

# Nilsson Holguin

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## EDUCATION

**Stony Brook University:** Stony Brook, NY  
*Doctoral Candidate: Expected May 2010* Dec 2007-Present  
*Masters of Science* June 2005-Dec 2007  
Biomedical Engineering  
GPA: 3.65

**Trinity College:** Hartford, CT  
*Bachelor of Science in Biomedical Engineering* May 2005  
Concentration: Biomedical Engineering  
GPA: 3.64

## HONORS AND AWARDS

NASA – Harriette G. Jenkins Pre-Doctoral Fellowship 2007 - Present  
MARC Travel Award 2006  
W. Burghardt Turner Fellowship from Stony Brook U. 2005-Present  
NASA-Undergraduate Student Researchers Program (USRP) 2004-2005  
Graduated Honors in Engineering from Trinity College 2005  
Faculty Honors from Trinity College Fall '02, Spring '03, Spring '04  
Phi Gamma Delta Prize in Mathematics from Trinity College Fall 2001, Spring 2002  
Thomas Shortman Scholar 2001-2005

## EXPERIENCE

**Dept. of Biomedical Engineering:** Stony Brook, NY  
Research Assistant  
Analyze intervertebral disc structure from hindlimb unloaded rats Dec 2007-Present  
Analyze CT and MRI scans of human lumbar spines August 2005-Dec 2007  
Present results in abstracts, laboratory meetings and posters

**Alliance for Graduate Education and the Professoriate, SUNY Stony Brook** May 2006-July 2006  
Research Methods Instructor  
Organized and taught class of underrepresented undergraduates conducting research  
Provided constructive feedback on abstracts and posters for publication and presentation  
Wrote student and class assessment reports

**Dept. of Biomedical Engineering:** Stony Brook, NY Sep 2005-May 2006  
Teaching Assistant  
Organized group sessions; graded homework; taught a few classes

**Dept. of Biomedical Engineering:** Stony Brook, NY May 2005-July 2005  
Graduate Assistant  
**Developed a scaling relationship based on the biomechanics of cat and human lumbar spines**  
Performed mechanical testing on human and feline spines  
Presented results in an abstract, laboratory meetings and a poster presentation  
Data used for Ph.D. dissertation

**First-Year Program, Trinity College** July 2004- May 2005  
Mentor  
Organize class events and mediate class discussions  
Support academic and social integration of bridge-year for first year students

**Dept. of Physics and Engineering Trinity College:** Hartford, CT January 2003- May 2005  
Teaching Assistant  
Organized group sessions; reinforced course material in the lab; graded homework

**Trinity College Math Help Center:** Hartford, CT October 2001-May 2005  
Tutor  
Facilitate academic achievement: assist college students with calculus and algebra

**Engineering Research Lab, U. of Missouri-Rolla:** Rolla, Mo July-August 2004  
Research Experience for Undergraduate:  
Managed Project: designed, programmed and built micro-testing machine

Illustrated project progress reports via power point presentations  
Wrote research thesis report  
Prototype chosen by U. of Missouri to further other research in their engineering department

**Electrophysiology Lab, Trinity College:** Hartford, CT

May-August 2003

Research Assistant:

Performed surgeries to determine specific signals in the Hippocampus of mice  
Created single unit and dipolar electrodes and measured signals with oscilloscope  
Organized data into database

**TIER, Trinity College:** Hartford, CT

February-March 2003

Mentor:

Assisted High School students in learning and exploring the engineering field  
Organized lesson plans for the week  
Taught topics through simulations and implementations on PC and Cadet Board

## **PUBLICATIONS**

Holguin, N., Judex, S. (2009). Short Applications of Very Low-Magnitude Vibrations Alter Morphology and Biochemical Composition of the Intervertebral Disc during Hind-limb Unloading. ORS: Abstract and Poster.

Holguin, N., Muir, J., Rubin, C., Judex, S. (2008). Low-Magnitude Vibrations Attenuate IVD Expansion during Extended Bed Rest. Spine Journal (Submitted).

Holguin, N., Muir, J., Evans, H.J., Qin Y.X, Rubin, C., Wagshul, M., Judex, S. (2007, 2008). Assessment of a non-pharmacologic countermeasure of altered intervertebral disc morphology. NASA HRP Investigators' Workshop: Abstract and Poster.

Holguin, N., Muir, J., Evans, H.J., Qin Y.X, Rubin, C., Wagshul, M., Judex, S. (2006). Volume changes of intervertebral disc, muscle and adipose tissue under long term bedrest. BMES: Abstract and Poster.

Holguin, N., Ianuzzi, A., Khalsa, P.S. (2005). Development of a scaling relationship to extrapolate neurophysiological data from feline to human spines during lateral bending. AGEF: Abstract and Poster.

Holguin, N., Popovic, S. (2004). Development of a hand using shape memory alloys as actuator. USRP: Abstract and Poster.

## **SKILLS**

Fluent in Spanish

Proficient in Simulink, MatLab, LabVIEW, B<sup>2</sup> Logic, SolidWorks, Fluent, ImageJ, EFILM

## **ACTIVITIES AND INTERESTS**

Alliance for Graduate Education and the Professoriate

Fall 2005-Present

American Society of Mechanical Engineers

Spring 2004-2005

Member of National Society of Black Engineers

Fall 2002-2005

Member of Asian American Student Association

Fall 2002-2005

Promoting Respect for Inclusive Diversity in Education

Summer 2002-Spring 2003