

Curriculum Vitae - Campbell Rolian

Department of Comparative Biology and Experimental Medicine
Faculty of Veterinary Medicine, University of Calgary
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I. EDUCATION

Harvard University	Ph.D. in Biological Anthropology	Nov 2008
Harvard University	A.M. in Biological Anthropology	Jun 2004
McGill University	B.Sc. First Class Honours in Biology	Jun 2000

II. CURRENT APPOINTMENTS

- Associate Professor, Dept. of Comparative Biology and Experimental Medicine, Faculty of Veterinary Medicine, University of Calgary, Canada. Aug 2016 - present
- Adjunct Associate Professor, Dept. of Anthropology, U. of Calgary, Canada Aug 2016 - present
- Adjunct Associate Professor, Dept. of Bio Sciences, U. of Calgary, Canada Aug 2016 - present
- Member, McCaig Bone and Joint Institute, University of Calgary, Canada Sep 2011 - present

III. PREVIOUS APPOINTMENTS

- Assistant Professor, Dept. of Comparative Biology and Experimental Medicine, Faculty of Veterinary Medicine, University of Calgary, Canada Sep 2011 - July 2016
- Instructor, University of Calgary, Department of Anthropology 2011
- Visiting Lecturer, Bugando University College of Health Sciences, Mwanza, Tanzania 2009
- Teaching Fellow, Harvard University 2004 - 2006
- Manager, Public Programs and Science Education, Redpath Museum 2000 - 2002

IV. RESEARCH SUPPORT

1. Active grants

- US National Science Foundation
Testing adaptive hypotheses of Plio-Pleistocene hominin craniofacial evolution 2021 - 2023
330,000 US\$. Role: Collaborator (PI: Karen Baab)
- Natural Sciences and Engineering Research Council - Discovery Grant
Evolutionary, developmental and functional aspects of skeletal variation in a mouse population selectively bred for increased long bone length. 2018 - 2023
140,000 C\$. Role: PI
- University of Calgary Faculty of Veterinary Medicine Clinical Research Fund
Sodium-potassium ATPase inhibition as a treatment for equine osteoarthritis. 2019 - 2021
27,000 C\$. Role: PI (Co-Is, Alfredo Romero, Michael Scott)

2. Past grants

- Natural Sciences and Engineering Research Council - Discovery Grant
Evolutionary, developmental and functional aspects of skeletal variation in a mouse population selectively bred for increased long bone length. 2012 - 2018
180,000 C\$. Role: PI
- Burroughs-Wellcome Fund Collaborative Research Travel Grant
Probing the immune functions of chondrocytes during endochondral ossification 2016 - 2017
7,000 US\$ Role: PI (Co-investigator: Frank Beier)
- McCaig Institute for Bone and Joint Health Clinician-Basic Scientist Collaboration Seed Grant
Osteosarcomagenesis in the Longshanks mouse 2016 - 2017
10,000 C\$ Role: Co-PI (Co-PI: Michael Monument)
- Hunter Family Foundation
Granzyme-Serpin interactions in osteoarthritis 2017 - 2018
25,000 C\$. Role: PI
- Canada Foundation for Innovation - John R. Evans Leaders Fund
Multimodal gait laboratory for small animals. 2014 - 2017
246,750 C\$ Role: PI
- US National Science Foundation
A multidisciplinary network analysis of musculoskeletal complexity, integration, modularity, and evolvability of the primate head and limbs. 2015 - 2016
85,159 US\$ Role: Collaborator (Co-PIs: Rui Diogo, Brian Villmoare)

- Canada Foundation for Innovation - John R. Evans Leaders Fund
Multi-modal, high-throughput 3D biomedical imaging laboratory.
236,307 C\$ Role: Co-PI (Co-PIs: Benedikt Hallgrímsson, Heather Jamnizcky) 2014 - 2016
- University of Calgary Research Grants Committee - Seed Grant
Identifying the genetic basis of limb bone length variation using high throughput sequencing.
14,000 C\$ Role: PI 2014 - 2015
- L.S.B. Leakey Foundation - Research Grant
Bipedalism and the evolution of short lateral toes in humans.
6,598 US\$. Role: PI 2007 - 2008
- US National Science Foundation - Doctoral Dissertation Improvement Grant
Morphological integration in primate hands and feet.
10,714 US\$. Role: co-PI 2007 - 2008

V. FELLOWSHIPS

- Killam Postdoctoral Fellowship, University of Calgary 2010 - 2011
- CIHR Training Grant, Alberta Children's Hospital 2009 - 2010
- University of Calgary International Fellowship 2009 - 2010
- Harvard University Dissertation Completion Fellowship 2007 - 2008
- NSERC Postgraduate Scholarship D (Doctoral) 2005 - 2007
- Chapman Fellowship, Harvard University 2006
- NSERC Postgraduate Scholarship M (Masters) 2003 - 2005

VI. AWARDS AND HONOURS

- University of Calgary Students' Union Excellence in Teaching Award 2020
- University of Calgary Research Grants Committee – Travel Grant 2013
- S.L. Washburn Prize for outstanding student presentation, 76th Annual Meeting of the American Association of Physical Anthropologists, Philadelphia 2007
- B.K.Hall-CMD Award for best student presentation, 45th Annual Meeting of the Canadian Society of Zoologists, Edmonton 2006
- Certificate of Distinction in Teaching, Harvard University (5 times) 2004-2007
- Fantham Memorial Prize in Biology, McGill University 2000
- NSERC Undergraduate Summer Research Award, McGill University 1999, 2000
- Hugh Brock Entrance Scholarship, McGill University 1996-2000
- Dean's Honour List, McGill University 1996-2000

VII. PUBLICATIONS

a) Peer-reviewed articles (* denotes trainees)

39. Santosuosso, E., Leguillette, R., Vinardell, T., Filho, S., Massie, S., McCrae, P., Johnson, S., **Rolian, C.**, and F. David, F. (2022). Kinematic Analysis During Straight Line Free Swimming in Horses: Part 2 - Hindlimbs. *Frontiers in Veterinary Science* **8**: 761500
38. Marchini, M.* , Ashkin, M.R.* , Bellini, M., Sun, M. M.-G., Workentine, M. L., Okuyan, H. M., Krawetz, R., Beier, F., **Rolian, C.** (2021). A Na⁺/K⁺ ATPase Pump Regulates Chondrocyte Differentiation and Bone Length Variation in Mice. *Frontiers in Cell and Developmental Biology* **9**: 708384
37. Santosuosso, E., Leguillette, R., Vinardell, T., Filho, S., Massie, S., McCrae, P., Johnson, S., **Rolian, C.**, and F. David, F. (2021). Kinematic Analysis During Straight Line Free Swimming in Horses: Part 1 - Forelimbs. *Frontiers in Veterinary Science* **8**: 752375
36. Meier, J.I., Salazara, P.A., Kucka, M., Davies, R.W., Andreea Dréau, A., Aldás, I., Box Power, O., Nadeau, N.J., Bridle, J.R., **Rolian, C.**, Barton, N.H., McMillan, W.O., Jiggins, C.D., Chan, Y.F. (2021): "Haplotype tagging reveals parallel formation of hybrid races in two butterfly species". *Proceedings of the National Academy of Sciences* **118**: e2015005118
35. Unger, C.M.* , Devine, J., Hallgrimsson, B., **Rolian, C.** (2021) "Selection for increased tibia length in mice alters skull shape through parallel changes in developmental mechanisms" *eLife* **10**: 67612
34. McCrae, P., Bradley, M.* , **Rolian, C.**, Léguillette, R. (2021). "Water height modifies forelimb kinematics of horses during water treadmill exercise". *Comparative Exercise Physiology* **17**:91-98.
33. **Rolian, C.** (2020) "Endochondral ossification and the evolution of limb proportions" *Wiley Interdisciplinary Reviews (WIREs). Developmental Biology* **9**: e373
32. **Rolian, C.** (2020) "Ecomorphological specialization leads to loss of evolvability in primate limbs". *Evolution* **74**: 702-715
31. Castro, J.P.L., Yancoskie, M.N., Marchini, M.* , Belohlavy, S., Kučka, M., Beluch, W.H., Naumann, R., Skuplik, I., Cobb, J.A., Barton, N.H., **Rolian, C.**[†], Chan, Y.F.[†] († = equal contribution): (2019) "An integrative genomic analysis of the Longshanks selection experiment for longer limbs in mice" *eLife* **8**: e42014
30. Marchini, M.* , Silva Hernandez, E.* , **Rolian, C.** (2019) "Morphology and development of a novel murine skeletal dysplasia". *PeerJ* **7**: e7180
29. Cosman, M.N.* , Britz, H.M., **Rolian, C.** (2019): "Selection for longer limbs in mice increases bone stiffness and brittleness, but does not alter bending strength". *Journal of Experimental Biology* **222**: jeb203125
28. Diogo, R., Molnar, J.L., **Rolian, C.**, Esteve-Altava, B (2018): "First anatomical network analysis of fore- and hindlimb musculoskeletal modularity in bonobos, common chimpanzees and humans". *Scientific Reports* **8**: 6885
27. Marchini, M.* , **Rolian, C.** (2018): "Artificial selection sheds light on the developmental mechanisms of limb elongation". *Evolution* **72**: 825-837

26. Larson, J.R., Manyama, M., Cole, J.B., Gonzalez, P.N., Percival, C.J., Liberton, D.K., Ferrara, T.M., Riccardi, S.L., Kimwaga, E.A., Mathayo, J., Spitzmacher, J.A., **Rolian, C.**, Jamniczky, H.A., Weinberg, S., Roseman, C.C., Klein, O., Lukowiak, K., Spritz, R.A., Hallgrimsson, B. (2018). "Body size and allometric variation in facial shape in children" *American Journal of Physical Anthropology* **165**: 327-352.
25. Cole, J.B., Manyama, M.F., Nikitovic, D., Gonzalez, P.N., Liberton, D.K., Wilson, W.M., **Rolian, C.**, Larson, J.R., Kimwaga, E., Mathayo, J., Roseman, C.C., Santorico, S.A., Lukowiak, K., Spritz, R.A., Hallgrimsson, B. (2018). "Facial shape manifestations of growth faltering in Tanzanian children" *Journal of Anatomy* **232**: 250-262.
24. Farooq, S.*, Leussink, S.*, Sparrow, L.M.*, Marchini, M.*, Britz, H., Manske, S., **Rolian, C.** (2017). "Cortical and trabecular morphology is altered in the limb bones of mice artificially selected for faster skeletal growth" *Scientific Reports* **7**: 10527
23. Molnar, J.L., Esteve-Altava, B., **Rolian, C.**, Diogo, R. (2017). Comparison of musculoskeletal networks of the primate forelimb. *Scientific Reports* **7**: 10520.
22. Heard, B.J., Beveridge, J.E., Atarod, M., O'Brien, E.J., **Rolian, C.**, Frank, C., Hart, D.A., Shrive, N.G., (2017): "Analysis of Change in Gait in the Ovine Stifle: Normal, Injured, and Anterior Cruciate Ligament Reconstructed" *BMC Musculoskeletal Disorders* **18**: 212
21. Sparrow, L.M.*, Pellatt, E.*, Yu, S.*, Raichlen, D.A., Pontzer, H., **Rolian, C.** (2017): "Gait changes in a line of mice artificially selected for longer limbs" *PeerJ* **5**, e3008
20. Pavličev, M., Mitteroecker, P., Gonzalez, P.M., **Rolian, C.**, Jamniczky, H., Pardo-Manuel Villena, F., Marcucio, R., Spritz, R., Hallgrimsson, B. (2017): "Development Shapes a Consistent Inbreeding Effect in Mouse Crania of Different Line Crosses". *Journal of Experimental Zoology Part B* **326**: 474-488
19. Cosman, M.N.*, Sparrow, L.M.*, **Rolian, C.** (2016): "Changes in shape and cross-sectional geometry in the tibia of mice selectively bred for increases in relative bone length" *Journal of Anatomy* **228**: 940-951
18. Marchini, M.*, Sparrow, L.M.*, Cosman*, M.N., Dowhanik, A.D. *, Krueger, C.* Hallgrimsson, B., **Rolian, C.** (2014). "Impacts of genetic correlation on the independent evolution of body mass and skeletal size in mammals". *BMC Evolutionary Biology* **14**: 258
17. **Rolian, C.**, and Gordon, A.D. "Response to Almécija and Alba (2014) – On manual proportions in Australopithecus afarensis" *Journal of Human Evolution* **73**: 93-97
16. Manyama, M., Larson, J.R., Liberton, D.K., **Rolian, C.**, Smith, F.J., Kimwaga, W., Gilyoma, J., Lukowiak, K.D., Spritz, R.A., Hallgrimsson, B. (2014). "Facial morphometrics of children with non-syndromic orofacial clefts in Tanzania" *BMC Oral Health* **14**: 93
15. **Rolian, C.** (2014) "Genes, development and evolvability in primate evolution", *Evolutionary Anthropology* **23**: 93-104
14. **Rolian, C.**, and Gordon, A.D. (2013). "Reassessing manual proportions in Australopithecus afarensis". *American Journal of Physical Anthropology* **152**: 393-406
13. Venkataraman, V.V., **Rolian, C.**, Gordon, A.D. and Patel, B. (2013). "A resampling approach and implications for estimating the Phalangeal Index from unassociated hand bones in fossil primates". *American Journal of Physical Anthropology* **151**: 280-289

12. Martínez-Abadías, N., Mitteroecker, P., Parsons, T.E., Esparza, M., Sjøvold, T., **Rolian, C.**, Richtsmeier, J.T. and Hallgrímsson, B. (2012) "The developmental basis of craniofacial variation in humans and mice" *Evolutionary Biology* **39**: 554-567
11. Hallgrímsson, B., Jamniczky, H.A., Young, N.M., **Rolian, C.**, Schmidt-Ott, U., Marcucio, R.S. (2012). The generation of variation and the developmental basis for evolutionary novelty. *Journal of Experimental Zoology Part B - Molecular and Developmental Evolution* **318**:501–517.
10. **Rolian, C.**, Lieberman, D.E., Zermeno*, J.P. (2011). "Hand biomechanics during simulated stone tool use". *Journal of Human Evolution* **61**: 26-41
9. Nelson, E., **Rolian, C.**, Cashmore, L., Shultz, S. (2011). "Digit ratios predict polygyny in early apes, Ardipithecus, Neanderthals and early Modern Humans but not in Australopithecus". *Proceedings of the Royal Society B – Biological Sciences* **278**: 1556-1563
8. Manyama, M., **Rolian, C.**, Gilyoma, J., Magori, C., Mjema, K., Kimwaga, E., Mazyala, E., Hallgrímsson, B. (2011). "The pattern of orofacial clefts at Bugando Medical Centre in Mwanza, Tanzania". *BMC Oral Health* **11**: 5
7. Jamniczky, H., Boughner, J., **Rolian, C.**, Gonzalez, P., Powell, C., Schmidt, E., Parsons, T., Bookstein, F., Hallgrímsson, B. (2010) "Mapping the epigenetic landscape: rediscovering Waddington in the Post-Genomic Age". *BioEssays* **32**: 553-558
6. Pontzer, H., **Rolian, C.**, Rightmire, G.P., Lordkipanidze, D., Jashashvili, T., Zollikofer, C. and Ponce de Leon, M. (2010) "Locomotor anatomy and biomechanics of the Dmanisi hominids". *Journal of Human Evolution* **58**: 492-504
5. **Rolian, C.**, Lieberman, D. and Hallgrímsson, B. (2010) "The coevolution of human hands and feet". *Evolution* **64**: 1558-1568
4. Hallgrímsson, B., Jamniczky, H., Young, N.M., **Rolian, C.**, Parsons, T.E., Boughner, J.C. and Marcucio, R. (2009). "Deciphering the palimpsest: studying the relationship between morphological integration and phenotypic covariation". *Evolutionary Biology* **36**: 355-376
3. **Rolian, C.** (2009). "Integration and evolvability in primate hands and feet". *Evolutionary Biology* **36**: 100-117
2. **Rolian, C.** Lieberman, D., Hamill, J., Scott, J.*, Werbel, W.* (2009). "Walking, running and the evolution of short toes in humans". *Journal of Experimental Biology* **215**: 713-721
1. **Rolian, C.** (2008). "Developmental basis of limb length in rodents: evidence for multiple divisions of labor in mechanisms of endochondral bone growth". *Evolution & Development* **10**: 15-28

b) Edited books

1. Boughner, J.C., **Rolian, C.** (editors) (2016): "Developmental approaches to human evolution". Wiley, New Jersey

c) Book chapters

6. **Rolian, C.**, (2021) "The role of bone and cartilage cells in the evolution of bipedalism". In: *Evolutionary Cell Processes in Primates: Bone, Brains and Muscle Volume I*, Pitirri, K., and Richtsmeier, J.T. (eds.), Taylor & Francis, Philadelphia, PA, pp. 19-61

5. **Rolian, C.**, Carvalho, S. (2017): "Tool use and manufacture in the last common ancestor of *Pan* and *Homo*". In: *Chimpanzees and human evolution*, Muller, M.N., Wrangham, R.W., Pilbeam, D. (eds.), Harvard University Press, Cambridge, MA, pp. 602-644
4. **Rolian, C.**, Boughner, J.C. (2016): "Introduction to evo-devo-anthro". In: *Developmental approaches to human evolution*, Boughner, J.C., Rolian C. (eds.). Wiley, NJ, pp. 1-16
3. **Rolian, C.** (2016): "Tinkering with growth plates: a developmental simulation of limb bone evolution in hominoids" In: *Developmental approaches to human evolution*, Boughner, J.C., Rolian C. (eds.). Wiley, NJ, pp. 139-166
2. **Rolian, C.** (2016) "The role of genes and development in the evolution of the hand". In: *The Evolution of the Primate Hand: Perspectives from Anatomical, Developmental, Functional and Paleontological Evidence*. Kivell, T., Lemelin, P., Schmitt, D. and Richmond, B.G. (eds). Springer, NY, pp. 101-130
1. Carroll, R. L., Boisvert, C., Bolt, J., Green, D. M., Philip, N., **Rolian, C.**, Schoch, R. and Tarenko, A. (2004). "Changing patterns of ontogeny from osteolepiform fish through Permian tetrapods as a guide to the early evolution of land vertebrates". In: *Recent Advances in the Origin and Early Radiation of Vertebrates*. G. Arratia, R. Cloutier, and M.V. H. Wilson (eds). Verlag Dr. F. Pfeil, Munich, pp. 321-343

d) Non-peer reviewed contributions

2. **Rolian, C.** (2017). "Primate Hands". In: *The International Encyclopedia of Primatology*, Agustin Fuentes (editor-in-chief), Wiley-Blackwell, pp. 531-534.
1. **Rolian, C.** and Willmore, K.W. (2009). "50 years of morphological integration: patterns and processes of integration in biological anthropology". *Evolutionary Biology* **36**: 1-4

VIII. PUBLISHED CONFERENCE ABSTRACTS (*invited, trainees*)

Unger*, C.M., Devine, J., **Rolian, C.** (2020 – conference canceled due to COVID-19 pandemic): "Why the long face? A study of cranial shape change in mice artificially selected for longer limbs" *American Journal of Physical Anthropology* **171**: 237-237

Rolian, C., Clavel, J., Pugh, K.D., Lemelin, P. (2020 – conference canceled due to COVID-19 pandemic) "Reconstructing the postcranial morphology of the last common ancestor of humans and chimpanzees" *American Journal of Physical Anthropology* **171**: 290-290

Rolian, C. (2018). "Are humans overspecialized evolutionary" dead ends"? *American Journal of Physical Anthropology* **165**, 230-230

Bradley*, M. M., & **Rolian, C.** (2018). "Assessing biomechanical hypotheses about hind-limb elongation in jumping Primates using Longshanks mice" *American Journal of Physical Anthropology* **165**, 35-35. *Note: Awarded Mildred Trotter Prize for best student presentation to MMB at American Association of Physical Anthropology Meeting, Austin, TX*

- Cosman*, M.N., Britz, H., and **Rolian, C.** (2015). "The effect of bone length and shape on bone strength in the Longshanks mouse". *American Journal of Physical Anthropology* **156**:110-111.
- Sparrow*, L.M., and **Rolian, C.** (2015). "Do longer limbs translate into a reduced cost of transport? A study of locomotor performance and gait in the Longshanks mouse". *American Journal of Physical Anthropology* **156**: 294-294. (Honorable Mention in Student Presentation Awards)
- †Dowhanik*, A.S., Krueger*, C.B., Marchini*, M., Sparrow*, L.M., Cosman*, M.N., and **Rolian C.** (2014). "It's all in the timing: Developmental basis of variation in vertebrate limb bone length". *American Journal of Physical Anthropology* **153**:108.
- †**Rolian, C.** (2014). "Differing long bone lengths among hominoids can be achieved through changes in growth plate chondrocyte behavior". *American Journal of Physical Anthropology* **153**:224.
- †Boughner, J. C. & **Rolian, C.** (2014). Evolutionary developmental anthropology: An introduction and historical overview. *American Journal of Physical Anthropology*, **153**, 83-83.
- Rolian, C.**, Dunsworth, H.M., McNulty, K., Lemelin, P. And Jungers, W. (2013). "More than the sum of its parts?: Reconstructing locomotor behaviour in *Ardipithecus ramidus*" *American Journal of Physical Anthropology* **150**: 235
- Rolian, C.**, Dowhanik*, A.S., Krueger*, C.B. and Hallgrímsson, B. (2013). "Observing skeletal evolution in real time: preliminary results from an artificial selection experiment in laboratory mice" *Integrative and Comparative Biology* **53 (Suppl. 1)**: e183
- †**Rolian, C.** (2012): "Using artificial selection in mice to understand the mechanisms of human skeletal evolution", *American Journal of Physical Anthropology*. **Suppl. 54**:251
- †**Rolian, C.**, Gordon A.D., Hallgrímsson, B. (2011): "Assessing manual proportions in *Australopithecus afarensis* using Monte Carlo resampling". *American Journal of Physical Anthropology*. **Suppl. 52**:256
- Rolian, C.**, Lieberman, D.E. and Zermeno, J.P.* (2010): "Hand biomechanics during simulated Oldowan tool use". *American Journal of Physical Anthropology*. **Suppl. 50**:200
- Rolian, C.**, Lieberman, D.E. and Hallgrímsson, B. (2009). "Did human fingers and toes co-evolve?". *Integrative and Comparative Biology Annual Meeting* **50 (Suppl. 1)**: e289
- Jamniczky, H.; Boughner, J.; Gonzalez, P.; Parsons, T.; Powell, C.; **Rolian, C.**; Schmidt, E.; Bookstein, F.; Hallgrímsson, B. (2010)*. "Mapping the Epigenetic Landscape: Rediscovering Waddington in the Post-Genomic Age". *Integrative and Comparative Biology* **50 (Suppl. 1)**: e82
- Nelson, E., Cashmore, L. and **Rolian, C.** 2009. "Predicting the social systems of extinct hominids using digit ratios (2D:4D)". *Journal of Vertebrate Paleontology*, **29(3)**:155
- †**Rolian, C.** (2008): "Morphological integration and the role of pleiotropy in the evolution of primate hands and feet". *American Journal of Physical Anthropology*. **Suppl. 46**:182
- Rolian, C.**, Lieberman, D.E., Scott, J.W.* (2007): "Why are our toes so tiny? Walking, running and the evolution of a short forefoot in the genus *Homo*" *American Journal of Physical Anthropology* **Suppl. 44**: 202
- Rolian, C.** (2007): "How to produce phenotypic variation in limb bone length by tinkering with growth plates: a case study in rodents". *Journal of Morphology* **268(12)**: 1055.
- Rolian, C.** (2005): "Comparative growth plate kinetics in rodents". *Integrative and Comparative Biology* **45(6)**: 1064
- Rolian, C.** "Biomechanical model of the index finger during simulated hardhammer percussion" *American Journal of Physical Anthropology* **Suppl. 38**: 168-169

IX. CONFERENCE PRESENTATIONS (*†invited, trainees**)

- Rolian, C.** (2018): “(How) does evolvability evolve? Insights from the Longshanks selection experiment” *Evolution 2018 – 2nd Joint Congress on Evolutionary Biology, Montpellier, France*
- †Rolian, C.** (2018): “Linking development, morphology and function in skeletal evolution” *Comparative Morphology and Development Section Symposium, Annual Meeting of the Canadian Society of Zoologists, Saint John’s, Canada*
- †Bradley*, M.M., Hou*, L., Sparrow*, L.M., Pellatt*, E., Farooq*, S., Rolian C.** (2017). “Using model organisms to reconstruct locomotor behaviors in fossil primates”. *45th Annual Meeting of the Canadian Association for Physical Anthropology, Edmonton, Canada.*
- Rolian, C.** (2017). “Artificial selection as a tool for micro-evo-devo: the case of the Longshanks mouse”. *2nd Biennial Meeting of the Pan-American Society for Evolutionary Developmental Biology, Calgary, Canada*
- Rolian, C., Marchini*, M., Workentine, M.** (2017). “The Longshanks Mouse I: Micro-evo-devo of the vertebrate limb”. *14th International Limb Development & Regeneration Conference, Edinburgh, UK.*
- Castro, J.P.L., Marchini*, M., Belohlavy, S., Yancoskie, M.N., Kucka, M., Naumann, R., Barton, N.H., Rolian, C., Chan, Y.F.** (2017). The Longshanks Mouse II: Genomics and functional dissection of selection response towards longer tibia length in the mouse. *14th International Limb Development and Regeneration Conference, Edinburgh, UK.*
- Marchini*, M., Kucka, M., Beluch, W.H., Chan YF, Rolian C.** (2017). A novel osteochondrodysplasia-like phenotype in mice. *14th International Limb Development and Regeneration Conference, Edinburgh, UK.*
- †Rolian, C.** (2017) “Morphological integration and coevolution of the mammalian skeleton under strong selection: the case of the Longshanks mouse”. *Annual Meeting of the American Association of Anatomists, Chicago, USA.*
- Bradley*, M., Hou*, L., Sparrow*, L.M., Rolian, C.** (2016). “Jumping performance in the Longshanks mouse”. *11th International Congress of Vertebrate Morphology, Washington, DC, USA.*
- Marchini*, M., Rolian, C.** (2016). “Probing the cellular and genetic mechanisms involved in producing bone length variation using the Longshanks mouse”. *11th International Congress of Vertebrate Morphology, Washington, DC, USA.*
- Rolian, C., Yu*, S., Sparrow*, L.M., Farooq*, S., Kucka, M., Castro, J., Chan, Y.F.** (2016) “How many roads lead to Rome? Phenotypic and genetic convergence in two independent lines of mice selectively bred for increases in relative limb bone length”. *11th International Congress of Vertebrate Morphology, Washington, DC, USA.*
- †Rolian, C.,** “Morphological integration and evolvability in the vertebrate locomotor skeleton” (2013). *10th International Congress of Vertebrate Morphology, Barcelona, Spain.*
- Rolian, C.** (2007). “Producing phenotypic diversity by tinkering with growth plates: a case study in rodents”. *8th International Congress of Vertebrate Morphology, Paris, France.*
- Rolian, C.** (2006): “Comparative growth plate kinetics in rodents: insights into the evolution and development of limb length allometry” *Annual Meeting of the Canadian Society of Zoologists, Edmonton, Canada.*

X. INVITED SEMINARS AND PRESENTATIONS

- Rolian, C.** (2020, virtual): “Experimental evolution of the skeleton from genome to phenome” *Organismal Biology Seminar Series, McGill University, Canada.*

- Rolian, C.** (2020, virtual): “What the Longshanks mouse can tell us about human evolution” *Anatomy Lecture Series, University of Tennessee – Knoxville, USA.*
- Rolian, C.** (2020): “What the Longshanks mouse can tell us about human evolution” *Biological Anthropology Seminar Series, University of Kent, Canterbury, UK.*
- Rolian, C.** (2020): “Why evolution matters to medicine” *Internationalisation@home, University of Leuven – Kortrijk Campus, Belgium*
- Rolian, C.** (2018): “Experimental skeletal evolution from genomes to phenomes” *Northeast Ohio Medical University (NEOMED), USA*
- Rolian, C.** (2016) “The Longshanks mouse” *Bone Group Seminar Series, Western University, London, Ontario, Canada*
- Rolian, C.** (2015) “Microevolution of the limb bones in the Longshanks mouse: Implications for primate skeletal evolution” *NYCEP Primatology Seminar Series, Hunter College, City University of New York*
- Rolian, C.** (2015) “Microevolution of the vertebrate skeleton” *Organismal Biology Seminar Series, McGill University, Canada*
- Rolian, C.** (2015) “Time travels with troglodytes” *Organismal Biology Banquet, University of Calgary*
- Rolian, C.** (2015) “Deconstructing microevolution: Results from an ongoing artificial selection experiment in mice” *Max Planck Institute for Developmental Biology, Tuebingen, Germany*
- Rolian, C.** (2014) “The Longshanks mouse: A new model for limb musculoskeletal function in health and disease” *Human Performance Laboratory Seminar Series, Faculty of Kinesiology, University of Calgary, Canada*
- Rolian, C.** (2014) “The Longshanks mouse: An update” *McCaig Institute Seminar Series, University of Calgary, Canada*
- Rolian, C.** (2014) “Deconstructing microevolution: Results from an ongoing artificial selection experiment in mice” *Ecology and Evolutionary Biology Seminar Series, Department of Biological Science, University of Calgary, Canada*
- Rolian, C.** (2013) “Chins, thumbs and eyebrows: Adaptationism in human evolution” *Sigma Xi Society, Calgary Chapter, Canada*
- Rolian, C.** (2012) “Artificial selection as a “new” tool for musculoskeletal biology” *McCaig Institute Seminar Series, University of Calgary, Canada*
- Rolian, C.** (2011) “Going out on a limb: variation and evolvability in the vertebrate skeleton” *University College London, UK*
- Rolian, C.** (2011) “Going out on a limb: variation and evolvability in the vertebrate skeleton” *Faculty of Veterinary Medicine, University of Calgary, Canada*

XI. TRAINEE SUPERVISION

PhD Supervisor

Colton Unger (in progress)
Marta Marchini (2017)

PhD Committee Member

Carly Shae-Mattis (in progress)
Persephone Greco-Otto (2019)
Sepideh Abbasi (2017)
Sheila Holmes (2017)
Jacinda Larson (2017)
Hayley Britz (2016)
Mange Manyama (2012)

MSc Supervisor

Vicki Tran (in progress)
Colton Unger (2020)
Madison Bradley (2019)
Leah Sparrow (2015)

MSc Committee Member

Emma Santosuosso (2021)
Veena Unnikrishnan (2020)
Colin Firminger (2016)

Honours Supervisor

Vicki Tran (2020)
Khaleefah Alhojailan (2016)
Saira Farooq (2015)
Alexandra Dowhanik (2014)

Bachelors Supervisor

Sarah Moore (2018)
Colton Unger (2016)
Elizabeth Silva Hernandez (2015-2016)
Lily Hou (2015-2017)
Madison Bradley (2015-2016)
Hayley Basler (2015)
Miranda Cosman (2013-2015)
Shannon Leussink (2015)
Khawaja Bakhtawar (2015)
Nicole Montford (2014)
Carsten Krueger (2012-2014)

Doctor of Veterinary Medicine Supervisor

Nicole Phillips (2020, 2021)
Emma Foxcroft (2020, 2021)
Caileigh Reid (2019)
Mitchell Ashkin (2018)
Marian Trudeau (2017)
Emily Pellatt (2016)
Shannon Phelps (2015)
Lindsey Ackert (2014)

High School Student Supervisor (Alberta Innovates Health Solutions – Heritage Youth Research Studentships)

Rosie Zhao (2017)
Sebastian Alvarez (2015)
Sabrina Yu (2014)

XII. PROFESSIONAL SERVICE

Editorial Service

- Associate Editor: *Evolutionary Biology* (Sep 2012 – present)

Peer Review

- Journal reviewer: *American Journal of Physical Anthropology*, *American Journal of Primatology*, *Cells Tissues Organs*, *eLife*, *EvoDevo*, *Evolution*, *Evolution & Development*, *Evolutionary Anthropology*, *Evolutionary Biology*, *Integrative and Comparative Biology*, *Journal of Anatomy*, *Journal of Biomechanics*, *Journal of Experimental Zoology, Part B*, *Journal of Human Biology*, *Journal of Human Evolution*, *Journal of Morphology*, *PeerJ*, *PNAS*, *PLoS One*, *Royal Society Interface*, *Science Advances*, *Scientific Reports*.
- Grant reviewer: *L.S.B. Leakey Foundation*, *National Science Foundation*, *Natural Sciences and Engineering Research Council of Canada (NSERC) External Reviewer*, *New Frontiers in Research Exploration Fund*, *Human Frontiers Science Program*, *UK Natural Environment Research Council*, *Leverhulme Trust*, *American Association of Physical Anthropologists*
- Evaluation Group Member and Co-Chair: *Natural Sciences and Engineering Research Council of Canada (NSERC) Ecology and Evolution Evaluation Group 1503 (2020-2022)*
- Scientific officer: *The Arthritis Society STAR Career Award*

Event Planning

- Co-chair, Local Organizing Committee, *2nd Biennial Meeting of the Pan-American Society for Evolutionary Developmental Biology*, Calgary, August 19-23 2017
- Member, Local Organizing Committee, *Annual Meeting of the Canadian Society of Zoologists*, Calgary, May 2-5 2015. (translated >300 presentation titles from English into French)
- Member, Local Organizing Committee, *Annual Meeting of the American Association of Physical Anthropologists*, Calgary, April 7-10 2014 (responsible for A/V)
- Co-organizer and co-chair (with Julia Boughner): “Evolutionary Developmental Anthropology: an evo-devo approach to understanding human and primate evolution”. *Wiley Symposium, 2014 Annual Meeting of the American Association of Physical Anthropologists*, Calgary, Alberta
- Co-organizer and co-chair (with Katherine Willmore): “Patterns and processes of morphological integration in primate and human evolution”. *Symposium, 2008 Annual Meeting of the American Association of Physical Anthropologists*, Columbus, Ohio.

Institutional Committees

- Committee member: Faculty of Veterinary Medicine Curriculum Committee (July 2018 – June 2021)
- Committee member: Faculty of Veterinary Medicine Graduate Education Committee (July 2016 – June 2018)
- Committee member: McCaig Institute for Bone and Joint Health Research Committee (July 2015 – June 2021)
- Committee member: Scholarships, Fellowships & Awards Committee, University of Calgary Faculty of Veterinary Medicine (Sep 2011 – June 2015)

- Committee member: Markin Undergraduate Student Research Program in Health and Wellness (July 2012 – June 2017)
- Committee member: Veterinary Sciences Animal Care Committee (Sep 2012 – July 2016)

XIII. PROFESSIONAL MEMBERSHIPS

- Society for the Study of Evolution
- Pan-American Society for Evolutionary Developmental Biology
- American Association of Physical Anthropology
- Canadian Society of Zoologists

XIV. SELECTED MEDIA COVERAGE

- Commentary in *The Scientist* on ancestral morphology and evolution of manual proportions in humans (24/02/21)
- Research on the evolution of human toes (Pub # 2) featured on CBC Radio's science show *Quirks and Quarks* (02/05/09), wired.com, and NPR's *Loh-Down on Science* (20/07/09)
- Research on the coevolution of human digits (Pub # 5) featured in: BBC News Online, Société Radio Canada, National Post, *El Mundo*, as part of a special feature on evolvability in *New Scientist* (Issue 2766, 26/06/2010), selected as a Research Highlight in *Nature* (**463**: 712), 11/02/2010), and on *Faculty of 1000 Biology* (F1000Prime.com/4935958#eval4866056)
- Research on manual proportions in *Australopithecus afarensis* (Pub. # 14) selected as a Research Highlight in *Nature* (**502**: 597) (31/10/2013)

XV. LANGUAGE PROFICIENCIES

English: native

French: native

German: fluent written and spoken

XVI. REFERENCES

Available upon request