

Josh Carrington

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Mechanical Engineering Ph.D. (June 20XX) and Systems Test Engineer with 4 years industry experience in system integration, test and analysis on complex optical alignment systems. Expertise in vibration test/mitigation, control system development, and data analysis and processing. Demonstrated success as a systems test engineer/analyst, meeting tight program test schedules and milestone achievement goals. Possess strong presentation, communication, and oratory skills. Professional experience also supported by B.S in Engineering and Master of Engineering degrees. Additional skills include:

- SolidWorks (CAD)
 - L-edit (CAD)
 - Matlab
 - Mathcad
 - Origin
 - COMSOL (FEM/FEA)
 - Labview
 - Vibration test/analysis
 - Machine shop/fabrication
 - Project management
 - MS office suite & databases
 - Oral and written presentation
 - Efficiency improvement through analysis automation and tools
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SELECTED ACCOMPLISHMENTS

Test Engineering and Analysis

- Created measurement and analysis tools integrating cameras, optical position sensors, capacitive probes, strain, and displacement sensors for position sensing and real-time control of beam path alignment optics, XY stages and rotary stages using Labview and National Instruments DAQ cards.
- Developed tests, collected measurements, and analyzed data on box, bench, and system level vibration using over 100 channels of accelerometer, velocity, and optical position sensors for comparison with FEM predictions. Used environmental measurements to shape the spectral content of vibration source inputs to simulate various operational conditions.
- Provided system performance characterization for bench, ground, and flight tests of actively controlled alignment optics for beam trains with 20+ mirrors/lenses, developed filters to tune and improve system performance. Worked with software engineers on real-time code verification, debug, development, and modification.
- Created data analysis tools with Matlab, increasing analyst efficiency and reducing test report turn-around time by a factor of 10. Supported aggressive test schedules by rapid and automated analysis tasks, processing several gigabytes of data from each of dozens of tests, generating reports, and presenting results in less than 48 hours.

Engineering Design

- Designed micro-scale MEMS optical alignment devices using silicon fabrication techniques, using SolidWorks and L-edit CAD tools.
- Used SolidWorks CAD software to design parts and assemblies, created drawings and specifications for machine shop production of parts, and fabricated parts with standard machine tools (mill, lathe, drill press, saw, grinder, etc).
- Developed test environment for evaluation of MEMS alignment devices using Labview, DAQ cards, voltage and current supplies, spectrum analyzers, vibration exciters, laser vibrometer, and a position feedback control system including PID and bang-bang controllers.

Presentation and Documentation

- Conference presentations of Ph.D. research including bi-annual review sessions (1.5 hour poster and brief oral introductory presentation) and poster/oral presentations at international research conferences.
- Industrial experience including oral presentation of analysis results at group, department, and program level. Formal reporting and documentation of system performance and test procedures, measurements, and results.

PROFESSIONAL EXPERIENCE

UNIVERSITY OF CALIFORNIA, Davis, CA 20XX-Present
Graduate Student Researcher – MEMS Lab

Analyze, model, and design novel MEMS (microelectromechanical systems) optical alignment devices, perform micro-fabrication using silicon fabrication processes, instrument and test functionality, survivability, and performance. Solve instrumentation and fabrication challenges by developing new techniques, methods, and devices. Develop test and analysis software using Labview, Matlab, and various image capture programs.

UNITED SYSTEMS COMPANY, Sunnyside, CA 20XX-20XX
Systems Test Engineer

Integrated and tested complex electro-optical control systems. Performed vibration and acoustical instrumentation and tests to characterize system dynamic responses. Characterized hardware/controls at functional and performance levels. Analyzed large streams of test data, including development of automated processing tools in Matlab. Created performance predictions based on hardware and control loop simulations and provided control system analysis and tuning.

MAJOR LABORATORIES, Forest City, CA 20XX
Summer Intern

Developed GUI (graphical user interface) and NI-DAQ (National Instruments Data acquisition) based controller for DNA concentration, amplification, and detection device using LabWindows CVI (a C++ based language).

PRESTIGIOUS UNIVERSITY, Appleton, CA 20XX – 20XX
Lab Assistant/Machine Shop Proctor

Maintained tools and machines in student machine shop, served as TA (teachers assistant) for an experimental engineering lab class

EDUCATION

Doctor of Philosophy, Engineering, (June 20XX)
University of California, Davis, CA GPA 3.97

Master of Engineering (M.Eng.), 20XX
Prestigious University, Appleton, CA GPA 3.90

Bachelor of Science, Engineering, 20XX
Prestigious University, Appleton, CA GPA 3.29

ADDITIONAL SKILLS

Bi-lingual – English/Spanish
Handcar Regatta – Welding and metal engineering/fabrication

PROFESSIONAL AFFILIATIONS

Member of IEEE & ASME

SELECTED PUBLICATIONS

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SELECTED PRESENTATIONS

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