Dr. Ryan Marek Evolutionary Biologist

he/him/his r.marek@ucl.ac.uk

Skills

London, Greater London, UK

I am an evolutionary biologist (and occasional palaeontologist) that uses geometric morphometrics and phylogenetic comparative methods to uncover the forces behind morphological disparity and evolution across time and clades. I am experienced in R programming, geometric morphometrics, functional morphology and communicating science to a diversity of audiences.

Experience

Postdoctoral Research Fellow	andon UK	Sep 2021 - Present	Languages	Software B Studio
Working as the named postdoctoral research	er on a Leverhulme Tru project combines 3D ge	ust project entitled 'The	bash	Avizo/Amira MatLab
phylogenetic comparative modelling to deterr feature of avian anatomy.	mine how and when the	e neck became such a key	Techniques 3D geometric	RevBayes Blender
 High-density 3D geometric morphometrics Phylogenetic modelling/comparative methods 	 Undergraduate tea MRes student sup 	aching pervision	morphometrics CT scanning &	Maya Artec Studio
· micro-CT scanning and reconstruction			reconstruction 3D surface scanning	Journal reviews
Medical Writer Lucid Group (medical communications) · N	Macclesfield, UK	Nov 2020 - Aug 2021	Phylogenetic comparative	Scientific Reports Journal of
At Lucid Group I leveraged my skills in techni produce a range of media to inform and educ pharmaceutical products.	ical writing and heuristic cate healthcare profession	c literature searching to ionals about the latest	methods Muscle dissection Muscle fibre acid digestion	Morphology Journal of Palaeontological Techniques
 Project management Teamwork 	 Independent work Delivering multiple 	ing e projects on tight deadlines	Ligeolion	reonniques
Postdoctoral Research Associate		Oct 2019 - Apr 2020		Education
<u>Evolutionary Morphology and Biomechanics Group, University of</u> <u>Liverpool</u> · Liverpool, UK		<u>of</u>	PhD, Musculoskeletal Biology	
The Evolutionary Morphology and Biomechal techniques to understand how the vertebrate an evolutionary context. As such the lab sits evolutionary studies of motion.	nics lab at the Universit body functions and to at the interface betwee	ty of Liverpool utilize the latest understand those functions in n health sciences and	<u>Universi</u> M: <u>Unive</u>	sci, Palaeontology
Wet lab work (avian muscle dissection) Phylogenetic comparative methods	Scientific writing Supervision of une	deroraduate students		
			(Certificates
PhD candidate Evolutionary Morphology and Biomechanic Liverpool · Liverpool, UK	<u>cs Group, University c</u>	Sep 2015 - Aug 2019 <u>of</u>	<u>3D geome</u> Tra	tric morphometrics ansmitting Science
During my PhD (awarded March 2020, minor Falkingham to investigate the drivers of morp employed a wide variety of techniques to unc regionalisation, osteology and myology.	corrections) I worked w phofunctional variation i derstand the variation ir	with Karl Bates and Peter n the neck of extant avians. I n avian cervical		Awards
 CT scanning & reconstruction Wet lab work (avian muscle dissection) 	 Phylogenetic com Financial organisa 	parative methods ation of associated funding	Bogue Fello	wship Award 2022 UCL
			£4 700 For tr	avel to the USA and

Sep 2021 - Present

Projects

Undergraduate teaching

University College London

I have been actively involved in practical teaching and undergraduate lectures throughout my postdoctoral career. I have also endeavored to improve my pedagogical knowledge through multiple teaching courses.

Canada for a data collection trip

Leverhulme Trust Research Project Grant Leverhulme Trust

£183,362. Named postdoc on grant entitled 'The evolution of the cervical spine in birds'

 MBBS Year 1 - Thorax & Abdomen clinical anatomy (demonstrating) 	 ANAT0001 - Intro to Anatomy and Development (lecturing) 		ACCE Publication Award ACCE
 SSC Integrated anatomy (practical teaching) 	 UCL Arena Teaching courses HEA Associate Fellowship (ac 	creditation)	~£4,000 (3 months salary). Awarded for research excellence during a PhD, allowing further time to write
Project supervision and mentorship University College London, University of Liver	A	pr 2018 - Jan 2019	manuscripts
I have had the pleasure of working with multiple over my academic career.	talented students on some fasc	inating projects	References
 Anna Stuart (MRes): 'The role of integration and vertebral morphology in psittaciform tripedal locomotion' (paper in prep.). 	 Shay Glasgow (BSc): 'Stretchi Regionalisation and Neck Elong Plesiosaurs'. 	ng Evolution: jation in	Ryan Felice - Associate Professor, University College London. ryan.felice@ucl.ac.uk
Publications			Karl Bates - Reader, University of Liverpool. K.T.Bates@liverpool.ac.uk
The neck as a keystone structure in a mosaicism BMC Biology	vian macroevolution and	D Oct 2023	Roger Benson - Macaulay Curator, AMNH. rbenson@amnh.org
Marek, R. D., & Felice, R. N. (2023). The neck a and mosaicism. BMC biology, 21(1), 216.	s a keystone structure in avian	macroevolution	Languages
A compared for links For lation for a			English · Native
A surrogate foreiimb: Evolution, funct avian cervical spine	tion and development of	<u>tne</u> Oct 2023	
Marek, R. D. (2023). A surrogate forelimb: Evolu	tion, function and development	of the avian	Interests
	21030.		Bird watching
Decoupling body shape and mass dis dinosaurian ancestors Nature Communications	tribution in birds and th	eir Mar 2023	Craft beer Live music
Macaulay, S., Hoehfurtner, T., Cross, S. R., Mare & Bates, K. T. (2023). Decoupling body shape ar ancestors. Nature communications, 14(1), 1575.	ek, R. D., Hutchinson, J. R., Scl ad mass distribution in birds and	nachner, E. R., d their dinosaurian	Links
Evolutionary versatility of the avian n Proceedings of the Royal Society B	<u>eck</u>	Mar 2021	scholar.google.co.uk/citations? user=9AMf8scAAAAJ&hl=en
Marek, R. D., Falkingham, P. L., Benson, R. B., Gardiner, J. D., Maddox, T. W., & Bates, K. T. (2021). Evolutionary versatility of the avian neck. Proceedings of the Royal Society B, 288(1946), 20203150.			github.com/ryndmrk linkedin.com/in/ryandmarek
Dental ontogeny and replacement in R Royal Society Open Science	Pliosauridae	Nov 2015	
Sassoon, J., Foffa, D., & Marek, R. (2015). Dent Royal Society open science, 2(11), 150384.	al ontogeny and replacement ir	Pliosauridae.	
Fossil Focus: Ichthyosaurs Palaeontology Online		Aug 2015	
Marek, R. (2015). Fossil focus: ichthyosaurs. Pa	laeontol. Online, 5, 8.		
The skull and endocranium of a Lowe on digital reconstructions Palaeontology	<u>r Jurassic ichthyosaur b</u>	ased Jul 2015	

Marek, R. D., Moon, B. C., Williams, M., & Benton, M. J. (2015). The skull and endocranium of a Lower Jurassic ichthyosaur based on digital reconstructions. Palaeontology, 58(4), 723-742.

Break-neck pace: analysing the interplay between integration and evolutionary rate in avian neck evolution Invited speaker, ICVM 2023 (Cairns, Australia)	Aug 2023
Grabbing evolution by the throat: the role of neck-forelimb integration in avian evolution Oral presentation, SVP 2022 (Toronto, Canada)	Nov 2022
Neck-forelimb integration drives cervical morphological evolution in extant avians Oral presentation, SVPCA (London, UK)	1 Sep 2022
The Surrogate arm: assessing factors influencing vertebral morphology in the avian cervical spine Oral presentation, SVP (Brisbane, Australia)	Oct 2019
The Surrogate arm: assessing factors influencing vertebral morphology in the avian cervical spine Oral presentation, ICVM 2019 (Prague, Czech Republic)	Jul 2019
An everyday tool: how the avian neck has adapted to (almost) every situation Oral presentation, SVPCA 2018 (Manchester, UK)	/ Sep 2018
The surrogate arm: analysing the role of regionalisation in the variation of the avian neck Oral presentation, SEB 2018 (Florence, Italy)	Jul 2018
The surrogate arm: analysing the role of regionalisation in the variation of the avian neck Lightning talk, SICB Division of Vertebrate Morphology 2018 (London, UK)	May 2018
Grabbing evolution by the throat: Functional regionalisation of the avian cervical column Poster presentation, SVP 2017 (Calgary, Canada)	Aug 2017
Grabbing evolution by the throat: Functional regionalisation of the avian cervical column Poster presentation, EAVP 2017 (Munich, Germany)	Jul 2017