

Education**Postdoctoral Fellow****Fall 2019 - present***University of Ottawa, Department of biology*

Supervisor: Dr. Emily Standen

PhD, Biology**Fall 2014-2019***Tufts University, Department of biology*

Advisor: Dr. Eric Tytell

B.A. , Archaeology, Technology, and Historical Structures**2014***University of Rochester, Departments of Mechanical Engineering, Archaeology, and Geology | **Concentration:** Structural Engineering***Minors:** Biology, Mechanical Engineering, Technical Theater**Publications**

*denotes undergraduate co-authors

Donatelli, C.M., Roberts, A.S., Scott, E., DeSmith, K.*, Summers, D.*, Standen, E.M., Porter, M.E., Summers, A.P., and Tytell, E.D., 2021. *Foretelling the flex - vertebral shape and swimming kinematics in fishes*. Integrative and Comparative Biology.**Donatelli, C.M.**, Lutek, K., Gupta, K.*, and Standen, E.M., 2021. *Body and tail coordination in the Bluespot Salamander (Ambystoma laterale) during limb regeneration*. Frontiers Robotics and AI, 8:629713.M.J. Schwaner, S.T. Hsieh, I. Braasch, S. Bradley, C.B. Campos, C.E. Collins, **C.M. Donatelli**, F.E. Fish, O.E. Fitch, B.E. Flammang, B.E. Jackson, A. Jusufi, P.J. Mekdara, A. Patel, B.J. Swalla, M. Vickaryous, C.P. McGowan. 2021. *Future Tail Tales: A Forward-Looking, Integrative Perspective on Tail Research*. Integrative and Comparative Biology.Naughton, L.*, Krupert, S., Porter, M.E., **Donatelli, C.M.**, 2021, *A Tail of Four Fishes: An analysis of kinematics and material properties of elongate fishes*. Integrative and Comparative Biology.Scibelli, A., **Donatelli, C.M.**, Tidwell, B., Tytell, E.D., Trimmer, B.A., (in review), MONOLITH: A soft non-pneumatic foam robot with a functional mesh skin for use in delicate and unpredictable environments. RoboticaBuser, T.J., Boyd, O.F., Cortés, A., **Donatelli, C.M.**, Kolmann, M.A., Luparell, J.L., Pfeiffenberger, J., Sidlauskas, B.L., Summers, A.P., 2020, *The natural historian's guide to the CT galaxy: step-by-step instructions for preparing and analyzing computed tomographic (CT) data using cross-platform, open access software*. Integrative Organismal Biology, 2:1Kolmann, M.A., Peixoto T., Pfeiffenberger, J.A., Summers, A.P., **Donatelli, C.M.**, *Swimming and defence: competing needs across ontogeny in armoured fishes (Agonidae)*. Journal of the Royal Society Interface. 17 (169)

Publications (continued)

- Williams, F., Bock, A., Doraiswamy, H., **Donatelli, C.M.**, Hall, K., Summers, A.P., Panozzo, D., Silva, C.T., 2019, *Unwind: Interactive Fish Straightening*. arXiv preprint. arXiv:1904.04890
- Franklin, A.M., **Donatelli, C.M.**, Culligan, C.R.*, Tytell, E.D., 2019, *Meral Spot Total Reflectance Signals Weapon Performance in the Mantis Shrimp Neogonodactylus oerstedii (Stomatopoda)*. Biological Bulletin. 236
- Donatelli, C.M.**, Bradner, S., Mathews J., Sanders, E.*, Culligan, C.*, Kaplan, D., and Tytell, E.D., 2018. *Prototype of a Fish Inspired Swimming Silk Robot*. IEEE International Conference on Soft Robotics
- Hoffmann, S.L., **Donatelli, C.M.**, Leigh, S.C., Brainerd, E.L., Porter, M.E., 2018, *Three-dimensional movements of the pectoral fin during yaw turns in the Pacific spiny dogfish, Squalus suckleyi*. Biology Open. 8 (1).
- Donatelli, C.M.**, Summers, A.P., Tytell, E.D., 2017. *Long axis twisting during locomotion of elongate fishes*. Journal of Experimental Biology, 220, 3632-3640.
- Donatelli, C.M.**, Serlin, Z.T., Echols-Jones, P., Scibelli, A.E., Cohen, A.*, Musca, J.M., Rozen-Levy, S.*, Buckingham, D., White, R., Trimmer, B.A., 2017. *Soft Foam Robot with Caterpillar-Inspired Gait Regimes for Terrestrial Locomotion*. IEEE International Conference on Intelligent Robots and Systems.

Publications in Progress

- Scibelli, A.E., **Donatelli, C.M.**, Tidswell, B.K., Payton, M.R.*, Tytell, E.D., Trimmer, B.A., (2022, *in press*), MONOLITH: A soft non-pneumatic foam robot with a functional mesh skin for use in delicate environments. Advanced Robotics.
- Lutek, K., **Donatelli, C.M.**, Standen, E.M., (*in review*), Patterns and processes in fish terrestrial biomechanics. Journal of Experimental Biology.
- Donatelli, C.M.**, Han, L.*, Standen, E.M., To row or not to row: How developing armour influences kinematics over ontogeny. Proceedings of the Royal Society B.
- Baxter, D. *, **Donatelli, C.D.**, Cohen, K.E., Tytell, E.D., Internal vertebral morphology of bony fishes matches the mechanical demands of different environments. Ecology and Evolution

Grants, Honors, and Awards

Journal of Experimental Biology Traveling Fellowship	2020
NSF Non-Academic Research Internships for Graduate Students (INTERN) award	2018
Graduate Institute for Teaching (GIFT) Fellowship	2018
Soft Material Robot IGERT Innovation Challenge Winner	2017
Friday Harbor Laboratories Research Endowment	2017
Graduate Student Research Competition Fellowship	2017
Stephen and Ruth Wainwright Fellowship	2018
Friday Harbor Laboratories Marine Science Fund	2018
Graduate Student Travel Award	2014, 2015, 2016, 2018
NSF IGERT: Soft Material Robotics	2015-2017
Take-5 Scholarship	2014

Grants, Honors, and Awards (continued)

BEACON NSF REU Grant	2013
Lisio Scholarship	2011
Bausch and Lomb Honorary Science Award	2009-2013

Teaching and Professional Experience

Instructor - Functional Morphology and Ecology of Marine Fishes Co-Instructors: Dr. Adam summers and Dr. Matt Kolmann <i>Friday Harbor Labs, University of Washington</i>	Summer 2019
Instructor – Physiology of Movement Co-Instructors: Dr. Eric Tytell <i>Department of Biology, Tufts University</i>	Spring 2019
Teaching Assistant – Introduction to Biological Modeling <i>Department of Electrical Engineering, Tufts University</i>	Spring 2017
Teaching Fellow – Anatomy and Physiology <i>Harvard University Ex School</i>	Fall 2016, Spring 2018, Fall 2017, Fall 2018
Teaching Fellow – Fish Biomechanics <i>Friday Harbor Labs, University of Washington</i>	Summer 2016, 2018
Stage Electrician and Carpenter <i>American Repertory Theater, Cambridge, MA; Boston Center for the Arts, Boston MA; Event Illuminations, MA; High Output, MA</i>	2014-2019
Teaching Assistant – Introduction to Biology Lab <i>Department of Biology, Tufts University</i>	2014-2015
Teaching Assistant – Engineering Computing Lab <i>Department of Computer Science, University of Rochester, Rochester, NY</i>	2014
Assistant Engineer <i>Victorianbourg Wine Estates, Wilson, NY</i>	2012
Master Electrician and Scene Shop Assistant <i>Todd International Theater Program, Rochester, NY</i>	2009-2014

Leadership and Committees

President – Biology Union of Graduate Students <i>Duties: Advocate for the graduate students in the Tufts Biology department</i>	May 2018 – May 2019
Secretary – Graduate Women in Science and Engineering <i>Duties: Organize meetings, co-run events, and keep track of institutional memory</i>	May 2018 – May 2019
Board Member – Tufts Experimental College <i>Duties: Review applications and vote on classes taught by the ExCollege each semester</i>	May 2018 – May 2019
President – Tufts Graduate Student Council (GSC) <i>Duties: Interface with university administration on behalf of the graduate student community</i>	May 2017 – May 2018

Leadership and Committees (*continued*)

Committee Member – Tufts Policy and Programs Committee	May 2017 – May 2018
<i>Duties:</i> Discuss and vote on changes to courses and policies related to graduate students at Tufts University	
Vice President – Tufts Graduate Student Council	May 2016 – May 2017
<i>Duties:</i> Interface with the graduate student community and organize the committees within the GSC	
Academic and Career Development Chair – Tufts GSC	May 2015 – May 2016
<i>Duties:</i> Develop programming for academic development within the graduate student community including the annual graduate student research symposium	

Invited Talks, Interviews, and Blog posts

- Episode 7. Pivoting in your STEM Career.** Women in Scholarship, Engineering, Science, and Technology Podcast. [URL](#)
- Not so tough now: Changes in armor morphology and resulting kinematics over ontogeny in fishes.** Canadian Museum of Nature Seminar series. *March 2021*. Invited by Dr. Tetsuto Miyashita
- Lionfish vs. Sharks: The Battle for the Reef.** Integrative Organismal Biology: Cool, organism centered biology. [URL](#)
- Sink before you Swim: What errors in computational fluids models tell us about swimming.** SUNY Geneseo Department of Biology Seminar Series. *October 2020*. Invited by Dr. Mackenzie Gerringer
- Fish swimming fluid dynamics (*ie fun with lasers*).** CSUSB Animal Form and Function course. *October 2020*. Invited by Dr. Angela Horner
- It's all in the fins: Pectoral fin rotation in bonnethead sharks.** Integrative Organismal Biology: Cool, organism centered biology. [URL](#).
- Tight turns by turtles.** Integrative Organismal Biology: Cool, organism centered biology. [URL](#)

Presentations (self)

- Donatelli, C.M.,** Summers A.P., Porter, M.E., (2014). *Bent out of shape: Bio-inspired vertebral column morphology and mechanics*. poster presentation. SICB Annual Meeting, Austin TX.
- Donatelli, C.M.,** Farina, S., Summers A.P., (2015). *A new metric for measuring swimming kinematics in elongate fishes*. poster presentation. SICB Annual Meeting, Orlando FL.
- Donatelli, C.M.,** Kastor, N., Trimmer, B.T., (2015). A Biomimetic Scansorial Foot Design for Soft- Bodied Robots. poster presentation. IEEE International Conference on Intelligent Robots and Systems. Hamburg Germany.
- Donatelli, C.M.,** *The Role of Wobble in Swimming*. (2015). invited lecture. Anatomy and Function of Marine Vertebrates Course, Shoals Marine Lab, Appledore Island, ME.
- Donatelli, C.M.,** Summers, A.P., Tytell, E.D., (2016). *Twist and Flex: Locomotor Variation in Elongate Fishes*. oral presentation. SICB Annual Meeting, Portland OR.

Presentations (self) (continued)

- Donatelli, C.M.,** Summers, A.P., Tytell, E.D., (2016). *Twist and Flex: Locomotor Variation in Elongate Fishes*. poster presentation. Annual winter workshop for the neuromechanics and kinematics of locomotion, New Orleans, LA.
- Donatelli, C.M.,** Summers, A.P., Tytell, E.D., (2017). *Characterizing body twisting in elongate fishes: kinematics, mechanics, and control*. oral presentation. SICB Annual Meeting, New Orleans, LA.
- Donatelli, C.M.,** Scibelli, A., et. al., (2017). *ScuMA Bot: Squishable Motor Actuated Robot*. poster presentation and robot demo. Adaptive Motion of Animals and Machines (AMAM) conference. Sapporo, Japan.
- Donatelli, C.M.,** et. al., (2017). *Soft Foam Robot with Caterpillar-Inspired Gait Regimes for Terrestrial Locomotion*. oral presentation. IEEE International Conference on Intelligent Robots and Systems. Vancouver, BC Canada.
- Donatelli, C.M.,** (2017). *Vertebral morphology's role in predicting body mechanics and 3D swimming kinematics*. oral presentation. SICB DVM/DCB Regional Meeting. University of Massachusetts, Lowell.
- Donatelli, C.M.,** Porter, M.E., Summers, A.P., Tytell, E.D., (2018). *The relationship of vertebral column morphology to body mechanics and 3D kinematics of elongate fishes*. oral presentation. SICB Annual Meeting, San Francisco, CA.
- Donatelli, C.M.,** (2018). *Biomimetics and Bioinspired Design*. Invited lecture. Biomimicry course at the School of the Museum of Fine Arts. Boston, MA.
- Donatelli, C.M.,** Porter, M.E., Summers, A.P., Tytell, E.D., (2018). *Computed Tomography as a predictor of swimming kinematics in elongate fishes*. oral presentation. IAFSB meeting, Tavira, Portugal.
- Donatelli, C.M.,** Bradner, S., ..., Kaplan, D., and Tytell, E.D., (2018). *Prototype of a Fish Inspired Swimming Silk Robot*. poster presentation. IEEE International Conference on Soft Robotics. Livorno, Italy.
- Donatelli, C.M.,** Shen, T.H. *, Khanna, S. *, Tytell, E.D., (2019). *The hydrodynamics of tail twisting during swimming in the American Eel (Anguilla rostrata)*. oral presentation. SICB Annual Meeting, Tampa, FL.
- Donatelli, C.M.,** Sanders, E. *, Polavaram, T. *, Tomer, M., Pfeifferberger, J., Tytell, E.D., (2020). *A Thousand Fibers: The Functional Morphology of Fish Skin Collagen Fibers* oral presentation. (2020) SICB Annual Meeting, Austin, TX.
- Donatelli, C.M.,** Abu-Bader, L *, Baxter, D *, Han, L *, Naughton, L.F. *, Ortiz, F *, Standen, E.M., (2021). *Fabulous fish tails: Using morphology to model functional diversity across the fish tree*. SICB Annual Meeting, Virtual.
- Donatelli, C.M.,** Han, L *, Standen, E.M., (2021) . *Sink or Swim: How Polypterus senegalus' Changing Armor Leads to Gait changes over Ontogeny*. Canadian Society for Zoologists Annual Meeting, Virtual.
- Donatelli, C.M.,** Luterk, K., Standen, E.M., (2022). *Waiting for the fins to change: Terrestrially raised fish show differences in fin and body mechanics*. SICB Annual Meeting, Phoenix, AZ.

Science Communication and Community Outreach

Skype A Scientist Speaker (Virtual)	2019-2021
Dress Like A Scientist Day (Virtual)	2021
Massachusetts Science & Engineering Fair Judge	
<i>Various Cities, MA. Virtual (2020)</i>	2018-2020
Education Intern (through NSF INTERN program)	2019
<i>Boston Museum of Science, Boston, MA</i>	
Reverse Science Fair	2017
<i>Medford High School, Medford, MA</i>	
COMSCICON National Meeting	2016
<i>Microsoft NERD center, Cambridge, MA</i>	
Annual Spring Pond Exploration Day	2015, 2016, 2017
<i>Grafton Elementary School 2nd Grade Class, Grafton, MA</i>	
Salish Sea School FHL Tour guide	Summer 2013-2021
<i>Friday Harbor Middle School, Friday Harbor, WA</i>	
Beach Walk	2013
<i>Friday Harbor Labs, Friday Harbor, WA</i>	

Other Research Experience and Specialized Training

Graduate Institute for Teaching (GIFT) program	2018
<i>Summer training course, Tufts University, Medford, MA</i>	
Experience gained: Current teaching methods, Course design, Assessment tools	
Functional Morphology and Ecology of Fishes	2014
<i>Summer Research Course, Friday Harbor Labs, Friday Harbor, WA</i>	
Experience gained: Mechanical Testing, Software Design, Marine Field Techniques	
The Design and Hydrodynamics of Ancient Canals	2014
<i>Senior Thesis, University of Rochester, Rochester, NY</i>	
Experience gained: Hydrodynamic Analysis, mapping, Archaeology Field Techniques	
Effectiveness of Hockey Pants in Protecting Femur from Fracture	2013
<i>Human Biomechanics Course Project, University of Rochester, Rochester, NY</i>	
Experience gained: Finite Element Analysis	

References

Eric D. Tytell – Tufts University Biology Department

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Adam P. Summers – Friday Harbor Labs, University of Washington

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Website: <https://www.adamsummers.org/>

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