

## MICHELLE L. OSBORN

### *Curriculum vitae*

13 June 2022

#### **Mailing Address**

Department of Comparative Biomedical Sciences  
Louisiana State University School of Veterinary Medicine  
1909 Skip Bertman Drive  
Baton Rouge, LA 70803  
e-mail: [mosborn@lsu.edu](mailto:mosborn@lsu.edu)

#### **Professional Appointments**

- 2022- Associate Professor with Tenure of Veterinary Anatomy, Department of Comparative Biomedical Sciences, School of Veterinary Medicine, LSU.
- 2016-2021 Assistant Professor of Veterinary Anatomy, Department of Comparative Biomedical Sciences, School of Veterinary Medicine, LSU.
- 2014-2015 Teaching Assistant, Dept. Veterinary Biosciences and Diagnostic Imaging, College of Veterinary Medicine, University of Georgia. Supervisor: Dr. Steven D. Holladay.
- 2013-2015 Postdoctoral Research Associate, Dept. of Pathology, College of Veterinary Medicine, University of Georgia. Supervisor: Dr. Elizabeth W. Uhl.
- 2013 Visiting Scientist, Dept. of Biological Sciences, LSU (May-July)
- 2006-2013 Graduate Teaching Assistant, Dept. of Biological Sciences, LSU
- 2005-2006 Coordinator of Public Tours, Forensic Anthropology Computer Enhancement Services Laboratory (FACES Lab), LSU
- 2002-2004 Certified Sixth Grade Self-contained Teacher, Teach For America National Teaching Corps (Americorps), St. Landry Parish School Board, Louisiana

#### **Education**

- 2013 Ph.D., Comparative Functional and Evolutionary Anatomy, and Biomechanics of Vertebrates (i.e., Biological Sciences), Dept. of Biological Sciences, Louisiana State University, Baton Rouge.  
Advisor: Dr. Dominique G. Homberger  
Minor: Veterinary Anatomy, Histology, and Embryology (i.e., Veterinary Medical Sciences), Dept. of Comparative Biomedical Sciences, School of Veterinary Medicine, LSU.  
Advisor: Dr. Hermann H. Bragulla
- 2008 M.A., Biological and Forensic Anthropology (i.e., Anthropology), Dept. of Geography & Anthropology, LSU. Advisor: Dr. Robert G. Tague
- 2001 B.A., Criminal Justice (Minor: Sociology), University of Nevada at Las Vegas

#### **Research Expertise and Interests, and Teaching Philosophy**

I apply the principles of functional and evolutionary morphology to the study of complex structural systems of model organisms to answer causal, “how?” questions and evolutionary, “why?” questions. I use natural experiments to test specific hypotheses. For example, I study the head-neck-shoulder apparatus as an example of a complex system in various vertebrates (e.g., the bipedal human; the quadrupedal cat, dog, and horse; and the tetrapodal salamander) to understand its function in each animal and to reconstruct its evolutionary history. I use an eclectic set of techniques (e.g., biometrics, statistics, gross and micro-dissection, histology, free-body diagram force analysis, imaging and animation in 2D and 3D) and thrive in a multidisciplinary environment with anatomists, biologists, clinicians, computer scientists, mathematicians, theoretical and medical physicists, and philosophers of science.

The anatomical sciences provide the foundation on which veterinarians stand as they treat animals. Students should acquire a firm understanding of the functional and clinical anatomy of domesticated animals and of at least some exotic pet species (parrots, ferrets, iguanas, aquarium fishes, etc.), and should know how to use this knowledge for diagnostic and therapeutic work. Besides lecturing, I teach these principles and skills in the gross anatomy lab by teaching advanced dissection techniques and an understanding of the spatial relationships of structures, both of which are necessary for the successful completion of surgeries. Equally important is establishing conceptual connections between gross anatomy, histology, embryology, and physiology. The integration of these basic sciences is necessary to understand the fundamental principles of anatomy, and I am invested in passing on this understanding to students.

**Teaching Experience**

- 2022 Clinical Anatomy for Orthopaedic Surgery Residents (Spring 2022)
- 2019- Graduate Equine Anatomy (Spring 19)
- 2019- Graduate Large Animal, Comparative Veterinary Anatomy (Spring 19, 20)
- 2018- Graduate Small Animal Veterinary Anatomy (Fall 18, 19, 20, 21)
- 2017- Facilitator: Problem Based Learning Course (VMED 5001/5002), School of Veterinary Medicine, LSU (Fall 20, 21, 22; Spring 17, 18, 19, 22)
- 2017- Veterinary Histology (Fall 17, 18, 19, 20, 21)
- 2016- Anatomy Pre-Course, Louisiana State University School of Veterinary Medicine, Baton Rouge, LA, (Summer 16, 17, 19, 20, 21, 22)
- 2015- Large Animal, Comparative Veterinary Anatomy (Spring 15, 16, 17, 18, 19, 20, 21)
- 2014- Small Animal Veterinary Anatomy (Fall 14, 16, 17, 18, 19, 20, 21)
- 2009-2013 Histology Lab (Fall 09, 11, 12; Spring 13)
- 2008 Introductory Biology Lab and Recitation for Non-science Majors (Fall 08)
- 2007-2011 Honors Freshman Zoology Lab (Spring 07, 08, 11)
- 2006-2012 Comparative Vertebrate Anatomy Lab (Fall 06, 07, 08, 09, 10; Spring 09, 12)

**Courses Coordinated**

- 2022 Anatomy Refresher for Surgery Residents (Spring 22)
- 2020 Graduate Large Animal Anatomy (Spring 20)
- 2019- Graduate Small Animal Veterinary Anatomy (Fall 18, 19, 20, 21)
- 2019 Graduate Equine Anatomy (Spring 19)
- 2018- Small Animal Veterinary Anatomy- 2 courses (Fall 18, 19, 20, 21)

**Publications (peer-reviewed; \*corresponding author)**

- 2022 Zhongqiang Li, Zheng Li, Waleed Zaid, Michelle L. Osborn, Yanping Li, Shaomian Yao, Jian Xu, Mouthwash as a non-invasive method of indocyanine green delivery for near-infrared fluorescence dental imaging. *J. Biomed. Opt.* **27**(6), 066001, <https://www.spiedigitallibrary.org/journals/journal-of-biomedical-optics/volume-27/issue-6/066001/Mouthwash-as-a-non-invasive-method-of-indocyanine-green-delivery/10.1117/1.JBO.27.6.066001.full?SSO=1>
- 2022 Schachner ER, Diaz Jr RE, Coke R, Echols MS, **Osborn ML**, Hedrick BP. Architecture of the bronchial tree in Cuvier's dwarf caiman (*Paleosuchus palpebrosus*). *Anatomical Record*. Anatomical Record. online ahead of print. <https://doi.org/10.1002/ar.24919>
- 2022 Rockwell K, Rademacher N, **Osborn ML**, Nevarez JG. Extravasation of Contrast Media after Subcarapacial Vessel Injection in Three Chelonian Species. *Journal of Herpetological Medicine and Surgery*. Accepted.
- 2021 Denys A, Pedersen KB, Watt J, Norman AR, **Osborn ML**, Chen J-R, Maimone C, Littleton S, Vasiliou V, Ronis MJJ. Binge ethanol exposure in mice represses expression of genes involved in osteoblast function and induces expression of genes involved in osteoclast differentiation independently of endogenous catalase. *Toxicological Science*. 185(2):232-245. <https://doi.org/10.1093/toxsci/kfab135>
- 2021 **Osborn ML\***, Blas-Machado U, Uhl EW. The Equine Navicular Apparatus as a Premier Enthesis Organ: Functional Implications. *Veterinary Surgery* 2021; 1-16. <http://doi.org/10.1111/vsu.13620>
- 2021 Lee AKK, Uhl EW, **Osborn ML\***. Construction of a Realistic, Whole-Body Three-Dimensional Equine Skeletal Model Using CT Data. *Journal of Visualized Experiments* (168), e62276, doi:10.3791/62276. <https://www.jove.com/t/62276/construction-realistic-whole-body-three-dimensional-equine-skeletal>
- 2021 Li Z, Ramos Ramirez A, Li Z, **Osborn ML**, Li X, Li Y, Yao S, Xu J\*. An Optimized JPEG-XT-based Algorithm for the Lossy and Lossless Compression of 16-bit Depth Medical Image. *Biomedical Signal Processing and Control*, 64:102306. <https://doi.org/10.1016/j.bspc.2020.102306>
- 2021 Li Z, Li Z, Holamoge Y, Zaid W, **Osborn ML**, Bhatta S, Jeyaseelan A, Li Y, Yao S, Xu J. Mouthwash to Deliver Indocyanine Green for Infrared Dental Fluorescence Imaging. *Journal of Selected Topics in Quantum Electronics*, 27(4)1-8. Art no. 6800108, <https://doi.org/10.1109/JSTQE.2020.2995659>

- 2020 Li Z, Holamoge YV, Li Z, Miller JT, **Osborn ML**, Shan X, Ramos A, Li Y, Zaid W\*, Yao S\*, Xu J\*. Detection and analysis of enamel cracks by ICG-NIR fluorescence dental imaging. *Annals of the New York Academy of Sciences*. Accepted April. <https://doi.org/10.1111/nyas.14374>
- 2020 Pederson KB, **Osborn ML**, Robertson AC, Williams A, Watt J, Denys A, Brandes R, Schröder K, Ronis MJ\*. Chronic Ethanol Feeding in Mice Decreases Gene Expression for Major Structural Bone Proteins in a Nox4-independent Manner. *The Journal of Pharmacology and Experimental Therapeutics*, 373:337-346. <https://doi.org/10.1124/jpet.119.264374>
- 2020 Williams AE, Watt J, Robertson LW, Ganupudi G, **Osborn ML**, Soares MJ, Iqbal K, Pedersen KB, Littleton S, Maimone C, Suva LJ, Ronis MJJ. Skeletal Toxicity of Co-planar Polychlorinated Biphenyl Congener 126 in the Rat is Aryl Hydrocarbon Receptor-Dependent. *Toxicological Sciences*, 175(1):113-125. <https://doi.org/10.1093/toxsci/kfaa030>
- 2020 Li Z, Hartzler T, Ramos A, **Osborn ML**, Shan X, Li Y, Yao S\*, Xu J\*. Optimal Imaging Windows of Indocyanine Green-assisted Near Infrared Dental Imaging with Rat Model and Its Comparison to X-ray Imaging. *Journal of Biophotonics*. 13(6):e201960232. <https://doi.org/10.1002/jbio.201960232>
- 2019 Chaichi A, Lijesh KP, Prasad A, Etefagh AH, Shaik S, Dasa V, Guo S, **Osborn ML**, Devireddy R, Khonsari MM, Gartia MR\*. Improvement of Tribological and Biocompatibility Properties of Orthopedic Materials Using Piezoelectric Direct Discharge Plasma Surface Modification. *ACS Biomaterials Science & Engineering*. 5: 2147-2159. <https://pubs.acs.org/doi/10.1021/acsbiomaterials.9b00009>
- 2019 Li Z, Zaid W, Hartzler T, Ramos A, **Osborn ML**, Li Y, Yao S\*, Xu J\*. Indocyanine Green-assisted Dental Imaging in the First and Second Near-Infrared Windows as Compared with X-ray Imaging. *Annals of the New York Academy of Sciences*, In “MARROW,” ed. by M. Zaidi. *Ann. N.Y. Acad. Sci.* 1448: 42–51. <https://nyaspubs.onlinelibrary.wiley.com/doi/epdf/10.1111/nyas.14086>
- 2016 Uhl EW\*, **Osborn ML**. The Pathomechanics of Degenerative Joint Disease: A One Health Comparative Case Study Approach. *AAVMC /APTR One Health Case Studies*, <http://www.aavmc.org/one-health/case-studies.aspx>
- 2015 **Osborn ML\***, Homberger DG. The Human Shoulder Suspension Apparatus: A Causal Explanation for Bilateral Asymmetry and a Fresh Look at the Evolution of Human Bipedality. *The Anatomical Record*, 298 (9): 1572-1588. <https://anatomypubs.onlinelibrary.wiley.com/doi/full/10.1002/ar.23178>
- 2012 Redd TC\*, Dubansky BH, **Osborn ML**, Tully TN, Homberger DG\*. A registration algorithm for the identification of individual parrots based on the patterns of filing ridges on their upper bill tip. *International Journal of Biology and Biometrics*, 6 (3): 68-91. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.736.2950&rep=rep1&type=pdf>
- 2009 Homberger DG\*, Ham K, Ogunbakin T, Bonin JA, Hopkins BA, **Osborn ML**, Hossain I, Barnett HA, Matthews II KL, Butler LG, Bragulla HH. The structure of the cornified claw sheath in the domestic cat (*Felis catus*): Implications for the claw shedding mechanism. *Journal of Anatomy*, 214: 620-643. <https://onlinelibrary.wiley.com/doi/10.1111/j.1469-7580.2009.01068.x>

### Publications (in preparation; \*corresponding author)

- In prep **Osborn ML\***, Cornille JL, Uhl EW. Male vs. Female Riders: Modeling Sexual Dimorphism in Musculoskeletal Response to the Force Generated by a Horse at the Trot. *Frontiers in Sports & Active Living*.

### Theses

- 2013 **Osborn ML**. 2013. The shoulder suspension of bipedal humans and the head suspension of quadrupedal cats: A reconstruction of macroevolutionary changes of complex systems based on natural experiments, comparative anatomy, and biomechanical analyses of extant organisms. Ph.D. Dissertation, Dept. of Biological Sciences, LSU. <http://etd.lsu.edu/docs/available/etd-04112013-203731/>
- 2008 **Osborn ML**. 2008. Effects of handedness on the skull and shoulder bones. M.A. Thesis, Dept. of Geography & Anthropology, LSU. <http://etd.lsu.edu/docs/available/etd-04022008-124945/>

**Published Abstracts**

- 2020 **Osborn ML**, Homberger DG. The missing link in the head suspension of the cat: A *de facto* nuchal ligament. *FASEB Journal* (March, 2020) 34(S1):1-1 <https://doi.org/10.1096/fasebj.2020.34.s1.03182>
- 2020 Lee A, Uhl EW, **Osborn ML**. The Horse and Rider: A Dynamic 3D Model for Studying the Role of Chronic Postural Asymmetries in Degenerative Osteoarthritis. *FASEB Journal* (March, 2020) 34(S1):1-1 <https://doi.org/10.1096/fasebj.2020.34.s1.04371>
- 2019 **Osborn ML**, Blas-Machado U, Kierjczyk S, Uhl EW. Using Biotensegrity to Explain the Mechanically-Induced Lesions in Navicular Disease. *FASEB Journal* (April, 2019) 33(S1): 767.18. [https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1\\_supplement.767.18](https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1_supplement.767.18)
- 2019 Lee A, Uhl EW, **Osborn ML**. Creating a 3D Model to Study Equine Lameness. *FASEB Journal* (April, 2019) 33(S1): 453.19. [https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1\\_supplement.453.19](https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1_supplement.453.19)
- 2019 Wood BM, **Osborn ML**, Daigle C, Sonnier B, Homberger DG. The Role and Power of 3D Models in Functional Morphology: A Tool for Generating Hypotheses, Capturing Conceptualizations, Enriching Explanations, and Facilitating Communication. *FASEB Journal* (April, 2019) 33(S1): 453.16. [https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1\\_supplement.453.16](https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1_supplement.453.16)
- 2019 Uhl EW, **Osborn ML**, Michel F, Jelesijevic T, Hogan RJ. Synonymous Changes in Specific Leucine Codons Impact Morbilliviral Protein Production from Human & Canine Codon Optimized Constructs. *FASEB Journal* (April, 2019) 33(S1): 662.41. [https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1\\_supplement.662.41](https://www.fasebj.org/doi/10.1096/fasebj.2019.33.1_supplement.662.41)
- 2018 Uhl EW, Blas-Machado U, Kirejczyk SGM, **Osborn ML**. Correlating Increased Mechanical Forces with Tissue Lesions in Equine Navicular Disease. *FASEB Journal* (April, 2018) 32(S1): 816.14. [https://www.fasebj.org/doi/10.1096/fasebj.2018.32.1\\_supplement.816.14](https://www.fasebj.org/doi/10.1096/fasebj.2018.32.1_supplement.816.14)
- 2018 Shah A, Uhl EW, **Osborn ML**, Michel F, Hogan RJ. Protein Expression from Measles (MV) L Protein Genes Optimized and Suboptimized to Human and Canine Codon Usage Bias Varies with Construct and Cell Type. *FASEB Journal* (April, 2018) 32(S1): 819.20. [https://www.fasebj.org/doi/10.1096/fasebj.2018.32.1\\_supplement.819.20](https://www.fasebj.org/doi/10.1096/fasebj.2018.32.1_supplement.819.20)
- 2018 Uhl EW, **Osborn ML**, Michel F, Jelesijevic T, Hogan RJ. Localized Optimization of Measles Virus (MV) Hemagglutinin (H) Gene to Human Codon Usage Bias Increases Protein Expression. *FASEB Journal* (April, 2018) 32(S1): 819.11. [https://www.fasebj.org/doi/10.1096/fasebj.2018.32.1\\_supplement.819.11](https://www.fasebj.org/doi/10.1096/fasebj.2018.32.1_supplement.819.11)
- 2017 **Osborn ML**, Blas-Machado U, Uhl EW. The role of entheses organs in degenerative joint disease: a structural and functional comparison of the human Achilles and equine navicular apparatus. *Anatomia, Histologia, Embryologia* (October, 2017) 46(S1): 12. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/ahe.12313>
- 2017 **Osborn ML**, Rau ARP, Ge J, Homberger DG. Free-body Diagram Force Analysis in 2D and 3D: A Tool to Study Comparative Vertebrate Biomechanics. *FASEB Journal* (April, 2017) 31: 577.9. [http://www.fasebj.org/content/31/1\\_Supplement/577.9.abstract?sid=d4b224aa-f10b-4977-ae2f-11c21cd4774b&utm\\_source=TrendMD&utm\\_medium=cpc&utm\\_campaign=FASEB\\_J\\_TrendMD\\_0](http://www.fasebj.org/content/31/1_Supplement/577.9.abstract?sid=d4b224aa-f10b-4977-ae2f-11c21cd4774b&utm_source=TrendMD&utm_medium=cpc&utm_campaign=FASEB_J_TrendMD_0)
- 2016 **Osborn ML**, Blas-Machado U, Uhl EW. Human Achilles and Equine Navicular Apparatus: A Structural and Functional Comparison of Two Premier Enthesis Organs. *FASEB Journal* (April, 2016) 30: 368.6. [http://www.fasebj.org/content/30/1\\_Supplement/368.6.abstract?sid=e136622e-67ce-47ee-bb67-a760a8c46cd6](http://www.fasebj.org/content/30/1_Supplement/368.6.abstract?sid=e136622e-67ce-47ee-bb67-a760a8c46cd6)
- 2016 Ruff KC, **Osborn ML**, Uhl EW. Analysis of Forces Acting on the Equine Navicular Bone in Normal and Dorsiflexed Positions. *FASEB Journal* (April, 2016) 30: 923.4. [http://www.fasebj.org/content/30/1\\_Supplement/923.4.abstract?sid=e136622e-67ce-47ee-bb67-a760a8c46cd6](http://www.fasebj.org/content/30/1_Supplement/923.4.abstract?sid=e136622e-67ce-47ee-bb67-a760a8c46cd6)
- 2016 Uhl EW, **Osborn ML**, Michel F, Hogan RJ. Synonymous Codon Changes in Measles (HMV) and Canine Distemper (CDV) Viral Nucleic Acid Sequences Result in Gene-Specific Changes in Levels of Viral Protein Expression. *FASEB Journal* (April, 2016) 30: 517.4. [http://www.fasebj.org/content/30/1\\_Supplement/517.4.abstract?sid=e136622e-67ce-47ee-bb67-a760a8c46cd6](http://www.fasebj.org/content/30/1_Supplement/517.4.abstract?sid=e136622e-67ce-47ee-bb67-a760a8c46cd6)
- 2015 **Osborn ML**, Cornille JL, Uhl EW. Male vs. Female Horse Riders: Differences in Musculoskeletal Response to the Force Generated by a Horse at the Trot. *FASEB Journal* (April 1, 2015) 29: 865.11. [http://www.fasebj.org/content/29/1\\_Supplement/865.11.abstract](http://www.fasebj.org/content/29/1_Supplement/865.11.abstract)

- 2015 Uhl EW, **Osborn ML**, Michel F, Hogan RJ. Human & Canine Codon Optimization of Measles & Canine Distemper Viral Nucleic Acid Sequences Increases Sequence Identity and Protein Expression Compared to Wild Type and Human Codon Sub-optimized Constructs. *FASEB Journal* (April 1, 2015) 29: 927.4. [http://www.fasebj.org/content/29/1\\_Supplement/927.4.abstract](http://www.fasebj.org/content/29/1_Supplement/927.4.abstract)
- 2014 **Osborn ML**, Cornille JL, Uhl EW. Effects of the curvature of the lumbar spine on the posture of male and female horse riders: A biomechanical analysis. *FASEB Journal* (April 26, 2014) 28: 919.15. [http://www.fasebj.org/content/28/1\\_Supplement/919.15.abstract?sid=94030b80-3f4a-4489-8dbb-122376678c9f](http://www.fasebj.org/content/28/1_Supplement/919.15.abstract?sid=94030b80-3f4a-4489-8dbb-122376678c9f)
- 2014 Uhl EW, **Osborn ML**, Michele F, Hogan RJ. Optimization of the nucleocapsid (N) protein sequences of human measles virus (HMV) and canine distemper virus (CDV) to human and canine codon usage bias increases sequence identity and protein expression. *FASEB Journal* (April 26, 2014) 28: 145.3. [http://www.fasebj.org/content/28/1\\_Supplement/145.3.abstract?sid=9626286f-e66c-474c-9674-59733b0ee071](http://www.fasebj.org/content/28/1_Supplement/145.3.abstract?sid=9626286f-e66c-474c-9674-59733b0ee071)
- 2014 **Osborn ML**, Ge J, Melancon KP, Rau ARP, Homberger DG. Bad posture and its effects on the neck and shoulder suspension apparatus of humans: A 3D biomechanical analysis. *Abstract #122.6. Integrative & Comparative Biology* 54 (suppl 1): e35. doi: 10.1093/icb/icu008
- 2013 **Osborn ML**, Ge J, Melancon KP, Rau ARP, Homberger DG. The effect of posture on the neck and shoulder suspension apparatus of humans: A 3D biomechanical analysis. *FASEB Journal* (April 9, 2013) 27: 747.5. [http://www.fasebj.org/cgi/content/meeting\\_abstract/27/1\\_MeetingAbstracts/747.5?sid=195c4ab1-8f6d-4889-a57b-2d087354492b](http://www.fasebj.org/cgi/content/meeting_abstract/27/1_MeetingAbstracts/747.5?sid=195c4ab1-8f6d-4889-a57b-2d087354492b)
- 2012 **Osborn ML**, Homberger DG. Comparative functional morphology of the head suspension of quadrupedal cats and the shoulder suspension of bipedal humans. *FASEB Journal* (March 29, 2012) 26: 455.4. [http://www.fasebj.org/content/vol26/1\\_MeetingAbstracts](http://www.fasebj.org/content/vol26/1_MeetingAbstracts)
- 2011 **Osborn ML**, Homberger DG. Biomechanical analysis of the human head-neck-shoulder complex: Asymmetry as a natural experiment. *FASEB Journal* (March 17, 2011) 25: 867.7. [http://www.fasebj.org/content/vol25/1\\_MeetingAbstracts](http://www.fasebj.org/content/vol25/1_MeetingAbstracts)
- 2011 **Osborn ML**, Homberger DG. The human head-neck-shoulder complex: A configuration to free the hands. *Abstract #83.4. Integrative & Comparative Biology*. 51 (suppl 1): e103. doi:10.1093/icb/icr008.
- 2010 **Osborn ML**, Homberger DG. The function and evolution of the mastoid process and clavicle in humans: A natural experiment. *FASEB Journal* (April 6, 2010) 24: 1b9. [http://www.fasebj.org/content/vol24/1\\_MeetingAbstracts](http://www.fasebj.org/content/vol24/1_MeetingAbstracts)
- 2009 **Osborn ML**, Homberger DG. Asymmetry of the cranio-cervico-omo-clavicular complex suggests connection with bipedalism. *Abstract #25.4. Integrative & Comparative Biology* 49 (suppl 1): e127. doi: 10.1093/icb/icp002.
- 2009 Bonin JA, Hossein I, Ham K, Ogunbakin T, Hopkins BA, **Osborn ML**, Barnett HA, Matthews II KL, Butler LG, Bragulla HH, Homberger DG. The complex morphology of the cat claw as revealed through virtual dissection by x-ray computed tomography and software- assisted visualization. *Abstract # P2.60. Integrative & Comparative Biology* 49 (suppl 1): e202. doi: 10.1093/icb/icp003.
- 2007 Homberger DG, Hopkins BA, **Osborn ML**, Castille A, Bragulla HH, Matthews II KL, Barnett H, Butler L, Tully TN. The ridge pattern of the cornified oral surface of the upper beak of parrots: Individuality and genus-level character. *Journal of Morphology*, 268 (12): 1086.
- 2007 Bragulla HH, Barnett H, Ogunbakin T, **Osborn ML**, Ham K, Matthews II KL, Butler L, Homberger DG. The development and vascularization of the bony core (third phalanx) of the cat claw. *Journal of Morphology*, 268 (12): 1052.
- 2007 **Osborn ML**, Manhein MH, Leitner M. Test of a method regarding sex indication of the human hyoid body. *Proceedings of the American Academy of Forensic Sciences*, 13: 347.

### **Submitted Funding**

**Pending** Louisiana State University School of Veterinary Medicine Department of Veterinary Clinical Sciences. Development of a Staining Protocol for Micro-Computed Tomography Imaging of Equine Hoof Laminae. Co-Investigator: M.L. Osborn.

### **Funded**

2018 American Association of Anatomists Symposium Support (\$3000.00) "Realistic and Testable Models in Comparative Anatomy: Creative Uses of 3D/4D Imaging Techniques". Chair: M.L. Osborn.

- 2017 Merial Summer Scholars Program (\$4250.00) “Comparative Anatomy and the Kinematic Analysis of the Atlantoaxial Joint in Feline and Human Computer Models”. PI: M.L. Osborn
- 2016-2017 Louisiana State University School of Veterinary Medicine Charles V. Cusimano Equine Health Studies Program (\$9,900.00) “Pathomechanical Analysis of Equine Navicular Disease”. PI: M.L. Osborn.
- 2016-2021 United States Department of Defense subcontract (\$40,931.00) “Codon Usage in Morbilliviruses Option Years: Role of Specific Synonymous Codons in Viral Pathogenesis and Adaptation to New Hosts”. PI: M.L. Osborn. (Sponsor: University of Georgia, Athens; PI: Elizabeth W. Uhl).
- 2006 West Fund Grant (thesis research support), Dept. of Geography & Anthropology, LSU. (\$572.00 for 1 year) “Effects of handedness on the skull and shoulder bones”.

### **Un-Funded**

- 2020 Louisiana State University School of Veterinary Medicine Charles V. Cusimano Equine Health Studies Program. Staining Protocol Establishment for Three-dimensional Non-Mineralized Soft-tissue Visualization in Equine Laminae. Co-Investigator: M.L. Osborn.
- 2020 Gordon and Betty Moore Foundation: Novel Imaging Scheme to Improve Diagnosis of Critical Dental Diseases Without Ionizing Radiation. Co-Investigator: M.L. Osborn.
- 2019 Morris Animal Foundation: The Effect of Shoe Shape on Bone Motion in Normal and Laminitic Equine Hooves. Co-Investigator: M.L. Osborn.
- 2019 Louisiana State University School of Veterinary Medicine Charles V. Cusimano Equine Health Studies Program: Developing a Point Registration Method for the 4D Horse to Model. PI: M.L. Osborn.
- 2019 UGA Competitive Intramural Equine Programs Research Initiatives: Development of a Dynamic 3D Equine Musculoskeletal Model and its Application for Pathomechanical Analysis of Chronic Athletic Injuries in Horses. Co-Investigator: M.L. Osborn.
- 2018 Grayson Jockey Club Research Foundation: 3D Models of Bone Motion in Normal and Laminitic Hooves. Co-Investigator: M.L. Osborn.

### **Awards and Honors**

- 2022 Dean’s Teacher Merit Honor Roll, School of Veterinary Medicine, LSU
- 2021 Dean’s Teacher Merit Honor Roll, School of Veterinary Medicine, LSU
- 2020 Dean’s Teacher Merit Honor Roll, School of Veterinary Medicine, LSU
- 2020 Faculty Service Award, School of Veterinary Medicine, LSU
- 2020 Invited by the American Association of Anatomists to represent the state of Louisiana at the 2020 FASEB Capitol Hill Day (March). Cancelled due to Coronavirus threat.
- 2019 Outstanding Teacher Selected by the Class of 2022, School of Veterinary Medicine, LSU
- 2019 Dean’s Teacher Merit Honor Roll, School of Veterinary Medicine, LSU
- 2018 Outstanding Teacher Selected by the Class of 2021, School of Veterinary Medicine, LSU
- 2018 Dean’s Teacher Merit Honor Roll, School of Veterinary Medicine, LSU
- 2017 Outstanding Teacher Selected by the Class of 2020, School of Veterinary Medicine, LSU
- 2017 Dean’s Teacher Merit Honor Roll, School of Veterinary Medicine, LSU
- 2017 LSU Office of Academic Affairs Teaching Enhancement Fund Travel Award, Annual Meeting, American Association of Anatomists, Chicago, IL, 22-26 April 2017. \$500.00
- 2014 Finalist, Postdoc Poster Presentation Award, Annual Meeting, American Association of Anatomists, San Diego, CA, 26-30 April 2014
- 2012 Best Oral Presentation, Division of Systematics, Ecology and Evolution at the Annual BioSymposium, Dept. of Biological Sciences, LSU. \$50.00
- 2011 William H. Gates Award for Teaching Excellence, Dept. of Biological Sciences, LSU. \$500.00
- 2011 Society for Integrative and Comparative Biology Charlotte Mangum Student Support Program. \$90.00
- 2011-2015 American Association of Anatomists Student/Post-Doc Travel Awards. \$1750.00 (total)
- 2010 Induction as Associate Member to Sigma Xi (LSU chapter)
- 2010 American Association of Anatomists Late-breaking Student/Postdoc Travel Award. \$150.00
- 2008-2013 LSU BioGrads Travel Awards. \$1500.00 (total)
- 2000-2001 Helen Close Scholarship, Recognition of Academic Achievement, University of Nevada at Las Vegas
- 1999-2001 Dean's Honor List, University of Nevada at Las Vegas

**National and International Presentations (\* invited; presenter underlined if not first author)**

- 2020 Takawira C, Spivey K, Taguchi T, **Osborn ML**, Lopez M. Coxofemoral Joint Extended Radiographic Positioning Increases Joint Volume. American College of Veterinary Surgeons. Virtual Poster 1 Oct 2020-31 Dec 2021.
- 2020 **Osborn ML**, Homberger DG. The missing link in the head suspension of the cat: A *de facto* nuchal ligament. Oral presentation. Annual Meeting, Experimental Biology, San Diego, CA, 4-7 April. Meeting cancelled due to Coronavirus threat.
- 2020 Lee A, Uhl EW, **Osborn ML**. The Horse and Rider: A Dynamic 3D Model for Studying the Role of Chronic Postural Asymmetries in Degenerative Osteoarthritis. Poster. Annual Meeting, American Association of Anatomists, San Diego, CA, 4-7 April. Meeting cancelled due to Coronavirus threat.
- 2019 Cavalier M, Garcia B, Patel D, Patterson E, Powers M, **Osborn ML**, Hoffseth K, Gines A. 3D Printed Drug Delivery Implants for Canine Osteomyelitis Treatment. Annual Meeting, Biomedical Engineering Societ, Philadelphia, PA, 16-19 October
- 2019 Rockwell K, Rademacher N, **Osborn ML**, Nevarez, J. The Subcarapacial Vessel in Chelonians: Safe for Intravenous Injections? Oral presentation. ExoticsCon, St. Louis, MO, 29 September- 3 October
- 2019 Robertson AC, **Osborn ML**, Pedersen K, Watt J, Ronis MJ. Role of NOX4 Expression in Osteoblast-Precursors in the Development of Alcohol-Induced Osteopenia. Louisiana State University School of Medicine Medical Student Research Day, New Orleans, LA, October
- 2019 **Osborn ML**, Blas-Machado U, Kierjczyk S, Uhl EW. Using Biotensegrity to Explain the Mechanically-Induced Lesions in Navicular Disease. Poster. Annual Meeting, American Association of Anatomists, Orlando, FL, 6-9 April
- 2019 Lee A, Uhl EW, **Osborn ML**. Creating a 3D Model to Study Equine Lameness. Poster. Annual Meeting, American Association of Anatomists, Orlando, FL, 6-9 April
- 2019 Wood BM, **Osborn ML**, Daigle C, Sonnier B, Homberger DG. The Role and Power of 3D Models in Functional Morphology: A Tool for Generating Hypotheses, Capturing Conceptualizations, Enriching Explanations, and Facilitating Communication. Poster. Annual Meeting, American Association of Anatomists, Orlando, FL, 6-9 April
- 2019 Uhl EW, **Osborn ML**, Michel F, Jelesijevic T, Hogan RJ. Synonymous Changes in Specific Leucine Codons Impact Morbilliviral Protein Production from Human & Canine Codon Optimized Constructs. Poster. Experimental Biology Meeting, Orlando, FL, 6-9 April
- 2019 Scott MC, Fuller SE, Watt JD, **Osborn ML**, Johannsen NM, Irving BA, Noland RC. Cortical and Trabecular Bone Morphology in Response to Exercise and a Ketogenic Diet. Poster presentation. Annual Meeting of the American College of Sports Medicine, Orlando FL, 28 May-1 June
- 2019 Williams A, Watt J, Robertson L, **Osborn M**, Soares M, Ronis M. Skeletal Toxicity of Co-Planar Polychlorinated Biphenyl Congener 126 in the Rat is Aryl Hydrocarbon Receptor-Dependent. Poster presentation. 58<sup>th</sup> Annual Meeting of the Society of Toxicology. Baltimore, MD, 10-14 March
- 2018 Uhl EW, Blas-Machado U, Kierjczyk S, **Osborn ML**. The Use of Histopathological Stains to Document Stretched Collagen in the Tissue Lesions of Navicular Disease. Annual Meeting of the American College of Veterinary Pathologists, Washington, DC, 3-7 November
- 2018 Uhl EW, **Osborn ML**. Osteoarthritis: Insights from evolution, tensegrity, and comparative pathology. Oral presentation. Annual Meeting of the International Society for Evolution, Medicine & Public Health, Park City, UT, 1-4 August
- 2018 Uhl EW, **Osborn ML**, Michel F, Jelesijevic T, Hogan RJ. Localized Optimization of Measles Virus (MV) Hemagglutinin (H) Gene to Human Codon Usage Bias Increases Protein Expression. Poster. Experimental Biology Meeting, San Diego, CA, 21-25 April
- 2018 Uhl EW, Blas-Machado U, Kierjczyk S, **Osborn ML**. Correlating Increased Mechanical Forces with Tissue Lesions in Equine Navicular Disease. Experimental Biology Meeting, San Diego, CA, 21-25 April
- 2018 Shah A, Uhl EW, **Osborn ML**, Michel F, Hogan RJ. Protein Expression from Measles (HMV) L Protein Genes Optimized and Suboptimized to Human and Canine Codon Usage Bias Varies with Construct and Cell Type. Poster. Experimental Biology Meeting, San Diego, CA, 21-25 April
- 2017 Baker J, Langlois S, Lee A, Maciejewski J, **Osborn ML**. Examining Degenerative Joint Diseases in Horses Using a 3D Computer Model. Poster. Annual Biomedical Research Conference for Minority Students (ABRCMS), Phoenix Convention Center, Phoenix, AZ, 1-4 November

- 2017 Gu Y, **Osborn ML**. Comparative Anatomy and the Kinematic Analysis of the Atlantoaxial Joint in Feline and Human Computer Models. Poster. National Veterinary Scholars Symposium, Bethesda, MD 4-5 August
- 2017 **Osborn ML**, Blas-Machado U, Uhl EW. The Role of Enthesis Organs in Degenerative Joint Disease: A Structural and Functional Comparison of the Human Achilles and Equine Navicular Apparatus. Oral presentation. Meeting of the American Association of Veterinary Anatomists, Auburn, AL, 29 June-1 July
- 2017 **Osborn ML**, Rau ARP, Ge J, Homberger DG. Free-body Diagram Force Analysis in 2D and 3D: A Tool to Study Comparative Vertebrate Biomechanics. Poster. Annual Meeting, American Association of Anatomists, Chicago, IL, 22-26 April
- 2016 Uhl E, **Osborn ML**, Michel F, Hogan RJ. Synonymous Codon Changes Induce Gene Specific Changes in Expression of Measles (HMV) and Canine Distemper (CDV) Proteins. Poster. Annual Meeting of the American College of Veterinary Pathologists, New Orleans, LA, 3-7 December
- 2016 Uhl E, Blas-Machado U, **Osborn ML**. Teaching the Pathomechanics of Degenerative Joint Disease: A Comparative Case Study Approach. Poster. Annual Meeting of the American College of Veterinary Pathologists, New Orleans, LA, 3-7 December
- 2016 Baker J and **Osborn ML**. Reconstructing a 3D model of the equine axial skeleton to examine degenerative joint disease. Poster. Annual Biomedical Research Conference for Minority Students (ABRCMS), Tampa Convention Center, Tampa, FL, 9-12 November
- 2016 **Osborn ML**, Homberger DG. The head suspension apparatus of cats and the shoulder suspension apparatus of humans: Modeling a macroevolutionary transformation with extant organisms. Oral presentation. International Congress of Vertebrate Morphology, Washington DC, 29 June- 3 July
- 2016 \***Osborn ML**, Uhl EW. The Pathomechanics of Degenerative Joint Disease: An Evolutionary, Comparative, and Functional Approach. Oral presentation. Meeting, The International Society for Evolution, Medicine, & Public Health, Raleigh, NC, 22-25 June
- 2016 **Osborn ML**, Blas-Machado U, Uhl EW. Human Achilles and Equine Navicular Apparatus: A Structural and Functional Comparison of Two Premier Enthesis Organs. Oral presentation. Annual Meeting, American Association of Anatomists, San Diego, CA, 2-6 April
- 2016 Ruff KC, **Osborn ML**, Uhl EW. Analysis of Forces Acting on the Equine Navicular Bone in Normal and Dorsiflexed Positions. Poster. Meeting, Experimental Biology, San Diego, CA, 2-6 April
- 2016 Uhl EW, **Osborn ML**, Michel F, Hogan RJ. Synonymous Codon Changes in Measles (HMV) and Canine Distemper (CDV) Viral Nucleic Acid Sequences Result in Gene-Specific Changes in Levels of Viral Protein Expression. Poster. Meeting, Experimental Biology, San Diego, CA, 2-6 April
- 2015 **Osborn ML**, Cornille JL, Uhl EW. Male vs. Female Horse Riders: Differences in Musculoskeletal Response to the Force Generated by a Horse at the Trot. Poster. Annual Meeting, American Association of Anatomists, Boston, MA, 28 March- 1 April
- 2015 Uhl EW, **Osborn ML**, Michel F, Hogan RJ. Human & Canine Codon Optimization of Measles & Canine Distemper Viral Nucleic Acid Sequences Increases Sequence Identity and Protein Expression Compared to Wild Type and Human Codon Sub-optimized Constructs. Poster. Meeting, Experimental Biology, Boston, MA, 28 March- 1 April
- 2015 **Osborn ML**, Michel F, Hogan RJ, Uhl EW. Optimization to human and canine codon usage bias increases nucleic acid sequence identity and protein expression from canine distemper and human measles viral protein constructs. Poster. Inaugural Meeting, The International Society for Evolution, Medicine, & Public Health, Tempe, AZ, 19-21 March
- 2015 Uhl EW, **Osborn ML**, Hogan RL. Origin of canine distemper as a reverse zoonosis from human measles: insights from history, evolution and studies of codon usage bias. Oral presentation. Inaugural Meeting, The International Society for Evolution, Medicine, & Public Health, Tempe, AZ, 19-21 March
- 2014 Uhl EW, **Osborn ML**, Michel F, Hogan RJ. Optimization of canine distemper (CDV) and human measles viral (HMV) sequences to human or canine codon usage bias increases protein expression and sequence identity. Poster. Annual Meeting, American College of Veterinary Pathologists, Atlanta, GA, 8-12 November
- 2014 **Osborn ML**, Cornille JL, Uhl EW. Effects of the curvature of the lumbar spine on the posture of male and female horse riders: A biomechanical analysis. Poster. Annual Meeting, American Association of Anatomists, San Diego, CA, 26-30 April
- 2014 Uhl EW, **Osborn ML**, Michel F, Hogan RJ. Optimization of the nucleocapsid (N) protein sequences of human measles virus (HMV) and canine distemper virus (CDV) to human and canine codon usage bias



- increases sequence identity and protein expression. Poster. Meeting, Experimental Biology, San Diego, CA, 26-30 April
- 2014 Uhl EW, **Osborn ML**, Kelderhouse C, Blick JP. Spondylosis in Pre-Columbian New World and modern dogs: A comparative study. Poster. Annual Meeting of the Paleopathology Association, North American Meeting. Calgary, Alberta, Canada, 8-9 April
- 2014 **Osborn ML**, Ge J, Melancon KP, Rau ARP, Homberger DG. Bad posture and its effects on the neck and shoulder suspension apparatus of humans: A 3D biomechanical analysis. Oral presentation. Annual Meeting, Society for Integrative and Comparative Biology, Austin, TX, 7 January
- 2013 **Osborn ML**, Ge J, Melancon KP, Rau ARP, Homberger DG. The effect of posture on the neck and shoulder suspension apparatus of humans: A 3D biomechanical analysis. Poster. Annual Meeting *and* AAA Graduate Student/Post-Doc Poster Reception, American Association of Anatomists, Boston, MA, 22 April
- 2012 **Osborn ML**, Homberger DG. Comparative functional morphology of the head suspension of quadrupedal cats and the shoulder suspension of bipedal humans. Oral presentation. Annual Meeting, American Association of Anatomists, San Diego, CA, 25 April
- 2011 **Osborn ML**, Homberger DG. The human shoulder suspension apparatus: Biomechanical analysis and asymmetry as a natural experiment. Poster. 5<sup>th</sup> International Meeting on Cranio-Cervical Systems, Paris, France, 5-8 July
- 2011 **Osborn ML**, Homberger DG. Biomechanical analysis of the human head-neck-shoulder complex: Asymmetry as a natural experiment. Poster. Annual Meeting *and* AAA Graduate Student/Post-Doc Poster Reception, American Association of Anatomists, Washington DC, 11-12 April
- 2011 **Osborn ML**, Homberger DG. The human head-neck-shoulder complex: A configuration to free the hands. Oral Presentation. Annual Meeting, Society for Integrative and Comparative Biology, Salt Lake City, UT, 7 January
- 2010 \***Osborn ML**, Homberger DG. The function and evolution of the mastoid process and clavicle in humans: A natural experiment. Poster. The Biological Anthropology Mini-Meeting at the Annual Meeting for the American Association of Anatomists, Anaheim, CA, 27 April
- 2010 **Osborn ML**, Homberger DG. The function and evolution of the mastoid process and clavicle in humans: A natural experiment. Poster. Annual Meeting, American Association of Anatomists, Anaheim, CA, 28 April
- 2009 Camps C, Bonin JA, Hopkins BA, **Osborn ML**, Homberger DG, Redd TC. A registration-based algorithm for the unique identification of the Hispaniolan Amazon. Poster. 88th Annual Meeting of the Southeastern Section of the Mathematical Association of America (MAA), Belmont University, Nashville, TN, 13-14 March
- 2009 **Osborn ML**, Homberger DG. Asymmetry of the cranio-cervico-omo-clavicular complex (CCOCC) in right-handed humans is functionally related to handedness. Oral presentation. Annual Meeting, Society for Integrative and Comparative Biology, Boston, MA, 3-7 January
- 2009 Bonin JA, Hossein I, Ham K, Ogunbakin T, Hopkins BA, **Osborn ML**, Barnett HA, Matthews II KL, Butler LG, Bragulla HH, Homberger DG. The complex morphology of the cat claw as revealed through virtual dissection by x-ray computed tomography and software- assisted visualization. Poster. Annual Meeting, Society for Integrative and Comparative Biology, Boston, MA, 3-7 January
- 2008 **Osborn ML**, Homberger DG. The shoulder bone connected to the...skull bone. Oral presentation. Annual Meeting, Society for Anthropological Sciences, New Orleans, LA, 20-23 February
- 2007 Homberger DG, Hopkins BA, **Osborn ML**, Castille A, Bragulla HH, Matthews II KL, Barnett H, Butler L, Tully TN. The ridge pattern of the cornified oral surface of the upper beak of parrots: Individuality and genus-level character. Poster. 8<sup>th</sup> International Congress of Vertebrate Morphology, Paris, France, 16-21 July
- 2007 Bragulla HH, Barnett H, Ogunbakin T, **Osborn ML**, Ham K, Matthews II KL, Butler L, Homberger DG. The development and vascularization of the bony core (third phalanx) of the cat claw. Poster. 8<sup>th</sup> International Congress of Vertebrate Morphology, Paris, France, 16-21 July
- 2007 **Osborn ML**, Manhein MH, Leitner M. Poster. Annual Meeting, American Academy of Forensic Sciences, San Antonio, TX, 19 February

#### Seminars and Posters at Universities (\* invited)

- 2021 \***Osborn ML**, Cornille JL, Blas-Machado U, Uhl EW. The Equine Navicular Apparatus as a Premier Entthesis Organ: Functional Implications. Kansas State University, Department of Anatomy & Physiology

- Departmental Seminar Series, Virtual, 28 September
- 2019 \***Osborn ML**. Free-body Diagram Force Analysis in 2D and 3D: Using a Physics Method as a Tool to Study Vertebrate Biomechanics. Oral presentation. Tulane University, Department of Physics and Engineering Physics Fall 2019 Physics Colloquium, New Orleans, LA 28 October
- 2019 Robertson AC, **Osborn ML**, Pedersen K, Watt J, Ronis MJ. Role of NOX4 Expression in Osteoblast-Precursors in the Development of Alcohol-Induced Osteopenia. Louisiana State University School of Medicine Medical Student Research Day, New Orleans, LA, October
- 2018 **Osborn ML**. Comparative Pathomechanics: Enthesis Organ Failure in Humans and Horses. Oral presentation. Louisiana State University School of Veterinary Medicine Fall 2018 Lunch & Science Seminar Series, Baton Rouge, LA, 7 September
- 2018 Gu Y, **Osborn ML**. Comparative Anatomy and the Kinematic Analysis of the Atlantoaxial Joint in Feline and Human Computer Models. Poster. Research Emphasis Day, Society of Phi Zeta, Louisiana State University, Baton Rouge, LA, 28 February
- 2017 \***Osborn ML**. Free-body Diagram Force Analysis in 2D & 3D: Evaluation and Relevance in Studies of Functional Anatomy. Oral presentation. Louisiana State University Health Sciences Center, Department of Cell Biology and Anatomy 2017-2018 Seminar Series, New Orleans, LA, 23 October
- 2017 Lee A, Maciejewski J, Baker J, **Osborn ML**. The horse in motion: Animating the 3D reconstructed skeleton from equine CT data. Poster. Discover Day, Louisiana State University, Baton Rouge, LA 4 April
- 2017 Baker J, Langlois S, Lee A, Maciejewski J, **Osborn ML**. Examining degenerative joint disease in horses using a 3D computer model. Poster. Discover Day, Louisiana State University, Baton Rouge, LA, 4 April
- 2016 Baker J and **Osborn ML**. Reconstructing a 3D model of the equine axial skeleton to examine degenerative joint disease. Poster. Undergraduate Research Conference (URC), Louisiana State University, Baton Rouge, LA, 14 October
- 2016 Baker J and **Osborn ML**. Reconstructing a 3D model of the equine axial skeleton to examine degenerative joint disease: Building the missing ribs. Poster. 23rd Annual Summer Undergraduate Research Forum (SURF), Louisiana State University, Baton Rouge, LA, 29 July
- 2016 **Osborn ML**. The pathomechanics of degenerative joint disease: An evolutionary and functional approach. Oral presentation. Undergraduate Research Seminar Series, Louisiana State University, Baton Rouge, LA, 26 July
- 2015 **Osborn ML**. Oh my aching neck! The effects of handedness and posture. Oral presentation. Pathology Research Seminar Series, Dept. of Pathology, College of Veterinary Medicine, University of Georgia, Athens, GA, 9 April
- 2014 **Osborn ML**. The shoulder suspension of humans and the head suspension of cats: Reconstructing macroevolutionary change in a complex system. Oral presentation. Biological Anthropology Graduate Student Seminar for the Dept. of Anthropology, University of Georgia. Athens, GA, 24 March
- 2014 \***Osborn ML**. The malleable course of PhD research: Free body diagram force analysis in 2D and 3D. Oral presentation. Doctoral Biomechanics Research Seminar for the Dept. of Kinesiology, University of Georgia. Athens, GA, 18 February
- 2012 **Osborn ML**, Homberger DG. Comparative functional morphology of the head suspension of quadrupedal cats and the shoulder suspension of bipedal humans. Oral presentation. The Annual BioSymposium, Dept. of Biological Sciences, LSU, Baton Rouge, 02 November
- 2011 **Osborn ML**, Homberger DG. Biomechanical analysis of the human head-neck-shoulder complex: Asymmetry as a natural experiment. Poster. The Annual BioSymposium, Dept. of Biological Sciences, LSU, Baton Rouge, 11 November
- 2010 **Osborn ML**, Homberger DG. The function and evolution of the mastoid process and clavicle in humans: A natural experiment. Poster. The Annual BioSymposium, Dept. of Biological Sciences, LSU, Baton Rouge, 19 November
- 2009 **Osborn ML**, Homberger DG. Asymmetry in the human cranio-cervico-omo-clavicular complex suggests connection with bipedalism. Oral presentation. Annual BioSymposium, Dept. of Biological Sciences, LSU, Baton Rouge, 13 November

### Editorial & Journal Positions

- 2022 Ad-hoc Reviewer: Journal of the American Veterinary Medical Association (1 article)
- 2020-2023 Member, Editorial Board: Veterinary Surgery

- 2020 Ad-hoc Reviewer: Veterinary Surgery (2 articles)
- 2020 Ad-hoc Reviewer: Anatomia, Histologia, Embryologia (3 articles)
- 2019 Ad-hoc Reviewer: Research in Veterinary Science (1 article)
- 2015 Ad-hoc Reviewer: The Anatomical Record (2 article)

### **Grant Reviews**

- 2017-2021 Charles V. Cusimano Equine Health Studies Program, Reviewer, Grant Proposals

### **Memberships to Professional Societies**

- 2022-present World Association of Veterinary Anatomists (WAVA)
- 2018-present LSU SVM Academy of Teaching and Learning
- 2016-present American Association of Veterinary Anatomists
- 2015-present International Society for Evolution, Medicine, & Public Health (founding member)
- 2011-present American Association of University Women (AAUW)
- 2010-present Sigma Xi
- 2010-present American Association of University Professors (AAUP)
- 2008-present American Association for Women in Science (AWIS)
- 2007-present American Association of Anatomists (AAA)
- 2006-present Society for Integrative and Comparative Biologists (SICB)

### **Symposia Organized**

- 2018 Realistic and Testable Model in Comparative Anatomy: Creative Uses of 3D/4D Imaging Techniques. Symposium. Organized with Dominique G. Homberger. Annual Meeting of the American Association of Anatomists, San Diego, CA, 21-24 April

### **Mentored Students: Graduate**

- 2021-2022 Dean's Representative, Graduate School: Eunhan Cho (Department of Kinesiology, LSU)
- 2021- Committee Member, Dissertation: Rita Aoun (Department of Veterinary Clinical Sciences, LSU SVM)
- 2021- Graduate Student Mentor, Thesis: Chesnie Scull (Department of Comparative Biomedical Sciences, LSU)
- 2020- Minor Professor, Committee member, Dissertation: John Cullen Hodges (Department of Biological Sciences, LSU)
- 2019- Graduate Student Mentor, Dissertation: Alexander K.K. Lee (Department of Comparative Biomedical Sciences, LSU SVM)
- 2018- Committee Member, Dissertation: Takashi Taguchi (Department of Veterinary Clinical Sciences, LSU SVM)
- 2018 Dean's Representative, Graduate School: Derek Bratcher (Department of Biological Sciences, LSU)
- 2017 Dean's Representative, Graduate School: Marco A. Rego (Department of Biological Sciences, LSU)
- 2016-2017 Committee Member, Dissertation: Heather Richebourg (Department of Comparative Biomedical Sciences, LSU SVM)
- 2016-2018 Dean's Representative, Graduate School: Jennifer Geiger (School of Social Work, LSU)
- 2016-2018 Committee Member, Dissertation: Amanda Cozic (Department of Biological Sciences, LSU SVM)

### **Mentored Students: Undergraduate**

- 2016-2018 Committee Member, Undergraduate Honors Thesis: Breigh Sonnier (Department of Biological Sciences, LSU)

### **Mentored Students: Research**

- 2019 Matthew Lauto, Summer Research Internship
- 2018-2019 Neil Walsh, President's Future Leaders in Research Year Zero Program.
- 2018 Justice Merrifield, Summer Research Internship.

- 2017 Yi Gu, LSU SVM, Merial Summer Scholars Research Program. Comparative Anatomy and the Kinematic Analysis of the Atlantoaxial Joint in Feline and Human Computer Models
- 2016-2018 Jeremy Baker, Baton Rouge Community College, NIH Bridges to Baccalaureate Program. 3D Reconstruction of a Horse from CT Data
- 2015-2016 Kaitlyn Carrick Ruff, University of Georgia, CURO Research Assistantship. Pathomechanics of the Equine Navicular Bone
- 2014-2015 Karen Maples, University of Georgia. The Role of Codon Usage Bias in the Adaptation of the Morbilliviruses
- 2006-2013 Mentored 7 undergraduate research students as a PhD student in the lab of D.G. Homberger (LSU): Deric Griffin (dissection of the cat); Deuce Andermann (dissection and imaging of the spiracle of the shark); Clint McFerren (dissection and imaging of the spiracle of the shark); Elise Orellana (dissection and imaging of a bird); Amanda Cooper (3D visualization and segmentation of a human and a cat); Robert Helm (3D visualization and segmentation of a human); Kyle Paulk (dissection and imaging of the spiracle of the shark; 3D free body force analysis of a human).

### **Mentored Students: Student Workers**

#### Project: Pathomechanical Analysis of Equine Navicular Disease

- 2016-2019 Alexander Lee (LSU Undergraduate, Biological Engineering/Robotics)
- 2016 Nandakumar Prabhaker (LSU Graduate, Industrial Engineering)
- 2016-2017 Joshua Maciejewski (LSU Undergraduate, Biological Sciences & Chemistry): currently DO student, Lake Erie College of Osteopathic Medicine
- 2016-2017 Daniel Pazooki (LSU Undergraduate, Biological Sciences)
- 2016 Sarah Langlois (LSU Undergraduate, Biological Sciences)

### **Visiting Scientists**

- 2019 A.E. Mokhtar Abd Elmagid, MS. 28 July- 9 August 2019 (Lecturer of Clinical Anatomy, Department of Anatomy, Histology & Embryology, College of Medicine, Najran University, Saudi Arabia)

### **Invited Teaching Lectures and Labs**

- 2019-2022 Invited Lecturer: VMED 5463: Integrative Medicine & Rehabilitation, School of Veterinary Medicine, LSU
- 2017-2020 Invited Lecturer: VMED 5463: Shelter Medicine, Forensic Fridays, School of Veterinary Medicine, LSU
- 2017 Invited Lab Instructor: Acupuncture Wet Lab
- 2016-2017 Invited Lecturer: LSU HNRS 3035: 3D Imaging and Animation, Honors College, LSU
- 2016-2017 Invited Lecturer: VPAT 4000/6000: The Evolution of Disease, University of Georgia College of Veterinary Medicine
- 2013/2015 Invited Lecturer/Essay Reader: VPAT 4000/6000: The Evolution of Disease, University of Georgia College of Veterinary Medicine

### **New Course Materials**

- 2016 2 new lectures developed for VMED 5124: The Lymphatic System, Department of Comparative Biomedical Sciences, Louisiana State University School of Veterinary Medicine

### **Service: University/Departmental**

- 2022 Committee Member: CBS Teaching Expectations Committee (LSU SVM Subcommittee)
- 2019-2021 Search Committee: Faculty, Committee Member: CBS Anatomist
- 2019- LSU SVM Curriculum Review Committee, Committee Member
- 2019-2020 Search Committee: Faculty, Committee Member: CBS Chair
- 2018-2019 Chair: Curriculum Standard, LSU SVM Accreditation Steering Committee
- 2018-2019 Committee Member: CBS Strategic Planning Research Committee
- 2018-2019 Committee Member: CBS Strategic Planning Graduate Education Committee
- 2018-2019 Committee Member: CBS Strategic Planning Professional Education Committee
- 2018-2020 Chair: Courses and Curriculum Committee, LSU SVM

- 2018, 2022 Interviewer: Applicants, Louisiana State University School of Veterinary Medicine  
 2018-2022 Reviewer: Applicant Folders, Louisiana State University School of Veterinary Medicine  
 2018-2020 Judge: Research Emphasis Day, Society of Phi Zeta, Louisiana State University, Baton Rouge, LA 28 February  
 2017 Host: Dean's Grand Rounds Speaker: Joy Reidenberg, Professor at the Icahn School of Medicine at Mount Sinai in New York City. 27 November  
 2017 Host: CBS Seminar Series Speaker: Elizabeth W. Uhl, Assoc. Professor, University of Georgia College of Veterinary Medicine, Dept. Pathology. 2 March  
 2017-2018 Committee Member: Courses and Curriculum Committee, Louisiana State University School of Veterinary Medicine  
 2017- Committee Member: Master's Program Committee, Department of Comparative Biomedical Sciences, Louisiana State University School of Veterinary Medicine  
 2017- Director of Micro-computed Tomography Laboratory, Department of Comparative Biomedical Sciences, School of Veterinary Medicine, LSU  
 2016-2017 Search Committee: Faculty, Committee Member: CBS Anatomist  
 2016 Search Committee: Faculty, Committee Member: CBS Toxicologist  
 2016 Host: CBS Seminar Series Speaker: Stephen Levin, Founder of "Biotensegrity" and retired orthopaedic surgeon. 15 September  
 2011-2012 Comparative Anatomy Lab Tour Guide: Biology Intensive Orientation for Students (BIOS), Dept. of Biological Sciences, LSU

### Service: Professional Organizations

- 2022 Mentor: American Association of Anatomy  
 2017-2019 Member: Membership Committee, American Association of Anatomists  
 2016-2019 Member: Committee for Early Career Anatomists, American Association of Anatomists  
 2014 Judge for Best Student Research Poster/Presentation, Divisions of Vertebrate Morphology and Comparative Biomechanics. Annual Meeting, Society for Integrative and Comparative Biology, Austin, TX, 3-8 January  
 2010 Member: Programming Committee, LSU Graduate Student Association

### Service and Outreach: Professional & Community

- 2022 EW Uhl, **Osborn ML**. How Biotensegrity Embodies the Brain. Science of Motion Wisdom 2 Outreach Lectures, Virtual, 12, June.  
 2022 EW Uhl, **Osborn ML**. How Loud is Your Touch. Science of Motion Wisdom 2 Outreach Lectures, Virtual, 8, June.  
 2022 EW Uhl, **Osborn ML**. Balancing & Centering Force (Spirals). Science of Motion Wisdom 2 Outreach Lectures, Virtual, 25, May.  
 2022 EW Uhl, **Osborn ML**. Controlling the Force. Science of Motion Wisdom 2 Outreach Lectures, Virtual, 9, May.  
 2022 EW Uhl, **Osborn ML**. Tension. Science of Motion Wisdom 2 Outreach Lectures, Virtual, 25, April.  
 2022 EW Uhl, **Osborn ML**. Taking Off the Blinkers: How Biotensegrity Changes Everything. Science of Motion Wisdom 2 Outreach Lectures, Virtual, 12, April.  
 2021 EW Uhl, **Osborn ML**, Cornille JL. Investigating Biotensegrity in Equine Lameness & Rehabilitation. Oral presentation. Colloquy on Biotensegrity & Equine Health. Stephen J Levin Biotensegrity Archives, Virtual, 29 July  
 2021 **Osborn ML**, EW Uhl. Navicular Syndrome: A Functional Anatomical Approach. Oral presentation. Equine Navicular Syndrome Workshop. Science of Motion, Virtual, 7 July  
 2020 EW Uhl, **Osborn ML**. Searching for Better Answers: Investigating the Root Causes of Chronic Lameness in Horses. Oral presentation. In Hand Training Course Immersion, 7<sup>th</sup> Science of Motion International Conference, Virtual, 4 October  
 2020 EW Uhl, **Osborn ML**. Changing Paradigms: Why Is It So Difficult? Oral presentation. In Hand Training Course Immersion, 7<sup>th</sup> Science of Motion International Conference, Virtual, 4 October  
 2019 **Osborn ML**. The Rider's Seat: The Spine. Oral presentation. In Hand Training Course Immersion, 6<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 4-6 October

- 2019 **Osborn ML**, Uhl EW. Neck Arthritis in Rider & Horse. Oral presentation. In Hand Training Course Immersion, 6<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 4-6 October
- 2019 Uhl EW, **Osborn ML**. Tensegrity: The Key to Understanding Function & Dysfunction in Horse & Rider. Oral presentation. In Hand Training Course Immersion, 6<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 4-6 October
- 2018 Uhl EW, **Osborn ML**. Misadventures in Tensegrity. Oral presentation. In Hand Training Course Immersion, 6<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 5-6 October
- 2018 A Lee, **Osborn ML**. The 4D Horse. Oral presentation. In Hand Training Course Immersion, 6<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 5-6 October
- 2018 Judge: Louisiana Science and Engineering Fair (Regional), Louisiana State University, Baton Rouge, LA, 6 Feb
- 2017 **Osborn ML**. Biotensegrity: Introduction and Principles. Oral presentation. In Hand Training Course Immersion, 5<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 6-8 October
- 2017 **Osborn ML**. Biotensegrity: The rider revisited. Oral presentation. In Hand Training Course Immersion, 5<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 6-8 October
- 2017 Judge: Louisiana Science and Engineering Fair (State), Louisiana State University, Baton Rouge, LA 21 March
- 2017 Judge: Louisiana Science and Engineering Fair (Regional), Louisiana State University, Baton Rouge, LA, 24 Jan
- 2016 **Osborn ML**. The rider. Oral presentation. In Hand Training Course Immersion, 4<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 1-2 October
- 2016 **Osborn ML**. Pathomechanical (free-body) analysis. Oral presentation. In Hand Training Course Immersion, 4<sup>th</sup> Science of Motion International Conference, Eatonton, GA, 1-2 October
- 2016 Instructor: Gross Anatomy Lab Summer Primary School Camp Sessions, Louisiana State University School of Veterinary Medicine, Baton Rouge, LA, 22 July
- 2016 Instructor: Gross Anatomy Lab Summer Primary School Camp Sessions, Louisiana State University School of Veterinary Medicine, Baton Rouge, LA, 14 June
- 2016 Judge: Louisiana Science and Engineering Fair (State), Louisiana State University, Baton Rouge, LA 22 March
- 2016 Judge: Louisiana Science and Engineering Fair (Regional), Louisiana State University, Baton Rouge, LA, 23 Feb
- 2015 **Osborn ML**. Free-body analysis: The rider. Oral presentation. In Hand Training Course Immersion, 3<sup>rd</sup> Science of Motion International Conference, Eatonton, GA, 3-4 October
- 2015 **Osborn ML**. Pathomechanical (free-body) analysis. Oral presentation. In Hand Training Course Immersion, 3<sup>rd</sup> Science of Motion International Conference, Eatonton, GA, 3-4 October
- 2014 **Osborn ML**. Why men and women do not ride the same way: Effects of the curved spine. Oral presentation. In Hand Training Course Immersion, 2<sup>nd</sup> Science of Motion International Conference, Eatonton, GA, 4-5 October
- 2013 **Osborn ML**. The shoulder suspension of humans and the head suspension of cats: Insights into the head suspension of the horse. Oral presentation. In Hand Training Course Immersion, 1<sup>st</sup> Science of Motion International Conference, Eatonton, GA, 5-6 October
- 2013 Recruitment Ambassador: Teach For America
- 2013 Guest Speaker: Massage Therapist Training, The Natural Touch, LLC, Denham Springs, LA; 30 May
- 2010-2012 Instructor: Comparative Anatomy Outreach Program, Dept. of Biological Sciences, LSU
- 2005 Volunteer: Find Family National Call Center, Louisiana State Police Crime Lab
- 2005-2006 Volunteer: Forensic Anthropology Computer Enhancement Services (FACES), LSU

### Consulting

- 2019 Public; Brandy Duhon, DVM (LSU SVM): Identification of non-human remains from prison dig
- 2019 Academic; Juliet Brophy, PhD (LSU Geography & Anthropology): Second opinion on identification of human teeth within a fossilized rock
- 2017 Public; Identification of non-human skeletal remains

- 2016 Consultant: Louisiana Animal Disease Diagnostic Laboratory clinical case help: Dissection of Emma, a Sea Otter from Audubon Aquarium, New Orleans
- 2016 Consultant: LSU: Identification of non-human remains at campus construction site; 9 Dec.

**Media (Professional & Popular)**

- 2019 Making Time to Write. Anatomy Now, the official newsletter of the American Association of Anatomists (March).
- 2018 Louisiana State University and University of Georgia researchers are building a full-body 4D model of a horse from CT data to help treat equine joint damage. Research Highlighted on the SEC social media channels; <https://twitter.com/TheSECU>
- 2018 Whales and Avian Flight...Getting Creative with 3D Imaging. The Anatomy Voice, the official newsletter of the annual meeting of the American Association of Anatomists (article on chaired symposium)
- 2018 Harnessing the Power of Undergraduate Researchers. Anatomy Now, the official newsletter of the American Association of Anatomists (February).
- 2017 Louisiana State University and University of Georgia researchers are building a full-body dynamic 3D model of a horse from CT data to help treat equine joint damage. Research Highlighted on the SEC social media channels; <https://twitter.com/TheSECU>
- 2016 Preparing for the Interview: Modern vs. Classical Anatomy Techniques. Anatomy Now, the official newsletter of the American Association of Anatomists (November).
- 2015 Uncovering the Human Shoulder Suspension Apparatus. Anatomy Now, the official newsletter of the American Association of Anatomists (September).
- 2004 Rubin BM. Teaching hope: Meet four dedicated young women helping needy kids across America. Good Housekeeping (January): 84-87.

**Language Skill**

English

German (basic reading and speaking)