



Christopher Michael Smith

Educational History

2014	M.A.	Medical and Biological Illustration, Johns Hopkins University School of Medicine <i>Thesis: Visualizing Muscular and Skeletal Anomalies of a Trisomy 18 Cyclopic Human Fetus in an Evo-Devo Context with Trisomy Comparison</i> Advisors: Corinne Sandone M.A., C.M.I. F.A.M.I. Rui Diogo Ph.D. Valerie DeLeon Ph.D.
2012		Schuler School of Fine Arts Atelier, Baltimore, MD
2011	B.S.	Exercise Science, Salisbury University

Professional Experience

2015-present	Medical Illustrator	Icahn School of Medicine at Mount Sinai, Department of Academic Medical Illustration, New York, NY
2014-present	Freelance Illustrator	CSmith Studios
2014	Research Assistant/ Illustrator	Howard University College of Medicine, Department of Anatomy, Washington D.C.
2013	Medical Illustrator	Johns Hopkins University School of Medicine Departments of Biophysics and Interventional Neuroradiology, Baltimore, MD
2013	Biological Illustrator	National Aquarium, Baltimore, MD
2011,12	Personal Trainer	Y of Central Maryland, Abingdon, MD

Honors and grants

2016	AAA Innovation Grant	Anatomical Network Analysis: A new method to quantify musculoskeletal modularity, integration, and evolvability. R. Diogo (PI), J. C. Boughner, J. Molnar, C.M. Smith, B. Esteve-Altava. \$50,000
2014	Inez Demonet Scholarship	Vesalius Trust, for the highest academic and personal achievement in the field of visual communication in the health sciences (1 awarded in US/Canada)
2014	Vesalian Scholar Grant	Vesalius Trust, for Master's thesis <i>Visualizing Muscular and Skeletal Anomalies of a Trisomy 18 Cyclopic Human Fetus in an Evo-Devo Context with Trisomy Comparison</i> (4 awarded in US/Canada)
2012,13	William P. Didusch Scholarship	Johns Hopkins University School of Medicine
2012,13	W.B. Saunders Scholarship	Johns Hopkins University School of Medicine
2011	Chi Alpha Sigma College	

	Athlete Honor Society	Salisbury University, Salisbury, MD
2008-11	Deans List	Salisbury University, Salisbury, MD
2010-11	Varsity Swim Team Captain	Salisbury University, Salisbury, MD

Awards and Exhibitions

2015	Second Place	Gray's Anatomy Art Competition, Elsevier
2015	Student Travel Award	International Society for Evolution, Medicine and Public Health, The International Society for Evolution, Medicine, & Public Health Inaugural Meeting, Tempe, AZ
2015	Student Travel Award	American Association of Anatomists, Boston, MA
2014	Award of Excellence	Association of Medical Illustrators Salon, Mayo Clinic, Rochester, MN
2014	Award of Merit	Association of Medical Illustrators Salon, Mayo Clinic, Rochester, MN
2013	Award of Excellence	Association of Medical Illustrators Salon, Salt Lake City, UT
2013	Award of Merit	Association of Medical Illustrators Salon, Salt Lake City, UT
2013	Honorable Mention	Schuler School of Fine Art 4th Annual Fur to Feathers Show, Baltimore, MD
2012	First Place	Schuler School of Fine Art 3rd Annual Fur to Feathers Show, Baltimore, MD

Abstracts

Smith C.M., J.M. Ziermann & R. Diogo (2015) Musculoskeletal anomalies in human trisomy in an evo-devo context using 3-D imaging and anatomical dissections, with notes on Down Syndrome, cyclopia and medical implications. Howard University Research Week (April 16th 2015). Elsevier.

Smith C.M., J.M. Ziermann & R. Diogo (2015) Muscular and skeletal anomalies in human trisomy in an evo-devo context using 3-D imaging and anatomical dissections, with notes on Down Syndrome, cyclopia and medical implications. *The FASEB Journal* 29:870.1.

Diogo, R., **C.M. Smith** & J.M. Ziermann (2015). Why study muscles: bringing together anatomy, evolution, development, genetics, birth defects and medicine. *The FASEB Journal* 29:211.1.

Diogo, R., S. Walsh, **C.M. Smith** & J.M. Ziermann (2014). First detailed comparative, developmental and pathological analysis of the relationship between limb soft and hard tissues: muscle configuration is mainly related to the topological position, and not the anlage and/or homeotic identity, of digits. *The FASEB Journal* 28:919.5.

Publications, peer reviewed

Loganathan, R., B.J. Rongish, **C. M. Smith**, A. Czirok, B. Benazeraf, C.D. Little. Emergent tissue-scale motion patterns and extracellular matrix dynamics characterize amniote morphogenesis. *Development*. In Review.

Diogo R., Esteve-Altava, B., **C.M. Smith**, J.C. Boughner & D. Rasskin-Gutman. (2015). Anatomical Network Comparison of Human Upper and Lower, Newborn and Adult, and Normal and Abnormal Limbs, with Notes on Development, Pathology and Limb Serial Homology vs. Homoplasy. *PLOS ONE*. 10(10): e0140030. doi: 10.1371/journal.pone.0140030.

Diogo R., **C.M. Smith**, & J.M. Ziermann. (2015). Evolutionary Developmental Pathology and Anthropology: a new field linking development, comparative anatomy, human evolution, morphological variations and defects, and medicine. *Developmental Dynamics*. doi: 10.1002/DVDY.24336.

Esteve-Altava, B., R. Diogo, **C.M. Smith**, J.C. Boughner & D. Rasskin-Gutman (2015). What's in your head: anatomical networks link human musculoskeletal modularity, facial expression, and disease. *Scientific Reports (Nature Group)*. 5(8298): doi:10.1038/srep08298.

Diogo R., S. Walsh, **C.M. Smith**, J.M. Ziermann & V. Abdala. (2015) Resolution of a long-standing question: limb muscle identity and attachments are mainly related to topological position and not to anlage or homeotic identity of digits. *Journal of Anatomy*. doi: 10.1111/joa.12301.

Diogo, R., S. Walsh, **C.M. Smith** & J.M. Ziermann (2014). First detailed comparative, developmental and pathological analysis of the relationship between limb soft and hard tissues: muscle configuration is mainly related to the topological position, and not the anlage and/or homeotic identity, of digits. *The FASEB Journal* 28:919.5.

Publications, non peer-reviewed

Intra-arterial Chemotherapy for the Treatment of Progressive Diffuse Intrinsic Pontine Gliomas Animation, Johns Hopkins Hospital Department of Interventional Neuroradiology Website.

Books

Diogo, R., D. Noden, **C.M. Smith**, J.L. Molnar, M. Shaw, J. Boughner & M.A. Aziz. *Learning and understanding human anatomy and pathology: an evolutionary and developmental guide for medical students*. Taylor & Francis (Oxford, UK). In press.

Smith C.M., J.L. Molnar, J.M. Ziermann, M.C. Gondre-Lewis, C. Sandone, E.T. Bersu, A.M. Aziz, & R. Diogo (2015). *Muscular and skeletal anomalies in human trisomy in an evo-devo context: description of a T18 cyclopic newborn and comparison between Edwards (T18), Patau (T13) and Down (T21) syndromes using 3-D imaging and anatomical illustrations*. Taylor and Francis (Oxford, UK).

Press/Media

American Association of Anatomists. *Human musculoskeletal modularity*. Interview. February 2015.

PRNewsWire. *Elsevier Announces Winners of Gray's Anatomy Art Contest*. August 2015.
<http://www.prnewswire.com/news-releases/elsevier-announces-winners-of-grays-anatomy-art-contest-522136621.html>

Posters/Presentations

Smith, C.M. (2016) The Field of Medical and Biological Illustration. Department of Biology. George Mason University. Fairfax, VA April 25th 2016. Oral Presentation.

Smith, C.M. & R. Diogo (2016). Non-pentadactyly, soft and hard tissue associations, birth defects, and implications for medicine. 11th International Congress of Vertebrate Morphology. Washington DC, June 29-July 3, 2016. Oral presentation.

Diogo, R., B. Esteve-Altava, **C.M. Smith**, D. Rasskin-Gutman (2015). Evolution, biological complexity, evolvability, networks, chaos versus order, and the notion of biological 'progress'. Re-conceptualizing the origin of life. November 9-13th, Carnegie Institution of Washington DC. 2015. Poster.

Smith, C.M. (2015) Biomedical Illustration. The Schuler School of Fine Art. Baltimore, MD, October 29th

2015. Oral Presentation.

Smith, C.M.(2015). Musculoskeletal Variation in Human Trisomy and Modularity. Department of Instructional Technology. Mount Sinai Hospital. New York, NY. July 31st. Oral Presentation.

Nabavizadeh, A. & **C.M. Smith** (2015). A New Large-Scale Project in Comparative Anatomy Research and Illustration. Association of Medical Illustrators Annual Conference, Cleveland Clinic. Cleveland, OH, July 25th 2015. Oral Presentation.

Raj, M.T., J. Uppal, J.M. Ziermann, B. Esteve-Altava, **C.M. Smith**, D. Rasskin-Gutman, R. Diogo & J.C. Boughner (2015). Red in tooth and jaw: mechanisms coordinating the evo-devo of the mammalian face. Pan American Society for Evolutionary Developmental Biology 2015. Berkeley. August 5-9th, 2015. Poster.

Smith, C.M., J.M. Ziermann & R. Diogo (2015). Musculoskeletal Variation in Human Trisomy and Modularity. Department of Biology. Howard University. Washington, D.C. April 15th, 2015. Oral Presentation.

Smith, C.M., J.M. Ziermann & R. Diogo (2015) Muscular and skeletal anomalies in human trisomy in an evo-devo context using 3-D imaging and anatomical dissections, with notes on Down Syndrome, cyclopia and medical implications. HU Research Day 2015. Washington, D.C. April 16th, 2015. Poster.

Smith, C.M., J.M. Ziermann & R. Diogo (2015) Muscular and skeletal anomalies in human trisomy in an evo-devo context using 3-D imaging and anatomical dissections, with notes on Down Syndrome, cyclopia and medical implications. American Association of Anatomists 2015. Boston. March 28th-April 1st, 2015. Poster.

Diogo, R., **C.M. Smith** & J.M. Ziermann (2015). Why study muscles: bringing together anatomy, evolution, development, genetics, birth defects and medicine. American Association of Anatomists, Annual Meeting, Boston, March 28-April 1, 2015. Oral Presentation.

C.M. Smith, J.M. Ziermann & R. Diogo (2015). Muscular and Skeletal Variation in Human Trisomy and Modularity. Center for the Advanced Study of Human Paleobiology. George Washington University. Washington, D.C. February 4th, 2015. Oral Presentation.

Diogo, R., **C.M. Smith** & J.M. Ziermann (2015). Development and evolution of muscles of humans and other vertebrates: broader evolutionary and medical implications. EMBO Workshop on Integrative perspectives on musculoskeletal development 2015. January 4th, Ein Gedi, Israel. 2015. Poster.

Smith, C.M.(2014) Becoming a Medical Illustrator. Park School. Baltimore, MD, October 15th 2014. Oral Presentation.

Smith, C.M. (2014) Testing Evolutionary and Developmental Theories through Human Cyclopia. Association of Medical Illustrators Annual Conference, Mayo Clinic. Rochester, MO, July 25th 2014. Oral Presentation.

Smith, C.M. (2014) The Profession and History of Medical Illustration. The Schuler School of Fine Art, Baltimore, MD, June 19th 2014. Oral Presentation.

Diogo, R., J.M. Ziermann & **C.M. Smith** (2014). Why study muscles: bringing together anatomy, evolution, development, genetics, birth defects and medicine. First international meeting of evolutionary and developmental biology of heart and head muscles. Washington DC, May 11th, 2014. Oral Presentation.

Diogo, R., S. Walsh, **C.M. Smith** & J.M. Ziermann (2014). First detailed comparative, developmental and pathological analysis of the relationship between limb soft and hard tissues: muscle configuration is mainly related to the topological position, and not the anlage and/or homeotic identity, of digits. American Association

of Anatomists 2014. April 26-30th, San Diego. 2014. Poster.

Smith, C.M. (2014) Testing Evolutionary and Developmental Theories through Human Cyclopa. Department of Art as Applied to Medicine, Johns Hopkins University School of Medicine, Thesis Presentations. Baltimore, MD, April 30th 2014. Oral Presentation.

Smith, C.M. (2014) Testing Evolutionary and Developmental Theories through Human Cyclopa. University of Toronto. Medical Illustration Graduate Student Conference. Toronto, ON. April 25th 2014. Oral Presentation.

Smith, C.M. (2014) What is Medical Illustration? C. Milton Wright High School. Bel Air, MD, April 1st 2014. Oral Presentation.

Professional Associations/Committees

AMI Inez Demonet Scholarship Committee 2015-present
American Association of Anatomists 2014-present
Vesalius Trust, Board of Advisors 2014- present
Association of Medical Illustrators 2012- present

Volunteer Work

Special Olympics Bowling 2014
Relay for Life Swim Team Event 2008, 2011

