

Joey Sanchez

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Phone Number

859-684-2552

EDUCATION

Rutgers, The State University of New Jersey

Doctor of Philosophy, Mechanical Engineering

Dissertation Title: Observer-Based Force Reconstruction Technique

Advisor: Prof. Haym Benaroya

GPA: 3.661

Piscataway, NJ

Graduated: 1/2015

The Johns Hopkins University

Master of Science in Engineering, Mechanical Engineering

Concentration: Control Systems

Academic Advisor: Prof. Louis Whitcomb

GPA: 3.53

Baltimore, MD

Graduated: 05/2009

Rutgers, The State University of New Jersey

Bachelor of Science, Mechanical Engineering

GPA: 3.655

Piscataway, NJ

Graduated: 05/2007

PROFESSIONAL EXPERIENCE

Rutgers, The State University of New Jersey

Research Program Coordinator

Center for Advanced Infrastructure and Transportation

- Objective: I managed the National and Tier I University Transportation Center (UTC) projects.
 - Highlight: I organized and optimized internal processes to ensure CAIT is operating efficiently and according to policy.
 - Highlight: I supervised the review and completion of numerous UTC projects.
- Objective: I engaged in advanced research activities.
 - Highlight: In collaboration with Rutgers faculty and CAIT researchers, I redesigned the electrical system to improve the reliability of the prototype bridge diagnostics tool, THMPER.
 - Highlight: I assisted in the implementation of plans for the accelerated structural testing facility.

Piscataway, NJ

06/2014 – 3/2017

Brookhaven National Laboratory

GEM Fellow

Photon Sciences Division

- I designed an experimental setup to verify the accuracy and precision of kinematic couplings for use in the Hard X-Ray nanoscope, currently in development in the National Synchrotron Light Source II.

Upton, NY

05/2012 – 08/2012

Lexmark International, Inc.

Mechanical Engineer

Technical Rotation Program

- Product Engineer – Midrange Color Laser Product Engineering Team 10/2010–06/2011
 - Objective: To analyze possible causes for device failures and develop solutions to the underlying problems.
 - Highlight: I developed a program in MatLab to efficiently present graphical data.

Lexington, KY

06/2009 – 06/2011

- Thermal Engineer – Thermal Engineering Laboratory 01/2010–10/2010
 - Objective: To ensure the physical components of Lexmark printers are operating according to temperature specifications.
 - Highlight: I developed an algorithm to predict steady state temperatures from an incomplete data sample.
- Mechanical Design Engineer– Scanning & Imaging 06/2009–01/2010
 - Objective: To provide mechanical design support to the Scanning & Imaging Team.
 - Highlight: I developed a new illumination system prototype for inclusion in the scanner.

RESEARCH EXPERIENCE

SAE Concepts

South Plainfield, NJ

Founder & Researcher

01/2015 – Present

Description: This organization was developed to engage in theoretical research with the aim of contributing to the growth of technical knowledge and improving the quality of life through the development of technical innovation.

- I developed the numerical procedure and probabilistic model of the asymptotic approximation method.
 - This publication detailing the numerical procedure is currently under review for publication by Mechanical Systems and Signal Processing.
 - The publication detailing development and analysis of the probabilistic model is currently under development.

Rutgers, The State University of New Jersey

Piscataway, NJ

Doctoral Candidate

01/2012 – 1/2015

Department of Mechanical & Aerospace Engineering

- Doctoral Research: I developed a method to estimate the force(s) applied to a system based on the measured response of the system.

TEACHING EXPERIENCE

Rutgers, The State University of New Jersey

Piscataway, NJ

Instructor

09/2013 – 06/2014

Department of Mechanical & Aerospace Engineering

- Instructor for the Basic Computer-Aided Drafting course.
 - Software used in the course: Solidworks 2010
- Responsible for all aspects of the course.
- Instructed students on the basic elements involved in computer-aided drafting with an emphasis on the concepts needed to properly design structures and how to apply them within the software environment.

Rutgers, The State University of New Jersey

Piscataway, NJ

Instructor

06/2013 – 08/2013

Department of Mechanical & Aerospace Engineering

- Instructor for the Statics course
- Responsible for all aspects of the course.
- Instructed students on the basics of static Newtonian mechanics.

COMPUTER SKILLS

- CAD Software
 - Solidworks: Intermediate Level
 - NX 6.0: Intermediate Level
- Programming Languages
 - Matlab: Intermediate/Advanced Level
 - R: Intermediate Level
 - Julia: Beginner/Intermediate Level
 - Python: Beginner Level
- Word Processing Software
 - LateX: Intermediate/Advanced Level
 - Microsoft Office: Intermediate Level

PUBLICATIONS/CONFERENCES

Journal Articles

- Li, Q., Benaroya, H., Wang, J., Sanchez, J., Xue, K., *Free vibration analysis of moderately thick coupled plates with elastic boundary conditions*, Currently in development.
- Sanchez, J., *Asymptotic Approximation Method of Force Reconstruction: Application and Analysis of Stationary Random Forces*, submitted for consideration to Journal of Sound and Vibration.
- Sanchez J., *Asymptotic Approximation Method of Force Reconstruction: A Numerical Study*, currently under review for publication in Mechanical Systems and Signal Processing.
- Sanchez J., Benaroya H., *Asymptotic Approximation Method of Force Reconstruction: Proof of Concept*, Mechanical Systems and Signal Processing, Vol. 92, Pages 39-63
- Sanchez J., Benaroya H., *Review of Force Reconstruction Techniques*, Journal of Sound & Vibration, Vol. 333, Issue 14, Pages 2999 – 3018

Books

- Benaroya H, Han S, Nagurka M, Sanchez J, *Solutions Manual – Probabilistic Models for Dynamical Systems, 2nd Ed.*, New York: CRC Press, 2013

Conference Presentations/Publications

- Sanchez J, Benaroya H, *Force Reconstruction Techniques Review*, International Conference on Structural Safety & Reliability, New York, New York, June 16–20, 2013

HONORS

- Teaching Assistantship 09/2013–06/2014
- GEM Fellowship – Doctoral Degree 09/2012–06/2013
- Rutgers Graduate School Fellowship 09/2011–06/2012
- GEM Fellowship – Master’s Degree 02/2007–01/2009
- Tau Beta Pi Engineering Honor Society Induction: 12/2005
- Pi Tau Sigma Mechanical Engineering Honor Society Induction: 12/2005
- James Dickson Carr Scholarship 09/2003 – 05/2007
- Edward J. Bloustein Scholarship 09/2003 – 05/2007
- Outstanding Scholars Award 09/2003 – 05/2007
- Dean’s List 09/2003–05/2005,05/2006–05/2007

RELEVANT COURSEWORK

- Introduction to Linear Systems Theory
- Introduction to Robotics
- Robot Sensors & Actuators
- Adaptive Systems
- Space Vehicle Dynamics & Controls
- Mechanics of Materials
- Elasticity Theory
- Probabilistic Models for Dynamical Systems
- Continuum Mechanics
- Structural Mechanics
- Applied Mathematics for Engineers
- Advanced Mathematical Methods in Engineering
- Statistical Theory
- Dynamical Systems
- Analytical Dynamics
- Finite Element Method
- Fluid Mechanics I