

Antonis P. Stylianou, Ph.D.

Civil and Mechanical Engineering
University of Missouri – Kansas City
350L R.H. Flarsheim Hall
5110 Rockhill Road
Kansas City, MO 64110

Tel: (816) 235-1252
Fax: (816) 235 1260
E-mail: stylianoua@umkc.edu

EDUCATION

- University of Kansas** 2004
Ph.D. in Mechanical Engineering (Honors)
Dissertation title: *Local Muscle Fatigue of Elbow Flexors: SEMG Analysis and Effects on Motor Control Performance.*
Advisor: Carl W. Luchies, Ph.D.
- University of Kansas** 2012
M.S. in Mathematics (Honors)
Thesis title: *Modeling the Golf Swing.*
Advisor: David E. Lerner, Ph.D.
- University of Kansas** 2000
M.S. in Mechanical Engineering (Honors)
Thesis title: *EMG Signal Processing Using the Maximum Likelihood Method.*
Advisor: Carl W. Luchies, Ph.D.
- University of Kansas** 1998
B.S. in Mechanical Engineering

EXPERIENCE

- University of Missouri – Kansas City** **Kansas City, MO**
Civil and Mechanical Engineering August 2014 - present
Assistant Professor
- Director, Musculoskeletal Biomechanics Research Laboratory.
 - Teach undergraduate and graduate courses in Mechanical Engineering and Biomechanics.
- University of Missouri – Kansas City** **Kansas City, MO**
Musculoskeletal Biomechanics Research Laboratory June 2010 – July 2014
Research Associate
Advisor: Trent M. Guess, Ph.D.
- Musculoskeletal biomechanics, joint contact forces in the knee during dynamic activities.
 - Multi-body modeling of the canine stifle.
 - Elbow joint biomechanics and modeling.
- University of Missouri – Kansas City** **Kansas City, MO**
Civil and Mechanical Engineering August 2010 – May 2014
Adjunct Professor
- Engineering Mathematics.
 - Differential Equations for Engineers.
- University of Kansas** **Lawrence, KS**
Mathematics August 2007 – May 2010
Lecturer
- Pre-calculus.
 - Calculus II.

University of Kansas Medical Center
Human Performance Laboratory, Landon Center on Aging
Post-Doctoral Fellow

Kansas City, KS
May 2004 – May 2007

- Motor control alterations in Parkinson's disease.
- Skilled training rehabilitation in stroke patients.
- Nonlinear time series analysis of surface electromyography.

University of Kansas
Mechanical Engineering
Lecturer

Lawrence, KS
August 2004 – December 2004

- Mechanical engineering measurements and experimentation.

University of Kansas
Biodynamics Research Laboratory
Graduate Research Assistant

Lawrence, KS
June 1998 – May 2004

University of Kansas
Mechanical Engineering
Graduate Teaching Assistant

Lawrence, KS
August 1998 – May 2002

HONORS

Fullbright Scholarship	1994 - 1998
Pi Tau Sigma, Honorary Mechanical Engineering Fraternity	1998
Zimmerman Graduate Fellowship	1999
Strobel Graduate Scholarship	2000
Carey Graduate Fellowship	2000 - 2003
Florence Black Teaching Excellence Award, Department of Mathematics, University of Kansas	2009
Ralph Byers Outstanding Graduate in Numerical Analysis Award, Department of Mathematics, University of Kansas	2010
1 st Runner Up, American Society of Mechanical Engineers Summer Bioengineering Conference Grand Challenge Competition	2013

PUBLICATIONS

Journal Articles

1. Guess TM, **Stylianou AP**, Kia M, (2014), Concurrent Prediction of Muscle and Tibiofemoral Contact Forces During Treadmill Gait, *Journal of Biomechanical Engineering* 136(2):021032.
2. Kia M, Guess TM, **Stylianou AP**, (2014), Evaluation of a Musculoskeletal Model with Prosthetic Knee through Six Experimental Gait Trials, *Medical Engineering and Physics* 36(3):335-344.
3. **Stylianou AP**, Guess TM, Kia M, (2013), Multibody Muscle Driven Model of an Instrumented Prosthetic Knee During Squat and Toe Rise Motions, *Journal of Biomechanical Engineering* 135(4):041008.
4. **Stylianou AP**, Guess TM, Cook J, (2012), Development and Validation of a Multibody Model of the Canine Stifle Joint, *Computer Methods in Biomechanics and Biomedical Engineering* May 12 (Epub ahead of print).
5. Guess TM, **Stylianou AP**, (2012), Simulation of Anterior Cruciate Ligament Deficiency in a Musculoskeletal Model with Anatomical Knees, *Open Biomedical Engineering Journal* 6:23-32.
6. King GW, Luchies CW, **Stylianou AP**, Kluding PM, Jernigan SD, (2012), Effects of Age and Localized Muscle Fatigue on Torque Development in Knee Extensors and Ankle Plantarflexors, *Journal of Geriatric Physical Therapy* 35(1):8-14.
7. **Stylianou AP**, Luchies CW, McVey MA, Maletsky RA, Lyons KE, Pahwa R, (2011), Postural Sway in Patients with Mild to Moderate Parkinson's Disease, *International Journal of Neuroscience* 121(11):614-621.

8. McVey MA, **Stylianou AP**, Luchies CW, Lyons KE, Pahwa R, Jernigan SD, Mahnken JD, (2009), Early Biomechanical Markers of Postural Instability in Parkinson's Disease: A Pilot Study, *Gait and Posture* 30(4):538-542.
9. Dancause N, Duric V, Barbay S, Frost SB, **Stylianou AP**, Nudo RJ, (2008), An Additional Motor-related Field in the Lateral Frontal Cortex of Squirrel Monkeys, *Cerebral Cortex* 18(12):2719-2728.
10. Stowe AM, Hughes-Zahner L, **Stylianou AP**, Schindler-Ivens S, Quaney BM, (2008), Between-Day Reliability of Upper Extremity H-reflexes, *Journal of Neuroscience Methods* 170(2):317-323.
11. King GW, Luchies CW, **Stylianou AP**, Schiffman JM, Thelen DG, (2005), Effects of Step Length on Stepping Responses Used to Arrest a Forward Fall, *Gait and Posture* 22:219-224.
12. **Stylianou AP**, Luchies CW, Lerner DE, King GW, (2005), The Use of Correlation Integrals in the Study of Localized Muscle Fatigue of Elbow Flexors During Maximal Efforts, *Journal of Electromyography and Kinesiology* 15:437-443.
13. Kim SH, Pohl PS, Luchies CW, **Stylianou AP**, Won YS, (2003), Ipsilateral Deficits on Targeted Movements After Stroke, *Archives of Physical Medicine and Rehabilitation* 84(5):719-724.
14. Luchies CW, Won YS, Schiffman JM, **Stylianou AP**, (2000), Age Effects of Postural Control Mechanisms: The Upper Extremities, *Journal of the American Aging Association* July.
15. Luchies CW, **Stylianou AP**, Won YS, Effects of Age on the Utilization of Lower and Upper Extremity Responses for Balance Recovery, *Gait and Posture* S9 July.

Journal Articles (In Process)

1. **Stylianou AP**, Razu SS, Jahandar H, Bloemker KH, Cil A, Guess TM, (2014), Subject Specific Determination of Knee Ligament's Resting Length, (Under Review).
2. Guess TM, Razu SS, Jahandar H, **Stylianou AP**, (2014), Predicted Loading on the Menisci during Gait: The Effect of Horn Laxity, (Under Review).

Conference Papers

1. **Stylianou AP**, Razu SS, Jahandar H, Bloemker KH, Cil A, Guess TM, (2015), Ligament Resting Length: A Method for Patient Specific Determination, *Orthopaedic Research Society Annual Meeting*, Las Vegas, NV.
2. Guess TM, **Stylianou AP**, Razu SS, Jahandar H, (2015), Computational Musculoskeletal Modeling in Movement Analysis, *American Physical Therapy Association Combined Sections Meeting*, Indianapolis, IN.
3. Guess TM, **Stylianou AP**, Jahandar H, (2014), Concurrent Prediction of Knee Contact, Ground Reaction, and Muscle Forces During Gait, *7th World Congress of Biomechanics*, Boston, MA.
4. Kia M, Guess TM, **Stylianou AP**, (2013), Musculoskeletal Model During Treadmill Gait, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Sunriver, OR.
5. **Stylianou AP**, Kia M, Guess TM, (2013), Tibiofemoral Contact Pressure During Gait, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Sunriver, OR.
6. Bloemker K, Kia M, Guess TM, **Stylianou AP**, (2013), Prediction of Knee Loading During a Dual Limb Squat in a Muscle Driven Musculoskeletal Model with Anatomic Knee Joints, *Orthopaedic Research Society Annual Meeting*, San Antonio, TX.
7. Kia M, Guess TM, **Stylianou AP**, (2013), Validation of a Musculoskeletal Model with Prosthetic Knee Through Six Experimental Gait Trials, *Orthopaedic Research Society Annual Meeting*, San Antonio, TX.
8. **Stylianou AP**, Guess TM, Kia M, (2013), Contact Pressure Estimation in a Muscle Driven Model of an Instrumented Prosthetic Knee During Gait, *Orthopaedic Research Society Annual Meeting*, San Antonio, TX.
9. Guess TM, **Stylianou AP**, Kia M, (2012), Validation of Knee Load Predictions During a Dual Limb Squat and Calfrise, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Fajardo, Puerto Rico.
10. Kia M, Guess TM, **Stylianou AP**, (2012), Musculoskeletal Model of the Human Knee with Representation of Menisci During the Stance Phase of a Walk Cycle, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Fajardo, Puerto Rico.
11. **Stylianou AP**, Guess TM, Cook JL, (2012), Multibody Modeling of the Canine Cranial Cruciate Ligament Deficient Stifle Joint, *Veterinary Orthopaedic Society Meeting*, Crested Butte, CO.

12. **Stylianou AP**, Guess TM, Olcott LE, Paiva G, Kia M, Cook JL, (2011), A Model of the Canine Stifle Joint with Representation of Medial Meniscus During Squat Motion, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Farmington, PA.
13. McVey MA, **Stylianou AP**, Lyons KE, Pahwa R, Luchies CW, Cheney P, (2009), Comparison of an Automatic and Voluntary Task in Early Parkinson's Disease, *American Society of Biomechanics Annual Meeting*, University Park, PA.
14. **Stylianou AP**, Luchies CW, McVey MA, Lyons KE, Pahwa R, (2009), Postural Sway Changes in Mild to Moderate Parkinson's Disease, *American Society of Biomechanics Annual Meeting*, University Park, PA.
15. McVey MA, **Stylianou AP**, Luchies CW, Haines M, Lyons KE, Pahwa R, (2008), The Effect of Parkinson's Disease to a Backwards Pull: Center of Pressure, *American Society of Biomechanics, North American Congress on Biomechanics (NACOB)*, Ann Arbor, MI.
16. McVey MA, **Stylianou AP**, Luchies CW, Lyons KE, Pahwa R, Jernigan SD, Manhken JD, (2008), The Effect of Parkinson's Disease on the Step Response to a Backwards Pull, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Marco Island, FL.
17. McVey MA, **Stylianou AP**, Luchies CW, Lyons KE, Pahwa R, Jernigan SD, (2007), Effect of Parkinson's Disease on Step Response to a Backwards Pull, *American Society of Biomechanics*, Palo Alto, CA.
18. King GW, Luchies CW, **Stylianou AP**, McVey MA, (2007), Age and Fatigue Effects on Lower Extremity Joint Torque Development, *American Society of Biomechanics*, Palo Alto, CA.
19. **Stylianou AP**, McVey MA, Luchies CW, Lyons KE, Pahwa R, (2007), Altered Response to a Backwards Pull in Parkinson's Disease, *American Society of Biomechanics*, Palo Alto, CA.
20. Dancause N, Barbay S, Frost SB, **Stylianou AP**, Nudo RJ, (2007), A New Motor Field in the Lateral Frontal Cortex of Monkeys, *17th Annual Meeting of the Neural Control of Movement Society*, Seville, Spain.
21. **Stylianou AP**, Luchies CW, Maletsky RA, Lyons KE, Pahwa R, Manhken JD, (2006), Postural Sway Analysis in Parkinson's Disease: Visual Feedback, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Amelia Island, FL.
22. King GW, Luchies CW, Maletsky RA, Zahner L, **Stylianou AP**, McVey MA, (2006), Age Effects on Lower Extremity Force Control, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Amelia Island, FL.
23. **Stylianou AP**, Luchies CW, Lerner DE, King GW, (2004), SEMG Analysis of Elbow Flexors During Sustained Maximal Voluntary Contractions, *XVth Congress of the International Society of Electrophysiology and Kinesiology*, Boston, MA.
24. King GW, Luchies CW, **Stylianou AP**, Richards L, (2004), Effects of Lower Extremity Exercise on Balance Recovery from a Forward Fall, *XVth Congress of the International Society of Electrophysiology and Kinesiology*, Boston, MA.
25. **Stylianou AP**, Luchies CW, Insana MF, (2003), EMG Onset Detection Using the Maximum Likelihood Method. *American Society of Mechanical Engineers Summer Bioengineering Conference*, Key Biscayne, FL.
26. King GW, Luchies CW, **Stylianou AP**, Schiffman JM, Thelen DG, (2003), Effects of Step Length on Balance Recovery from a Forward Fall, *American Society of Mechanical Engineers Summer Bioengineering Conference*, Key Biscayne, FL.
27. Luchies CW, **Stylianou AP**, King GW, Won YS, Lerner DE, Richards L, (2003), Effects of Fatigue and Load Carriage on the Soldier's Performance of Time Critical Tasks, *Kansas Statewide EPSCoR Conference*, Lawrence, KS.
28. Kim SH, Pohl PS, Luchies CW, **Stylianou AP**, Won YS, (2002), Ipsilateral Deficits in Sensory Motor Control After Stroke, *American Physical Therapy Association Combined Sections Meeting*, Boston, MA.
29. Luchies CW, Won YS, Schiffman J, **Stylianou AP**, (2000), Age Effects of Postural Control Mechanisms: The Upper Extremities, *The American Aging Association 29th Annual Meeting*, *American College of Clinical Gerontology 14th Annual Meeting*, *American Federation for Aging Research 13th Annual Grantee Conference*, Boston, MA.
30. Luchies CW, **Stylianou AP**, Won YS, (1999), Effects of Age on the Utilization of Lower and Upper Extremity Responses for Balance Recovery, *The 14th Symposium of the International Society of Posture and Gait Research*, Waterloo, Ontario, Canada.

INVITED PRESENTATIONS

Antonis P. Stylianou, Ph.D.

1. **Stylianou AP**, Guess TM, (2011), Validation of a Subject Specific Canine Stifle Joint Model, *Comparative Orthopaedic Day*, Columbia, MO.
2. **Stylianou AP**, (2011), Multibody Modeling of the Lower Extremities, *Missouri Musculoskeletal Conference*, Kansas City, MO.

FUNDED GRANTS

CO-PI, National Institutes of Health, National Institute of Arthritis and Musculoskeletal and Skin Diseases, Award Number: RARO61698A.

Title: Subject Specific Concurrent Simulation of Movement and Natural Knee Contact Mechanics.

Total Award Amount: \$444,150

Time: August 1, 2011 – July 31, 2014

SERVICE

- Reviewer Journal of Biomechanics
- Reviewer American Journal of Veterinary Research
- Reviewer Numerical Methods in Biomedical Engineering
- Reviewer International Journal of Neuroscience
- Reviewer Pearson Education

PROFESSIONAL MEMBERSHIPS

American Society of Mechanical Engineers (ASME)

Biomedical Engineering Society (BMES)