Peter Orme

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Education

Vanderbilt University, Nashville, TN **Expected 2019**
Doctor of Philosophy, Civil Engineering – Structural Health Monitoring
Harvey Mudd College, Claremont, CA **May 2015**
Bachelor of Science, Engineering

Work Experience

SpaceX *Dynamic Environments Intern*, Hawthorne, CA **Summer 2015**
- Derived future vehicle vibroacoustic environments based on flight and wind tunnel data
- Developed a method for choosing least conservative test specification for sine-on-random vibration environments via fatigue damage potential analysis

De Pietro Fellowship in Civil Engineering *Harvey Mudd College*, Claremont, CA **Fall 2012 – Spring 2015**
Failure Investigation and Assessment of Wanapum Dam
- Acted as consultants for Grant County PUD following the discovery of a crack in Wanapum Dam
- Developed performance indicators to assess pier condition and reported on spillway dynamics

Performance-Based Analysis of Florence Lake Dam
- Used impulse-based field measurements to validate finite element models
- Developed analytical procedures to calculate performance bands for regional seismic hazards

Project Experience

Blue Origin, LLC – Clinic Project **Fall 2014 – Spring 2015**
Industry-sponsored project to develop a novel parachute deployment system | 5-person team
- Designed and tested a drogue parachute deployment system for re-entry and landing of a human crew capsule

Eaton Aerospace Corportation – Clinic Project **Spring 2014**
Industry-sponsered project to design a direct-drive, hydraulic servo valve | 5-person team
- Designed, prototyped, and tested two valve alternatives for an airplane nose-wheel steering system

Node Enforcing on a Vibrating Plate **Spring 2014**
Advanced Structural Dynamics, HMC | 2-person team
- Formulated a method for enforcing nodes at arbitrary locations on a transversely vibrating plate by attaching simple oscillators at non-collocated points
- Used the assumed modes method to approximate plate deformed shape and validated with commercial FEM

Autonomous Fixed-Wing Plane Design and Competition **Spring 2015**
Mudd Aerial Systems Team at HMC | 30-person team
- Lead a sub-team of 3 people in developing the dynamic model for flight of our fixed-wing plane
- Developed linear model for autopilot design to receive commands from path planning sub-team

Vibration and Trajectory Tracking of a Model Rocket **Spring 2013**
Experimental Engineering, HMC | 4-person team
- Built a 3 foot model rocket and designed an avionics package to track rocket trajectory and experimentally determine the modes of vibration

Skills and Honors

Software and Skills: Matlab, SolidWorks, Abaqus, Simulink, LabVIEW, Python, CNC milling & lathing
Coursework: Continuum Mechanics, Dynamics of Elastic Systems, Advanced Structural Dynamics, Compressible Flow, Nonlinear Systems Simulation and Control
Honors: – Tau Beta Pi, Engineering Honors Society (Fall 2013-Present)
- J.R. Phillips Award for outstanding experimental technique and engineering judgment (Spring 2013)

Publications

"Performance-Based Analysis of a Large Concrete Dam," Edelman, J., **Orme, P.**, Goldkamp, M., Savage, T., Duron,Z., Knar, M. Proc. of United States Society on Dams (USSD 2014).

"Performance-Based Testing of Large Concrete Dams," Duron, Z., Edelman, J., Goldkamp, M., **Orme,P.**, Savage, T. ASDSO Journal of Dam Safety Vol.11.3 (2014).

"Analytical and Numerical Modeling of the Wanapum Pier-Ogee Spillway," **Orme, P.**, Anderson, S., Duron,Z., Nash, R., Marshall, K. Accepted for Proc. of USSD (2015).

"Evaluating Relative Condition of Repeated Structural Elements with Performance-Based Testing," Anderson, S., **Orme, P.**, Duron,Z., Nash, R., Marshall, K. Accepted for Proc. of USSD (2015).