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Education and Experience

Washington University in St Louis, St Louis, MO (2007-2008)

Post-doctoral Fellow
Advisor: Professor Larry A. Taber

Washington University in St Louis, St Louis, MO (2001-2007)

Ph.D. in Biomedical Engineering
Advisor: Professor Larry A. Taber
Thesis: Growth and Remodeling in Thick-Walled Models for Arteries

Bradley University, Peoria, IL (1997-2001)

B.S. in Mechanical Engineering

Publications

Journal Articles

1. Alford PW and Taber LA (2003). Regional epicardial strain in the embryonic chick heart during the early looping stages, *J Biomech* 36, 1135-1141.
2. Voronov DA, Alford PW, Xu G, and Taber LA (2004). The role of mechanical forces in dextral rotation during cardiac looping in the chick embryo, *Dev Biol* 272, 339-350.
3. Alford PW, Humphrey JD, Taber LA (2007). Growth and remodeling in a thick-walled artery model: effects of spatial variations in wall constituents, *Biomech Modeling Mechanobiol* (in press).
4. Alford PW, Taber LA (2007). Computational study of growth and remodeling in the aortic arch. *Comput Methods Biomech Biomed Engin* (in press).
5. Alford PW, Taber LA. Hyper-restoration as a mechanism for arterial development: A computational study. (submitted).

Conference Proceedings and Abstracts

1. Taber LA, Voronov DA, Remond MC, Latacha KS, Alford, PW (2004). Mechanical Forces Involved in Cardiac C-Looping, Proc. 2004 ASME International Mechanical Engineering Congress and Expo, Anaheim, CA.
2. Alford PW and Taber LA (2005). A Model of Arterial Growth and Remodeling Based on Constrained Mixture Theory, Proc. 2005 Summer Bioengineering Conference, Vail, CO.
3. Alford PW and Taber LA (2006). Computational Model for Growth and Remodeling of a Thick-Walled Artery, Proc. 2006 Summer Bioengineering Conference, Amelia Island, FL.

4. Alford PW and Taber LA (2006) Growth & Remodeling in the Aorta: Thick-Walled Constrained Mixture Model with Longitudinal Curvature. Proc. Biomedical Engineering Society Annual Meeting, Chicago, IL.
5. Alford PW and Taber LA (2007). Mechanics of growth and remodeling of the aorta. FASEB J. 21 (6):A827.
6. Alford PW and Taber LA (2007) Growth and Remodeling of Thick-Walled Arteries Including Longitudinal Curvature, 9th US National Congress on Computational Mechanics, San Francisco, CA.
7. Alford PW and Taber LA (2007) Growth and Remodeling in Thick-Walled Model for Aorta Proc Society of Engineering Sciences, College Station, TX.

Podium Presentations

1. "Strains Caused by Beating in Early Embryonic Cardiac Tissue," Washington University Biomedical Engineering Colloquium, 2002
2. "A Robust Model for Arterial Remodeling?" Washington University Biomedical Engineering Colloquium, 2005
3. "A Model of Arterial Growth and Remodeling Based on Constrained Mixture Theory," 2005 Summer Bioengineering Conference, 2005.
4. "Computational Model for Growth and Remodeling of a Thick-Walled Artery," 2006 Summer Bioengineering Conference, 2006.
5. "Fully Three-Dimensional Model for Arterial Growth," Cell and Tissue Mechanics Interest Group, 2006.
6. "Mechanics of Artery Growth and Remodeling" Washington University Biomedical Engineering Colloquium, 2007
7. "Role Of Mechanical Feedback In Restoration Of Normal Cardiac C-Looping Following Perturbed Loading" 2007 Summer Bioengineering Conference, 2007.
8. "Computational Study of Growth and Remodeling in the Aorta" Harvard University School of Engineering and Applied Sciences, 2007
9. "Computational Study of Growth and Remodeling in the Aorta" Boston University Department of Biomedical Engineering, 2007
10. "Computational Approaches for Studying Growth and Remodeling in Arteries" Department of Radiation Oncology, Massachusetts General Hospital, 2008
11. "Mathematics in Biology: How Physics and Engineering are Redefining the Landscape of Biological Understanding" Southwestern Illinois College Math Chat, 2008

Academic Honors

- Member Tau Beta Pi Engineering Honor Society (2000-present)
- President IL-Delta Chapter of Tau Beta Pi (2000-2001)
- Member Pi Tau Sigma Mechanical Engineering Honor Society (2001-present)

Teaching Experience

Teaching Assistant, Fall 2004

Course: BME 568 Cardiovascular Dynamics
Dept of Biomedical Engineering, Washington University

Guest Lecturer, Spring 2005

Course BME 240 Biomechanics
Dept of Biomedical Engineering, Washington University
Topic: Torsion

References

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