Matlab simulations. Efficiently mastered steep technical learning curves and KSC policies and processes to assume the role of a former NASA team member. Robust, reliable and comprehensive SW development supporting integration of field local/remote operational SW in Linux/Win. Verification, assessment and delivery of internal and program-to-program distributed models and emulator applications effective in solving issues. Raised personal job performance and communication effectiveness - two areas critical to team work. Outstanding progress with resolutions in the areas of Subsystem Console Set Support tasks including troubleshooting and relationship with Master Console Operators, NASA customer and support personnel.

Skills: ▪ RSLogix,LadderLogic,XML; ▪Perl,RedHat,Unix,C++,Trick; ▪Jenkins,AccuRev,ClearQuest,CodeCollaborator

L-3 Communications - Signal Processing Software Engineer (Contract) ▪**11/2011 to 3/2012**

- Design and development of adaptive filtering algorithms for detection improvement of Ground Penetrating Radar. I/Q based DSP techniques for robotic application of commercial and homeland security products. Presented customer technical exchange reviews, contributed to program award extension, technical trade study evaluation demonstrating product improvement and engineering assessment evaluation applications.

Skills: ▪GPR, IED; ▪MS Visual C++, MEX, AccuRev; ▪Correlation Analysis; ▪Linear Predictors, SVD, PCA

PI, Inc. - Sr. Electrical Engineer (Contract), Robotic Systems and UAV ▪**11/2010 to 4/2011**

- Electromechanical aerial robotic system concept, product development, HW/SW prototype, controls design and integration. Designed GPS-based system including proof-of-principle, analysis/optimization. Applied Satellite/GPS networks for unmanned aircraft integrated with Piccolo autopilot ground station.

Skills: ▪UAV; ▪System ID; ▪LabView; ▪PSpice; ▪Ethernet/UDP; ▪Robot Manipulators (PLC,HMI); ▪GPS, DGPS

Lockheed Martin Corp. - Sr. Systems Engineer, Missiles & Fire Control ▪**6/2001 to 8/2010**

- EE/SW technical lead role with hands-on electronics and mechanical system, servo control, DSP and HW integration schedule/test. Responsible for technical risk, root cause identification, resolution and systems

level design for TADS, JSF and GSS program deliverables such as IRST, EOTS, Radar and MULE Mast. Point of contact for embedded control, DSP, HW/SW (Tactical,C++, I/O) interface, realtime optimization, troubleshooting and flexible structures. Contributions to business industry leadership include U.S. Patent: realtime adaptive/automatic tracking of stochastic noise (EMI/RF) and EE/ME resonances.

- Developed user OOP software source code and managed/maintained realtime interactive Matlab/Simulink DSP, FFT, controls and spectral/spectrum design and analysis SW tools used by colleagues for improved runtime stability, quality, efficiency and technical report and presentation support. Provided mentoring to include analytical theory, SW GUI (OOUI) interface, MEX DLL's, architecture and distributed modules.
- Designed/analyzed inertial navigation and wireless communications subsystems (RF, Telemetry, SATCOM) for AH-64, F-16/22, JSF aircraft development platforms and missile applications such as GPS, JASSM, DAGR, Longbow and SDB using Ada (Hellfire navigation and autopilot), Fortran and C/C++. Experience includes autopilots (Guidance and Navigation, Pro-Nav, Horizon Stabilization), Control Assembly System (CAS) including production, Monte Carlo trades, aerodynamics, kinematics, LOS stabilization. Kalman filtering estimation of state trajectory, attitude and target maneuver.
- Accomplished multiple program requirements/budget for design and systems integration of precision line-of-sight inertial stability/pointing, EOIR, gimbal avionic systems and sensors for military programs including MTADS, Hellfire, DAGR, JASSM and Sniper. Recognized for program savings in man-months of design and ability to assess system electro-mechanical performance. System requirements definition & functional/diagnostic test specifications (TPS) including error budgets, Mil-Standards, FAR and DOORS.
- Researched and integrated switching/field-of-view/focus servomechanism prototypes for FLIR, EO and laser/imaging/camera platforms essential for keeping U.S. Air Force and Army programs on schedule and within cost budget. Performed customer/client SRR, CDR, PDR reviews and demonstrations; sub-contractor (Raytheon, Boeing, BAE) components, sensor and gyro selection; DC/AC motor/actuator designs; training simulator design/test (helicopter/fixed-wing Hughes, McDonnell Douglas flight tests).

Skills: Design ▪Electro mechanical/magnetic sys & sensor development; ▪IIR/FIR/Elliptic/Butterworth Filters
▪Electro-optical system ME & Command/Controls design/assessment; ▪6DOF models & realtime simulations
▪FPGA PWM Power Amplifier/Current Driver Firmware and RF QPSK; ▪ Infrared Technology Applications

Hardware ▪Production component selection; ▪Optical encoder/autocollimator; ▪Machine vibration analysis
▪DSP algorithms, IQ modulation & Demod; ▪Filtering, estimation (Kalman); ▪Interactive simulator design
▪HWIL/HiL Integration & Testing (Xanalog); ▪TI, Motorola micro-controllers; ▪Guidance/Navigation (GNC)

Software ▪MS Visual C++; ▪Fortran,C,Ada,Basic; ▪Matlab/Simulink/MatrixX; ▪MapleV,MathCad,PSpice
▪Word/Excel/PPT/Project; ▪Monte Carlo Analysis; ▪AutoCAD, Pro-E (2D,3D); ▪VxWorks Tornado IDE

Systems ▪Servomotor applications; ▪Feedback, learning, optimal regulators; ▪Embedded and flight controls
▪Discrete/microprocessor control; ▪Nonlinear systems, robotics, automation; ▪LOS Pointing and Stabilization

Texas Instruments, Inc. - Research Engineer, Control Systems Center ▪3/1987 to 12/1993

- AAWS servo-mechanism design, performance analysis/prediction, hardware optimization of seekers and circuit boards while providing flight test proof-of-concept for advanced control & modulation techniques.
- Invented and implemented an adaptive friction compensator for stabilization platforms, LRU and bearing assemblies to control production unit-to-unit variations and reduce precision tolerance costs. Acquired a U.S. Patent on the resulting code algorithm. Published Friction Modeling/PID Compensation Ref. Guide.
- Experience with turrets, scanners, image/video numerical processing, target signature/identity, MTF and ME design/integration of magnetic sensors, Plessey ModII, flex-pivot & bearing/gear/power screw drives.

Skills: ▪NASTRAN; ▪Matlab, ACSL, LaTex; ▪Tektronix Dyn Signal Analysis; ▪Data Acquisition/Reduction
▪RF DSP Design; ▪Phase-lock Loop (PLL); ▪GE, IBM, SCARA, Ultrasonics; ▪Precision Speed/Velocity Control

Academic Degrees:

Ph.D. M.E., Georgia Institute of Technology, Atlanta, GA ▪G.P.A.: 3.8/4.0
Major/Minor: Systems Controls and Dynamics / Electronics Digital Signal Processing
M.S. M.E., Georgia Institute of Technology, Atlanta, GA ▪G.P.A.: 4.0/4.0
Multi-Disciplinary Certificate: *Computer Systems Integrated Manufacturing*
B.S. M.E., University of Miami, Coral Gables, FL ▪G.P.A.: 3.9/4.0
Magna Cum Laude Graduate, Tau Beta Pi Honor Society Member

U.S. Patents & Publications:

"*Real-time Adaptive Notch Compensator (RANC),*" ▪2005
Benigno Maqueira, Lockheed Martin Corp. Intellectual Property Board Patent No. 6,867,642 B1
"*Adaptive Friction Compensator for Stabilization Platforms*," ▪1993
Benigno Maqueira, Texas Instruments, Inc. Intellectual Property Board Patent No. 5,274,314
"Real-time Adaptive Notch Compensator," B. Maqueira Presentation, Lockheed Martin Corp., Guidance, Navigation and Controls Conf., Orlando, FL. ▪2005
"Output Control of Discrete-Time Nonlinear Systems," Nader Sadegh and Benigno Maqueira, American Control Conference, Baltimore, MA. ▪1994

Awards, Certifications & Accreditations:

Lockheed Martin Corp: ▪Patent Awards (2005, 2009), ▪Performance Recognition Award (2008)
Texas Instruments, Inc: ▪Patent Award (1993), ▪ NSF/GEE Scholarship, Georgia Tech (1994)
Certifications: ▪Six Sigma Green Belt (2011), ▪Infrared Technologies & Applications (2007)
▪Integrating Source Code with Simulink (2007), ▪U.S. Citizen, ▪Secret Clearance (2001-2012, 2017)