

# RYAN MARC CARNEY

Assistant Professor of Digital Science • National Geographic Explorer  
Department of Integrative Biology, University of South Florida  
[www.CarneyLab.com](http://www.CarneyLab.com) • [ryancarney@usf.edu](mailto:ryancarney@usf.edu)

## EDUCATION

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<b>PhD</b>	2016	<b>Brown University</b> , Providence, RI Ecology & Evolutionary Biology; advisor Prof. Stephen Gatesy Thesis: <i>Evolution of the archosaurian shoulder joint and the flight stroke of Archaeopteryx</i>
<b>MS</b>	2013	Ecology & Evolutionary Biology
<b>MPH</b>	2010	<b>Yale School of Medicine</b> , New Haven, CT Epidemiology of Microbial Diseases; advisor Prof. Durland Fish Thesis: <i>GIS-based early warning system for predicting high-risk areas of dengue virus transmission, Ribeirão Preto, Brazil</i> . Winner of Dean's Prize for Outstanding Thesis.
<b>MBA</b>	2010	<b>Yale School of Management</b> , New Haven, CT Concentration: Technology
<b>BA (Honors)</b>	2003	<b>University of California - Berkeley</b> , Berkeley, CA Integrative Biology; advisor Prof. Kevin Padian Thesis: <i>Phylogenetically testing the hypothesis of secondary flightlessness within Maniraptoriformes</i>
<b>BA</b>	2003	Art Practice

## ACADEMIC POSITION

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2016 - present      **Assistant Professor of Digital Science, University of South Florida**, Tampa, FL  
Department of Integrative Biology

## RESEARCH INTERESTS

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From *Archaeopteryx* to Zika, I study dinosaurs and diseases by using interdisciplinary methodologies and developing cutting-edge digital technologies (see also *Patents* and *Software* sections below):

- **Dinosaurs.** My paleontology research focuses on the iconic *Archaeopteryx* and extant dinosaurs. Methodologies include 3D imaging, modeling, and computer animation – along with a joint surface analysis approach and **scientific motion transfer** – to investigate functional morphology and the evolution of motions such as the avian flight stroke. I also work in the **virtual reality and augmented reality** space, translating research into next-generation visualizations that bring dinosaurs "back to life" for outreach and pedagogy.
- **Diseases.** My epidemiology research focuses on the surveillance and control of **mosquito-borne diseases** such as malaria, dengue, West Nile virus, and Zika. Through a **National Science Foundation**-funded research collaboration with **NASA** and the **CDC**, I lead a global team that identifies disease-spreading and invasive mosquitoes using **artificial intelligence**, along with **citizen science** data from three partner apps: iNaturalist, Mosquito Alert, and GLOBE Observer. My research also leverages geographic information systems, remote sensing, and spatial modeling techniques like the DYCAST early warning system, to model vector habitats, detect disease hot spots, and enable the strategic targeting of mosquito control efforts.

## RYAN CARNEY, PHD, MPH, MBA

### SELECTED GRANTS AND AWARDS

2020 – 2024	National Science Foundation	PI: AI for Mosquito-Borne Diseases*	\$900,000
2022 – 2023	National Science Foundation	PI: Research Experiences for Undergraduates Grant	\$16,000
2021 – 2022	National Science Foundation	PI: Research Experiences for Undergraduates Grant	\$16,000
2020 – 2021	University of South Florida	Co-PI: COVID-19 Research Grant**	\$25,000
2014	National Geographic Society	PI: Waitt Research Grant	\$13,992
2013	National Geographic Society	PI: Committee for Research and Exploration Grant	\$13,800
2012	National Geographic Society	PI: Waitt Research Grant	\$14,971
2011	National Science Foundation	PI: Graduate Research Fellowship	\$127,900
2009 – 2011	National Science Foundation	PI: SGER Research Grant	\$41,996
2010	National Geographic Society	PI: Expeditions Council Research Grant	\$5,745
2010	National Geographic Society	PI: Waitt Research Grant	\$4,950
2008	Centers for Disease Control	PI: Graduate Training Fellowship	\$7,000
2005	CA Dept of Public Health	PI: DYCAST West Nile Virus Risk Modeling System	\$200,000
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2023	University of South Florida	CAS Liberal Arts Teaching Award	\$1,000
2021	University of South Florida	Outstanding Research Achievement Award	\$2,000
2020	University of South Florida	Outstanding Undergraduate Teaching Award	\$2,000
2018	University of South Florida	Outstanding Faculty Award	n/a
2017	National Geographic Society	Emerging Explorer Award	\$10,000
2007 – 2010	Yale University	Dean's Scholarship, merit-based top 5% of students	\$22,400
2007 – 2008	Yale University	Susan Dwight Bliss Scholarship	\$5,000
1999 – 2003	UC Berkeley	Alumni Leadership Scholarship	\$5,000
1997	Boy Scouts of America	Eagle Scout	n/a

### GRANTS CURRENT

\* **Principal Investigator** for **National Science Foundation** award, *Smart & Connected Health: Integrative: Surveillance and Control of Mosquito-Borne Diseases through Automated Species Identification and Spatiotemporal Modeling*. (\$932,000 total; 2020-10-01 to 2024-09-30, #2014547). The mosquito is the deadliest animal on the planet, responsible for >700 million infections and nearly 1 million deaths every year – primarily from malaria, with almost half a million deaths in children under the age of 5. Yet only 3% of mosquito species are known to transmit pathogens to humans, necessitating rapid and accurate identification, especially given the lack of vaccines and cures for mosquito-borne diseases. Our research involves development and deployment of artificial intelligence (AI) software for identifying disease-carrying species of mosquitoes in the adult and larval stages, leveraging multiple global citizen science platforms, and particularly targeting the invasive malaria vector, *Anopheles stephensi*. Hardware development includes an AI-enabled smart trap for adult mosquito identification. To date, this research has produced seven peer-reviewed publications (two more in revision/review), two Research Experiences for Undergraduates grants, two Honors theses, one PhD dissertation, four patents pending, and three software products ([mosquitodashboard.org](https://mosquitodashboard.org), [mosquitoID.org](https://mosquitoID.org), [DYCAST.org](https://DYCAST.org)). Research was featured on the homepages of NSF (2022) and USF (2020,2022,2023). Collaborators include the CDC, NASA, iNaturalist, Mosquito Alert, and U.S. Department of State. See also *Patents, Publications, Press, and Software* below.

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### GRANTS RECENT

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**\*\* Co-Principal Investigator for USF COVID-19 Rapid Response Grant:** Spatial-Temporal Prediction Models for COVID-19 (PI: Ming Ji, USF College of Nursing). (\$25,000 total; 2020-08-26 to 2021-08-25). Our research developed spatial-temporal prediction models of new daily cases and deaths from COVID-19 at the state and national level. The latter used point process-based count data models for disease outbreaks, and the strength of this model is that it incorporates the complex spatial correlations among different locations (counties/cities/census tracts) to improve temporal predictions. This allows predictions to be quickly estimated from limited data, which is extremely helpful at the early stage of disease outbreaks. Research products: 1). further development of Poisson spatial scan statistic cluster analysis (preliminary results: <https://youtu.be/5KmDNRLEWI>), 2). STPMCOVID predictive model was published online to the United States COVID-19 Forecast Hub (<https://github.com/reichlab/covid19-forecast-hub/tree/master/data-processed/USF-STPM>)

### GRANTS PENDING

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- 1). **National Institutes of Health.** *International Centers of Excellence for Malaria Research: The Development Of High-Resolution Risk Maps Using Crowdsourcing And Citizen Scientist Data, With An Emphasis On *Anopheles stephensi*.* Role: Co-PI. **\$722,134** of \$6M total over five years.
- 2). **National Institutes of Health.** *Enhancing Malaria Epidemiology Research through Genomics & Translational Systems Biology (EMERGENTS).* Role: Co-I. **\$408,147** of \$4.8M total over four years.
- 3). USF Collaborative Research Excellence and Translational Efforts (CREATE) Award. AIMM: Artificial Intelligence for Malaria Mosquitoes: Next-Generation Surveillance and Control to Predict and Prevent Mosquito-Borne Disease on a Global Scale. Role: Lead PI.
- 4). USF Collaborative Research Excellence and Translational Efforts (CREATE) Award. EASE: Emerging Accessibility Solutions Enhancements. Role: PI.

### TEACHING EXPERIENCE

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**University of South Florida, Tampa, FL** 1/17 - present

**Digital Dinosaurs** (BSC 4454C/6932 lecture+laboratory course, 3 credits, 24 undergraduate/graduate students):

- Designed and developed technology-focused curriculum. Deliver lectures, supervise laboratory Teaching Assistant (TA), coordinate equipment, and work one-on-one with students for their Final Projects.
- **Synopsis:** This course provides a comprehensive exploration, including hands-on training, of cutting-edge hardware and software tools useful in the biological sciences. While the subject matter focuses on dinosaurs, techniques are applicable to a variety of STEAM disciplines, from biology and geology to art and architecture.
- Students gain both theoretical and practical knowledge across a variety of topics, such as digital scanning of “analog dinosaurs” (fossils), 3D reconstruction and analysis, visualization and animation technologies including virtual and augmented reality, and rapid prototyping methods such as 3D printing.
- “Real-world” exams evaluate students’ synthesis of lecture concepts and lab skills through deliverables that represent the entire scientific pipeline in professional academia: idea/hypothesis generation, research, and proposal writing (**Midterm:** a National Science Foundation pre-proposal), followed by data generation/analysis, publication, and presentation (**Final Project:** digital and 3D-printed creatures: [sketchfab.com/DigitalDinosaurs](https://sketchfab.com/DigitalDinosaurs)). Students are encouraged to submit this work to undergraduate grant opportunities.
- Resulting publications: Samuelson et al 2023, Gaboardi et al 2023, Cieri et al 2021; see *Publications*.
- Press: television coverage in [2019](#), [2018](#), and [2017](#).

# RYAN CARNEY, PHD, MPH, MBA

- University of South Florida, Tampa, FL** 1/19 – present  
**Comparative Vertebrate Anatomy** (ZOO 3713C lecture+laboratory course, 4-5 credits, 96 undergraduate students):
- Lecture twice a week, and supervise 3-6 graduate TAs and 2-5 undergraduate TAs involved in the 4-8 4-hour laboratory sections primarily focused on dissections of the cat, shark, and salamander. Proctor four midterms.
  - **Synopsis:** Designed for undergraduates in biology or the biomedical sciences – particularly pre-veterinary and pre-medicine students – this intensive course covers the anatomy of the vertebrates, emphasizing the comparative, functional, and evolutionary aspects of these animals. Topics include vertebrate evolution and diversity, histology, teeth, integument, and the various systems: skeletal, muscular, digestive, respiratory, circulatory, excretory, reproductive, and nervous.

- University of South Florida, Tampa, FL** 1/17 – present
- Other graduate courses: **Advances in Digital Biology** (BSC 6932), **Advances in Life Sciences** (BSC 6393), **Directed Research** (BSC 6910/7910), **Doctoral Dissertation** (BSC 7980), **Independent Study** (BSC 6905), **Master's Thesis** (BSC 6971)
  - Other undergraduate courses: **Honors Thesis I and II** (IDH 4970), **Undergraduate Research** (BSC 4910)

- Alpert Medical School, Brown University, Providence, RI** 8/11 – 1/12  
Graduate Teaching Instructor, **Human Anatomy** (BIOL 3664 IMS I)
- Taught cadaver-based laboratory sections for >100 medical students (>100 hours of laboratory).
  - Designed rotator cuff prosection, dissected anatomy; presented knee and bovine heart/lung prosections.
  - Wrote questions for written and practical examinations; proctored practical examinations.

- School of Medicine, Yale University, New Haven, CT** 9/09 – 12/09  
Teaching Fellow, **GIS Applications in Epidemiology and Public Health** (Biostatistics 511; graduate level)
- Taught course lab sections using geographic information systems software; graded assignments.

- Department of Art, University of California, Berkeley, CA** 1/05 – 5/05  
Teaching Assistant, **Digital Sculpture** (Art Practice 160; undergraduate level)
- Taught lab sections, lectured, and supervised and trained students to use 3D laser scanning equipment.

## Invited course lectures

- “Digital Epidemiology” for graduate course at USF College of Public Health, 2020
- “Surveillance & Control of Mosquito-Borne Diseases” for graduate course at USF College of Public Health, 2019
- “Visualizing GIS in 3D and Augmented Reality” for graduate course at USF College of Public Health, 2017, 2018
- “Zika Early Warning System” for graduate course at USF College of Public Health, 2017
- “Archosaurs and *Archaeopteryx*” for undergraduate biology course at U Mass Dartmouth, 2016
- “Bird and Dinosaur Origins” for undergraduate biology course at Brown University, 2015
- “West Nile Virus Risk Modeling” for graduate public health course at Yale University, 2009
- “GIS and Public Health Surveillance” for graduate public health course at UC Berkeley, 2007

## MENTORING & TRAINING

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### Postdoctoral Researchers

- *previously:* **Dr. Johnny Uelmen** (2022-23), immediate placement as Assistant Director of the Triangle Center for Evolutionary Medicine at Duke University; **Dr. Philip R. J. Morris** (2019–20); **Dr. Antonia Panaou** (2018), immediate placement as Engineer at the City of Lakeland Government.

### Graduate Students

- **Sebastian Alvarez de Araya**. Masters student, Integrative Biology. Advisor for (2020-present)

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- **Sarah Guzinski**. Masters in Integrative Biology. Advisor for (2021–23); graduating December 2023
- **Theron Kantelis**. PhD student, Integrative Biology. Advisor for (2021–present)
- **Alex Kirk**. PhD candidate, Integrative Biology. Advisor for (2017–present)
- **Elise Samuelson**. PhD student, Integrative Biology. Advisor for (2021–present)
- **Farhat Binte Azam**. PhD student, Computer Science & Engineering. Co-Major Professor for (2023–present)
- *previously*: **Tanvir Bhuiyan** PhD in Computer Science & Engineering. Co-Major Professor for (2022–23)

### Graduate Committees

- **Colin Goodman**. PhD student, Integrative Biology (2022–present)
- **Jason Rodgers**. PhD student, Integrative Biology (2023–present)
- **Austin Smith**. PhD candidate, Integrative Biology (2021–present)
- *previously*: **Christian Brown** PhD Integrative Biology (2018–23); **Pablo Garcia** PhD Integrative Biology (2020–23); **Nils Tack** PhD Integrative Biology (2019–21); **Meredith Krause** PhD Integrative Biology (2019–20); **Pierre Couillaud** PhD Geosciences (2018); **Sean Beeman** PhD College of Public Health (2018–20)

### Graduate Researchers

- **Jade Brunicardi**. USF Morsani College of Medicine. Mentor for Capstone Research (2021–present)
- *previously*: **Disha Jain** MPH College of Public Health (2020); **Yanti Leosari** MPH College of Public Health (2018–23) [Leosari et al 2023]; **William Gardner** MPH College of Public Health (2017–19)

### Undergraduate Researchers

- **Karlene Rivera**. Honors College / Biomedical Sciences, Psychology; Honors Thesis Advisor (2021–present); **Damian Gonzalez**. Integrative Biology; Honors Thesis Committee member for (2022–present)
- *previously*: **Lyra Gaboardi**. Integrative Biology, (2022–23) [Gaboardi et al 2023]; **Elise Samuelson**. Integrative Biology, now PhD student (2021–22) [Samuelson et al 2023]; **Sebastian Alvarez de Araya**. Environmental Biology, Mathematics minor, now Masters student (2020–22); **Alexandra Newberg**. NSF REU researcher, primary supervisor Dr. Sarah Zohdy, CDC (2022); **Kaleb Smallwood**. Geosciences, Spanish minor (2020–22); **Israel Rivera-Molina**. Geosciences (2020–22); **Kristen Hodne**. Honors College / Biomedical Sciences, Public Health; Honors Thesis Advisee (2020–22); **Connor Mapes**. Honors College / Environmental Science & Policy, GIS minor (2018–21); Honors Thesis Advisee (2019–21) [Uelmen et al 2023]; **Alec Baines**. Integrative Biology, Geosciences minor (2017–21); **Zia Coblentz**. Honors College / Anthropology; Honors Thesis Committee Member for (2020–21); **Mary Williams**. Honors College / Engineering (2017–20); **Ahmed Abd-Elrahman**. Computer Science & Engineering (2018–19); **Jim Mirzakhlov**. Honors College / Engineering (2017–18); **Kaleigh Nelson**. Integrative Biology, Geosciences (2017); **Manuel Regalado**. Honors College / Chemical Engineering (2017–18); **Michael Rey**. College of Public Health (2016–17); **Vincent Meijer**. Staff Research Associate (2017, 2021); **Myriam Van Walsum**. Staff Research Associate (2017)

### Mentee Awards

- **Sarah Guzinski**: Hamed Mirzaei Foundation Travel Grant, \$500 (2023); IB Department Travel Award, \$800 (2023)
- **Jade Brunicardi**: Research, Innovation, & Scholarly Endeavors Award, \$3,000 (2022)
- **Karlene Rivera** and **Sebastian Alvarez de Araya**: National Science Foundation Research Experiences for Undergraduates, \$16,000 (2021), \$16,000 (2022)
- **Alex Kirk**: Tharp Summer Fellowship \$4,800 (2022); Institute for the Advanced Study of Culture and the Environment's Student Research in Paleontology, \$1,000 (2019); Porter Family Award, \$1,000 total (2017, 2019)
- **Alec Baines**: Tampa Bay Fossil Club Paleontology Scholarship, \$500 (2019)
- **Manuel Regalado**: Fulbright UK Summer Institute Program, \$8,500 (2018)

# RYAN CARNEY, PHD, MPH, MBA

## PUBLICATIONS

citations: 1,099 • h-index: 14 • Google Scholar profile: [\[link\]](#)

\*undergraduate, \*\*graduate, \*\*\*postdoc; directly mentored  
IF = Impact Factor; Q = Quartile (SJR, scimagojr.com)

### In revision/review

- i). **Carney RM**. Topological coordinate systems: a joint surface approach for comparative skeletal analysis and scientific motion transfer. *Journal of Experimental Biology*  
• IF = 3.3; **top journal** in comparative animal physiology; **Q1** in Animal Science and Zoology; **Q1** in Medicine (misc)
- ii). Diaz Jr. RE, Sues H, Anderson CV, **Carney RM**, Taylor-Diaz EA, Elsey R, Oberg K, Ben Nava P, Chuong C-M, Jiang J, Pham V, Alegre A, Weeks I, Nissen RM, Schachner E, Trainor P, Sedelmayr J, Davis M, Lamb J, Bonett R, Fisher RN, Rogers C, Wake M, Trueb L, Behringer R, Rasweiler IV JJ, Diogo R, Adesomo A, de Queiroz K, Burbrink F, Sanger T, Hanken J, & Maddin HC. A tectonic model for the origin of cranioskeletal disparity across vertebrates. *Nature*  
• IF = 64.8; **top journal** in Multidisciplinary; **Q1** in Multidisciplinary
- iii). Bhuiyan T\*\*, **Carney RM**, & Chellappan S. Computer vision techniques for anatomically inspired classification of the endangered rusty-patched bumble bee (*Bombus affinis*). *PLOS ONE*  
• IF = 3.8; **Q1** in Multidisciplinary
- iv). Iyaloo DP, Zohdy S, **Carney RM**, Mosawa VR, Elahee KB, Carter T, Bhoobun H, Spear J, Munglee N, Lathooman N, Puryag S, Bheecarry A, & Bedja SA. A regional One Health approach to the risk of invasion by *Anopheles stephensi* in Mauritius. *PLOS Neglected Tropical Diseases*.  
• IF = 4.8; **Q1** in Infectious Diseases; **Q1** in Public Health, Environmental and Occupational Health

### Published

- 38). Samuelson E\*, Kirk AM\*\*, Kaplan H, & **Carney RM**. 2023. Digital Dinosaurs: bringing dinosaurs back to life with VR/AR in the college classroom. Invited book chapter in *Ethical Considerations of Virtual Reality in the College Classroom: Cross-Disciplinary Case Studies of Immersive Technology Implementation*. Edited by Bowdon M, Yee K, & Dorner W. Published by Routledge. [doi.org/10.4324/9781003329718-16](https://doi.org/10.4324/9781003329718-16)
- 37). Azam FB, **Carney RM**, Kariev S, Nallan K, Subramanian M, Sampath G, Kumar A, & Chellappan S. In press. Classifying stages in the gonotrophic cycle of mosquitoes from images using computer vision techniques. *Scientific Reports* [doi.org/10.1038/s41598-023-47266-7](https://doi.org/10.1038/s41598-023-47266-7)  
• IF = 4.6; **Q1** in Multidisciplinary
- 36). Garcia P\*\*, Diaz RE Jr., Anderson CV, Andrianjafy TM, de Beer L, Edmonds DA, & **Carney RM**. In press. Community science observations of mosquito-bite induced color change in chameleons. *Herpetological Review* 54(3).
- 35). Uelmen JA\*\*\*, Clark A, Palmer J, Kohler J, Van Dyke LC, Low R, Mapes C\*, & **Carney RM**. In press. Global Mosquito Observations Dashboard (GMOD): creating a user-friendly web interface fueled by citizen science to monitor invasive and vector mosquitoes. *International Journal of Health Geographics* [doi.org/10.1186/s12942-023-00350-7](https://doi.org/10.1186/s12942-023-00350-7)  
• IF = 5.3; **Q1** in Public Health, Environmental and Occupational Health; **Q1** in Computer Science (misc)

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- 34). Carney RM, Long A, Low RD, Zohdy S, Palmer JRB, Elias P, Bartumeus F, Njoroge L, Muniafu M, Uelmen J\*\*\*, Rahola N, & Chellappan S. 2023. Citizen science as an approach for responding to the threat of *Anopheles stephensi* in Africa. *Citizen Science: Theory and Practice* 8(1): 60: 1-15. doi.org/10.5334/cstp.616 [pdf](#)  
• IF = 4.5; **Q1** in Multidisciplinary
- 33). Herbert GS, Hill SA, Pio MJ, Carney RM, Carlson A, Newham E, & Bright JA. 2023. Three-dimensional visualization of predatory gastropod feeding teeth with synchrotron scanning. *Journal of Morphology* 284, e21633. [doi.org/10.1002/jmor.21633](https://doi.org/10.1002/jmor.21633)  
• IF = 1.8; **Q1** in Animal Science and Zoology
- 32). Gaboardi LM\*, Reeves LE, Morey GAM, Stanton DL, & Carney RM. 2023. A new species of the fish louse genus *Dipteropeltis* Calman, 1912 (Crustacea: Branchiura) from Peru. *Zootaxa* 5315 (2): 101-121 [pdf/SI](#)
- 31). Uelmen JA\*\*\*, Mapes CD\*, Prasauskas A, Boohene C, Burns L, Stuck J, & Carney RM. 2023. A habitat model for disease vector *Aedes aegypti* in the Tampa Bay Area, Florida. *Journal of the American Mosquito Control Association* 39(2): 96-107. doi.org/10.2987/22-7109 [pdf/SI](#)  
• Study mentioned in media coverage, summer 2023 (see *Press* below)
- 30). Leosari Y\*\*, Uelmen JA\*\*\*, & Carney RM. 2023. Spatial evaluation of healthcare accessibility across archipelagic communities of Maluku Province, Indonesia. *PLOS Global Public Health* 3(3):e0001600 [pdf](#) + [SI](#)
- 29). Carney RM, Mapes C\*, Low RD, Long A, Bowser A, Durieux D, Rivera K\*, Dekramanjian B, Bartumeus F, Guerrero D, Seltzer CE, Azam F, Chellappan S, & Palmer JRB. 2022. Integrating global citizen science platforms to enable next-generation surveillance of invasive and vector mosquitoes. *Insects* 13(8):675 doi.org/10.3390/insects13080675 [pdf](#) + [SI](#)  
• IF = 3.0; **Q1** in Insect Science  
• Invited manuscript for special issue, *Citizen Science Approaches to Vector Surveillance*  
• Journal's #1 "Most Viewed Paper, Last 12 months" (as of July 2023); [Altmetric](#): 99th percentile  
• Featured on the homepages of [NSF](#) (2022) and [USF](#) (2022,2023), and in seven [television segments](#) (see *Press* below)
- 28). Griffin CT, Botelho JF, Hanson M, Fabbri M, Smith-Paredes D, Carney RM, Norell MA, Egawa S, Gatesy SM, Rowe TB, Elsey RM, Nesbitt SJ, & Bhullar B-AS. 2022. The developing bird pelvis passes through ancestral dinosaurian conditions. *Nature* doi.org/10.1038/s41586-022-04982-w [pdf](#) + [SI](#)  
• IF = 64.8; **top journal** in Multidisciplinary; **Q1** in Multidisciplinary  
• [Altmetric](#): 99th percentile ([press release](#); see *Press* below)
- 27). Bhuiyan T\*\*, Carney RM, & Chellappan S. 2022. Artificial intelligence versus natural selection: Using computer vision techniques to classify bees and bee mimics. *iScience* 25, 104924 doi.org/10.1016/j.isci.2022.104924 [pdf](#) + [SI](#)  
• IF = 5.8; **Q1** in Multidisciplinary
- 26). Cieri RL, Turner ML, Carney RM, Falkingham PL, Kirk AM\*\*, Wang T, Jensen B, Novotny J, Tveite J, Gatesy SM, Laidlaw DH, Kaplan H, Moorman AFM, Howell M, Engel B, Cruz C, Smith A, Gerichs W, Lian Y, Schultz JT, & Farmer CG. 2021. Virtual and augmented reality: New tools for visualizing, analyzing, and communicating complex morphology. *Journal of Morphology* 282(12):1785-1800 doi.org/10.1002/jmor.21421 [pdf](#) + [SI video](#)  
• IF = 1.8; **Q1** in Animal Science and Zoology
- 25). Carney RM, Tischlinger H, & Shawkey MD. 2020. Evidence corroborates identity of isolated fossil feather as a wing covert of *Archaeopteryx*. *Scientific Reports* 10:15593 [pdf/SI](#)  
• IF = 4.6; **Q1** in Multidisciplinary  
• Press: [National Geographic](#), [The New York Times](#), [CGTN](#), [USF](#); [Altmetric](#): 99th percentile

## RYAN CARNEY, PHD, MPH, MBA

- Selected by journal for their collection, *Editor's choice: Dinosaurs*

24). Minakshi M, Bharti P, McClinton III WB, Mirzakhlov J, **Carney RM**, & Chellappan S. 2020. Automating the surveillance of mosquito vectors from trapped specimens using computer vision techniques. *Proceedings of ACM COMPASS*. p.105-115. doi.org/10.1145/3378393.3402260

- IF = 2.8; 20% acceptance rate

23). Schwarz D, Kundrát M, Tischlinger H, Dyke G, & **Carney RM**. 2019. Ultraviolet light illuminates the avian nature of the Berlin *Archaeopteryx* skeleton. *Scientific Reports* 9:6518

- IF = 4.6; **Q1** in Multidisciplinary

22). Baier DB, Garrity BM, Moritz S, & **Carney RM**. 2018. *Alligator mississippiensis* sternal and shoulder girdle mobility increase stride length during high walks. *Journal of Experimental Biology* 221(22):jeb186791

- IF = 3.3; **top journal** in comparative animal physiology; **Q1** in Animal Science and Zoology; **Q1** in Medicine (misc)
- Selected by journal for their collection, *Comparative Biomechanics of Movement*

21). Leandro-Reguillo P, Panaou T, **Carney R**, & Jacob BG. 2017. Fuzzification of multi-criteria proxy geoclassifiable vegetation and landscape biosignature estimators to predict the potential invasion of *Aedes aegypti* in Barcelona, Spain. *International Journal of Geographic Information System* 4(2):1-19 [pdf](#) + [SI video](#)

20). **Carney RM**. 2016. Evolution of the archosaurian shoulder joint and the flight stroke of *Archaeopteryx*. PhD dissertation, *Brown University*

19). Lindgren J, Sjövall P, **Carney RM**, Cincotta A, Uvdal P, Hutcheson SW, Gustafsson O, Lefèvre U, Escuillié F, Heimdal J, Engdahl A, Gren JA, Kear BP, Wakamatsu K, Yans J, & Godefroit P. 2015. Molecular composition and ultrastructure of Jurassic paravian feathers. *Scientific Reports* 5(1): 13520 [pdf](#) + [SI](#)

- [Altmetric](#): 99th percentile

18). Lindgren J, Sjövall P, **Carney RM**, Uvdal P, Gren JA, Dyke G, Schultz BP, Shawkey MD, Barnes KR, & Polcyn MJ. 2014. Skin pigmentation provides evidence of convergent melanism in extinct marine reptiles. *Nature* 506(7489):484–8 [pdf](#) + [SI](#)

- IF = 64.8; **top journal** in Multidisciplinary; **Q1** in Multidisciplinary

17). **Carney RM**, Vinther J, Shawkey MD, D'Alba L, & Ackermann J. 2012. New evidence on the colour and nature of the isolated *Archaeopteryx* feather. *Nature Communications* 3:637 doi: 10.1038/ncomms1642

- IF = 16.6; **Q1** in Biochemistry, Genetics, and Molecular Biology (miscellaneous)
- featured in >140 articles from 30 countries, including the *The New York Times*; see *Press* [pdf](#) + [video](#)
- [Altmetric](#): 99th percentile

16). Vinther J, Jell P, Kampouris G, **Carney RM**, Racicot RA, & Briggs DEG. 2012. The origin of multiplacophorans – convergent evolution in aculiferan molluscs. *Palaeontology* 55(5):1007–19 [pdf](#) + [animation](#)

- IF = 3.5; **Q1** in Paleontology

15). **Carney RM**, Ahearn SC, McConchie A, Glaser C, Jean C, Barker C, Park B, Padgett K, Parker E, Aquino E, & Kramer V. 2011. Early warning system for West Nile virus risk areas, California, USA. *Emerging Infectious Diseases* 17(8):1445-54 [pdf](#)

- IF = 11.8; **Q1** in Medicine: Epidemiology; **Q1** in Medicine: Infectious Diseases

14). **Carney RM**. 2010. GIS-based early warning system for predicting high-risk areas of dengue virus transmission, Ribeirão Preto, Brazil. Masters thesis, *Yale University* [pdf](#)



## RYAN CARNEY, PHD, MPH, MBA

- winner of Dean's Prize for Outstanding Thesis

- 13). **Carney RM**, Ahearn SC, McConchie A, Glaser C, Jean C, Barker C, Park B, Padgett K, & Kramer V. 2008. Implementation of the spatiotemporal DYCAST risk modeling system to predict human West Nile virus cases in California, 2005. In: *5th International Conference on Geographical Information Systems (ICGIS-2008): Proceedings, July 2-5, 2008*. Demirci, A. (Ed.), Fatih University Publications, Istanbul, Vol. 2:657-63.
- 12). **Carney RM**, Husted S, Jean C, Glaser C, & Kramer V. 2008. Efficacy of aerial spraying of mosquito adulticide in reducing incidence of West Nile virus in humans, Sacramento County, California, 2005. *Emerging Infectious Diseases* 14(5):747-54 [pdf](#)
  - IF = 11.8; **Q1** in Medicine: Epidemiology; **Q1** in Medicine: Infectious Diseases
- 11). Crosbie SP, Koenig WD, Reisen WK, Kramer VL, Marcus L, **Carney RM**, Pandolfino E, Bolen GM, Crosbie LR, Bell DA, Ernest HB. 2008. Early impact of West Nile virus on the Yellow-billed Magpie (*Pica nuttalli*). *The Auk* 125(3):542-50.
- 10). Feiszli T, Husted S, Park B, Eldridge B, Fang Y, Reisen WK, Jean C, Cossen C, **Carney R**, Parker E, Erickson C, McQuarry A, Kramer V. 2008. Surveillance for mosquito-borne encephalitis virus activity in California, 2007. *Proceedings and Papers of the MVCAC* 76:108-23.
- 9). Scott T, Lee P-Y, Padgett K, **Carney R**, Husted S, Koenig W. 2008. The impact of West Nile virus on birds in California's hardwood rangelands. *Proceedings of the Sixth Symposium on Oak Woodlands* 151-63.
- 8). Padgett KA, Reisen WK, Kahl-Purcell N, Fang Y, Cahoon-Young B, **Carney R**, Anderson N, Zucca L, Woods L, Husted S, Kramer V. 2007. West Nile virus infection in tree squirrels (Rodentia: Sciuridae) in California, 2004-2005. *American Journal of Tropical Medicine and Hygiene* 76(5):810-3.
  - IF = 3.7; **Q1** in Parasitology; **Q1** in Medicine (misc)
- 7). Feiszli T, Park B, Kramer V, Kjemtrup A, Eldridge B, Fang Y, Reisen WK, Baylis E, Jean C, Glover J, **Carney R**, Padgett K, Erickson C, Husted S. 2007. Surveillance for mosquito-borne encephalitis virus activity in California, 2006. *Proceedings and Papers of the MVCAC* 75:48-59.
- 6). Reisen WK, Barker CM, **Carney R**, Lothrop HD, Wheeler SS, Wilson JL, Madon MB, Takahashi R, Carroll B, Garcia S, Fang Y, Shafii M, Kahl N, Ashtari S, Kramer V, Glaser C, Jean C. 2006. Role of corvids in epidemiology of West Nile virus in southern California. *Journal of Medical Entomology* 43(2):356-67.
  - IF = 2.4; **Q1** in Insect Science; **Q1** in Veterinary (misc)
- 5). Reisen WK, Fang Y, Lothrop HD, Martinez VM, Wilson J, O'Connor P, **Carney R**, Cahoon-Young B, Shafii M, Brault AC. 2006. Overwintering of West Nile virus in southern California. *Journal of Medical Entomology* 43(2):344-55.
  - IF = 2.4; **Q1** in Insect Science; **Q1** in Veterinary (misc)
- 4). Padgett KA, Cahoon-Young B, **Carney R**, Woods L, Read D, Husted S, Kramer V. 2006. Field and laboratory evaluation of diagnostic assays for detecting West Nile virus in oropharyngeal swabs from California wild birds. *Vector-Borne and Zoonotic Diseases* 6(2):183-91.
- 3). Hom A, Bonilla D, Kjemtrup A, Kramer VL, Cahoon-Young B, Barker C, Marcus L, Glaser C, Baylis E, Jean C, Eldridge B, **Carney R**, Padgett K, Sun B, Reisen WK, Woods L, Glover J, Erickson C, Barclay C, Husted S. 2006. Surveillance for mosquito-borne encephalitis virus activity and human disease, including West Nile virus in California, 2005. *Proceedings and Papers of the MVCAC* 74:43-54.

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- 2). Wheeler SS, **Carney R**, Carroll B, Wright S, Armijos V, Wilson J, Garcia S, Fang Y, Reisen WK. 2005. West Nile virus in wild birds: who lives and who dies? *Proceedings and Papers of the MVCAC* 73:32-7.
- 1). Hom A, Marcus L, Kramer VL, Cahoon B, Glaser C, Cossen C, Baylis E, Jean C, Tu EH, Eldridge BF, **Carney R**, Padgett K, Sun B, Reisen WK, Woods L, Husted S. 2005. Surveillance for mosquito-borne encephalitis virus activity and human disease, including West Nile virus in California, 2004. *Proceedings and Papers of the MVCAC* 73:66-77.

### PATENTS PENDING

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1. **Carney RM** & Chellappan S. SYSTEMS AND METHODS FOR CLASSIFYING MOSQUITO LARVAE BASED ON EXTRACTED MASKS OF ANATOMICAL COMPONENTS FROM IMAGES. US 63/140,505; PCT/US22/17089; USF 20A055. International patent application filed 2022-02-18.
2. **Carney RM**. MULTIFUNCTIONAL MELANIN-BASED METALORGANIC MATERIAL. US 63/264,374; USF 21B148. Provisional patent application filed 2021-11-22.
3. **Carney RM**. INTEGUMENTARY SYSTEM USING ARRAYS OF MOBILE HEXAGONAL SCALES. US 63/264,556; USF 21B147. Provisional patent application filed 2021-11-24.
4. Chellappan S, Sadow SE, **Carney RM**, Wolfram BM, & Weston M. SMART MOSQUITO TRAP FOR MOSQUITO CLASSIFICATION. US 17/496,563; PCT/US2021/053995; USF 20B151US; USF 20B151WO. International patent application filed 2021-10-07. [animation](#)
5. Chellappan S, Minakshi M, Bharti P, & **Carney RM**. SYSTEMS AND METHODS FOR CLASSIFYING MOSQUITOES BASED ON EXTRACTED MASKS OF ANATOMICAL COMPONENTS FROM IMAGES. US 17/462,809; USF 21A015US. Full patent application filed 2021-08-31.
6. Chellappan S, Azam F, **Carney RM**, & Kariev S. METHODS AND TECHNIQUES TO CLASSIFY STAGES IN THE GONOTROPHIC CYCLE OF MOSQUITOES FROM IMAGES USING COMPUTER VISION TECHNIQUES. US 24T012PR-CS. Provisional patent application filed 2023-07-19.

### SOFTWARE

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1. **Global Mosquito Observations Dashboard (GMOD)**: interactive map dashboard for visualizing and downloading mosquito data from citizen science platforms iNaturalist, Mosquito Alert, and NASA / GLOBE Observer's Mosquito Habitat Mapper and Land Cover. (Carney et al 2022). [mosquitodashboards.org](https://mosquitodashboards.org)
2. **mosquitoID.org**: artificial intelligence tools for citizen scientists and mosquito control personnel to identify the species and gonotrophic stage of larval and adult mosquitoes using smartphone photos. Developed through NSF grant #2014547 and three patents pending, in collaboration with the Chellappan lab. (Carney et al 2022; Minakshi et al 2020a,b). [mosquitoID.org](https://mosquitoID.org) (beta)
3. **DYCAST**: Dynamic Continuous-Area Space-Time model for predicting hot spots of virus transmission (e.g., West Nile virus, dengue, Zika). PI on software development projects; coding by Vincent Meijer and Alan McConchie (Python, PostGIS, SQL). (Carney et al 2011; Carney 2010; Theophilides et al 2006, 2003, 2008). Project page: [DYCAST.org](https://DYCAST.org). DYCAST 3.0 and QGIS plugin published on GitHub (2021): <https://github.com/CarneyLab>

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4. **Bee classifiers:** artificial intelligence algorithms for image recognition of bees and bee mimics. (Bhuiyan et al 2022). Zenodo: <https://doi.org/10.5281/zenodo.6965250>
5. **ARchaeopteryx holographica.** Augmented reality app for iOS, developed in collaboration with National Geographic. Interactive experience showcases my scientific 3D reconstruction of the skeletal anatomy, flight stroke, and feather color of *Archaeopteryx lithographica* (2018; see also Carney 2016, Cieri et al 2021, Samuelson et al in press). [video](#)
6. **ArcOSAUR:** ArcGIS Operations for Surface Analysis Using Rasters toolkit for ArcGIS software. (Carney RM. 2008. *Journal of Vertebrate Paleontology* 28(35):61). [poster](#)
7. **Googlecology:** interactive corporate planning dashboard for executives to easily visualize, analyze, and compare internal data. Invented a new heuristic – “organizational phylogenetics” – that integrates frameworks and methodologies from ecology, evolutionary science, and sociology. Dashboard built using Improvise architecture. (2009; proprietary)

### REVIEWER FOR

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Graduate Women in Science National Fellowship Program, *International Journal of General Medicine*, NASA, *Nature*, *Naturwissenschaften*, *PLOS ONE*, SLAC National Accelerator Lab

### PROFESSIONAL AFFILIATIONS

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American Chemical Society, American Mosquito Control Association, BEACONS, International Society of Vertebrate Morphology, Sigma Xi (Full Member, 2015-present), National Geographic (Explorer, 2012-present), SECVBD (2022-present), Society of Experimental Biology, Society for Integrative & Comparative Biology, Society of Vertebrate Paleontology (Lanzendorf PaleoArt Committee, 2012-present), Tampa Bay Fossil Club (Scientific Advisor, 2018-present), USF Anthropocene Working Group, USF Evolution Working Group, USF Paleobiology Working Group, USF Pandemic Research Response Network™ COVID-19 Research Task Force (Member of two hubs: Surveillance & Epidemiology, and Information Computing & Communications Technologies, 2020-present)

### INSTITUTIONAL SERVICE (USF)

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- Department of Integrative Biology: Chair of Search Committee for Assistant Instructor position (2022-23), Curriculum Committee (2019-22), Co-Chair of Seminar Committee (2019-21), Visibility & Web Page Committee (2017-19), Graduate Admission and Policy Committee (2017-19)
- University of South Florida: Office of Undergraduate Research, Faculty Advisory Committee (2017-18); Pre-Veterinary Society, Faculty Advisor (2018-present)

### PROFESSIONAL EXPERIENCE

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#### Paleontologist

8/02 - present

- Served as Principal Investigator for various international collaborative research projects, most notably: 1). high-resolution 3D digital scanning and reconstruction of the best-preserved *Archaeopteryx* skeleton, 2). investigating

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the color and composition of the isolated *Archaeopteryx* fossil feather (Carney et al 2012, 2020), and 3).  
investigating the coloration and exceptional soft-tissue preservation of a mummified dinosaur.

- Created a set of computational tools (ArcOSAUR: ArcGIS Operations for Surface Analysis Using Rasters) for topographical analysis of 3D anatomical data within a geographic information systems platform.
- Conducted fieldwork in the Cretaceous Hell Creek Formation of North Dakota and the Jurassic Solnhofen Plattenkalk of Germany.
- Produced and directed documentary video, photography, and press releases for future dissemination in popular media; created and licensed computer animated video content for publication and television broadcast.

**Google**, Mountain View, CA

6/09 – 8/09

### **Intern**

- Created an interactive corporate planning dashboard (“Googlecology”) for executives to easily visualize, analyze, and compare internal data. Invented a new heuristic – “organizational phylogenetics” – that integrates frameworks and methodologies from ecology, evolutionary science, and sociology.
- Validated and improved a survival analysis statistical model for predicting employee attrition. Created an Excel-based tool (“ROCnroll”) for computing optimal hazard thresholds for classifying employees as high vs. low risk of attrition, using receiver operating characteristic analysis and validity measures.
- Created various indices for measuring team diversity; analyzed which elements of diversity drive innovation on engineering teams, and how collaboration modifies these effects.

**Yale University**, Ribeirão Preto, Brazil

6/08 – 8/08

### **Centers for Disease Control, Graduate Fellow Intern**

- Designed and conducted a research project involving the spatiotemporal analysis of dengue virus transmission in Ribeirão Preto, Brazil; created and analyzed various datasets (e.g., human dengue cases, vector surveillance, census, address locator, satellite imagery) (Carney 2010).
- Met with local health departments, vector control agency, research laboratory, and medical facility to acquire necessary data; consulted agencies on how to implement and utilize geographic information systems.

**California Department of Public Health**, Richmond, CA

2/04 – 8/07

### **Coordinator, West Nile Virus (WNV) Dead Bird Surveillance Program**

- Led a 33-person, \$600K statewide disease surveillance program, including hotline and website.
- Served as Principal Investigator for two research projects (Carney et al 2008, Carney et al 2011), presented research at national and state conferences.
- Secured \$200K to create and maintain an open-source, real-time West Nile virus risk modeling system (DYCAST), which predicted 82% of human cases its first year. Success resulted in incorporation into state response plan.
- Coordinated and collaborated with >250 agencies and laboratories regarding submission and reporting of test samples (>9K/year), weekly bulletins of statewide results, and public education campaigns.
- Developed and coordinated a centralized, multi-agency database network (BIRD) for managing and disseminating all avian influenza surveillance data statewide.
- Created hotline features to accommodate a 17-fold seasonal increase in calls (up to 3K/day) and increase public education and disease prevention; created and initiated novel algorithms and solutions for emergency control during epidemics.

**University of California**, Berkeley, CA

7/02 – 1/04

### **Staff Research Associate I & II, Insect Biology: Dr. Robert Lane Lyme Disease Lab**

- Conducted research in NIH and CDC-funded genetic and BL3 animal laboratories; investigated the ecology, epidemiology, and microbiology of *Borrelia burgdorferi* spirochetes and other tick-borne pathogens.
- Conducted experimental studies and procedures involving research animals and vector-borne diseases in the field and laboratory; collected and managed ticks and wildlife in field-study sites.

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- Performed PCR assays of ticks, vertebrate tissues, and borrelial isolates for identification and sequence characterization; managed data and sample collections.

### SKILLS

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**Software:** 3D modeling and animation (Maya, ZBrush), 3D processing (Geomagic, MeshLab), CT imaging and segmentation (Avizo/Amira, OsiriX/Horos), databases and queries (Access, Excel, SQL), data visualization (ImageJ, Improve), genetic (GenBank, Sequencher), graphic design and illustration (Adobe Creative Suite), geographic information systems (ArcGIS suite/Python), MATLAB, MS Office suite, photogrammetry (PhotoScan, Reality Capture), satellite imaging (ER Mapper, ENVI), statistical (R, SAS, SPSS), video editing (Final Cut Pro, Premiere), web design/HTML.

**Laboratory:** acid demineralization, animal care, contrast-enhanced staining, CT scanning, DNA extraction/sequencing, electromyography, gel electrophoresis, human and animal cadaver dissection, laser scanning, light microscopy, RT-PCR, scanning electron microscopy, tissue fixation, time-of-flight secondary ion mass spectrometry (ToF-SIMS), veterinary surgery, wavelength-dispersive X-ray spectroscopy, X-ray diffraction, X-ray Reconstruction of Moving Morphology (XROMM).

### SCIENCE OUTREACH

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#### Books

- National Geographic Learning. Global middle school curriculum, *Impact: Flying High*. Featured Explorer and contributor (2024, 2016).
- National Geographic Learning. Research and art profiled in high school textbook *World of Chemistry*, 4th Edition by Zumdahl et al 2020, p.380-1 (circulation >20K). [Amazon](#), [Cengage](#)
- National Geographic Learning. Research and art profiled in Explorations booklet “*Ryan Carney: Bringing Dinosaurs to Life*” (circulation >50K) (2020).
- *Archaeopteryx* research featured in [My Beloved Brontosaurus](#) by Riley Black
- *Archaeopteryx* research featured in [Zombie Birds, Astronaut Fish, and Other Weird Animals](#) by Becky Crew

#### Magazines

- *National Geographic Magazine*. *Archaeopteryx* research featured in Sep 2021 issue: “From a dino’s wing” by Michael Greshko.
- *New Scientist*. “The Early Bird” by Michael Marshall (circulation 125K) (2019). [link](#)
- *National Geographic Magazine*. *Archaeopteryx* research featured as 2-page spread in May 2018 issue (circulation >10M): [image](#), [article](#)
- *USF Magazine*. “Using virtual reality to learn more about dinosaurs” (2017). [link](#)
- *National Geographic Kids*. Research featured in “Dinosaur Color” by Zac Petit. (circulation >4M) (2014)

#### Miscellaneous

- [Make-A-Wish](#). My lab hosted Sebastian, a 7-year-old who is battling brain cancer and wished to be a paleontologist in a lab for a day. We also created a personalized lab coat and a 3D-printed “Sebastianosaurus” skull for him. The experience was featured on four local TV stations as well as Good Morning America: <https://bit.ly/3m43XY5> + <https://gma.abc/3Zs90zV>
- National Geographic: one of five paleontologists on a “Reimagining Dinosaurs” panel on Facebook Live for an international audience. Viewership: >140K. (2020)

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- National Geographic Learning: two virtual "Masterclass" visits to elementary, middle, and high school students in 96 institutions across 12 countries in Latin America. Viewership: 11K. (2020)
- National Geographic Explorer (2012-present); received Emerging Explorer Award which recognizes "uniquely gifted and inspiring scientists, conservationists, storytellers and innovators who are changing the world." (2017)
- Visited 2nd grade classroom at Oakridge Elementary to teach students about dinosaurs and AR (2017): [video](#)
- Volunteer: Florida Aquarium: National Fossil Day (2016); Yale Peabody Museum: Dr. Martin Luther King Jr. Days, Paleo-Knowledge Bowl (2007-2010); California State Capital: Science Days (2007).

### Museum Exhibits

- Pokémon Fossil Museum. Consultant (2021). [link](#)
- "Dinosaurs Take Flight: The Art of *Archaeopteryx*" traveling exhibit. Contributor, consultant (2015)
- Garden of the Gods Visitor Center. "*Theiophytalia kerri*." Consultant (2014)
- Lawrence Hall of Science. "Big Dinos Return." Contributor (2005)

### Television

- Interviewed about [MosquitoDashboard.org](#) and mosquito AI research by [ABC Action News](#), [FOX 13](#), [Bay News 9](#), [SNN TV](#), and WTSP in [2023](#), [2020](#)
- WFLA (2022): "Meet the dinosaurs from 'Jurassic World Dominion'": [video](#)
- FOX 13, Bay News 9. *Digital Dinosaurs* course and paleontology research featured in [2019](#), [2018](#), and [2017](#)
- National Geographic Channel. "*T. rex* Autopsy." Consultant (2015)
- Discovery / Science Channel. "The Dinosaur Feather Mystery." Contributor (2004)

### PRESS

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#### 2023

- [USF News](#). "Mosquito watch: USF researchers urge use of global dashboard in light of recent malaria cases" by Cassidy Delamarter. Top story on the USF homepage June-July.
- TV interviews and coverage: Tampa, FL. [ABC Action News](#). "USF researchers ask for public's help to track mosquito population in Tampa Bay" by Julie Salomone. • [FOX 13](#). "USF scientists introduce mosquito tracking dashboard to help keep tabs on insects in Tampa Bay area" by Briona Arradondo. • Tampa, FL (also Orlando, FL; Green Bay, WI). [Spectrum Bay News 9](#). "USF scientists say smartphones can aid in mosquito research amid rise in local malaria cases" by Cait McVey. • Tampa, FL. [WTSP](#). "USF's global mosquito dashboard maps deadly species and malaria cases" by Adaure Achumba. • Sarasota, FL. [SNN TV](#). "Researchers develop new tool against malaria" by Sydney Roll. • Sarasota, FL. [ABC](#). "USF researchers urge use of global dashboard in light of recent malaria cases". • Spokane, WA. [KHQ-TV](#). "Citizen scientists encouraged to help track mosquitoes with new interactive dashboard from team at USF" by Amanda Smith.
- [EFE / Infobae](#). "An interactive "world map" of mosquitoes to help fight malaria" (Spanish) by Lorenzo Castro.

#### 2022

- **Carney et al 2022**: Global Mosquito Observations Dashboard ([mosquitodashboard.org](#)) and *Insects* study, "Integrating global citizen science platforms to enable next-generation surveillance of invasive and vector mosquitoes" • [USF Press Release](#): "USF researchers launch global dashboard to track invasive mosquitoes carrying deadly diseases" (featured on the homepage) • select articles: [NSF](#) (featured on the homepage), [NASA](#), [Phys.org](#) ([1](#),[2](#)), [SINC](#) • [Altmetric](#): 99th percentile.
- **Griffin et al 2022**: *Nature* study, "The developing bird pelvis passes through ancestral dinosaurian conditions" • [Yale Press Release](#) • select articles: [Phys.org](#), [Inverse](#) • [Altmetric](#): 99th percentile.

#### 2021

- [USF Press Release](#): "22 USF Faculty Members Recognized with Outstanding Research Achievements Awards"

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- [Tampa Channel 10](#): “This app is trying to track which mosquitoes in your area may be carrying diseases”
- [USF Press Release](#): “USF researchers launch social media campaign to identify risk of mosquito-borne diseases in Tampa Bay”

### 2020

- **Carney et al 2020**, *Archaeopteryx* feather study, selected press: [New York Times](#), [National Geographic](#), [USF](#)
- [USF Press Release](#): “USF researchers develop new technologies to fight mosquito-borne diseases”
- TV interview: [WTSP](#). “USF awarded major grant to help control spread of mosquito-borne diseases”
- Comments in: <https://www.nationalgeographic.com/science/2020/08/smallest-dinosaur-known-actually-peculiar-ancient-lizard/>

### 2019

- Comment in: <https://www.nationalgeographic.com/science/2019/06/first-blue-feathers-found-on-fossil-bird-messel-pit-rollers-paleontology/>, <https://www.nationalgeographic.com/science/article/smallest-ever-fossil-dinosaur-found-trapped-in-amber>

### 2018

- Bay News 9: “USF professor brings dinosaurs ‘back to life’” by Katie Jones: <http://www.baynews9.com/fl/tampa/news/2018/05/10/usf-professor-brings-dinosaurs-back-to-life.html>
- Comment in: <https://www.nationalgeographic.com/science/2018/10/news-fossil-lungs-bird-dinosaurs-cretaceous-soft-tissue-paleontology/>

### 2017

- [USF News](#). “USF scientist one of 14 world-changers named 2017 National Geographic Emerging Explorers” by Tina Meketa.
- [National Geographic](#). “National Geographic Emerging Explorer Ryan Carney using X-rays and alligators to bring dinosaurs back to life” by Andrew Howley.
- [Inside Higher Ed](#). “More than just cool?” by Nick Roll.
- [The Science Times](#). “Paleontologist uses virtual reality to learn about the evolution of dinosaurs” by Zen Menahem.
- [National Geographic](#). “Fourteen world-changers named 2017 National Geographic Emerging Explorers.”
- Comment in: [National Geographic](#). “How mosquitoes use stealth to steal your blood” by Elaina Zachos.

### 2016

- [PNAS](#). “News Feature: Prehistoric animals, in living color” by Amber Dance.
- Comment in: [Christian Science Monitor](#). “How a 10-million-year-old snake helps bring extinct animals into full color” by Eva Botkin-Kowacki.

### 2015

- **Lindgren et al 2015**, *Scientific Reports* press releases: [EurekAlert!](#), [Brown University](#): “Pigments, organelles persist in fossil feathers” • articles: [Forbes](#), [IFLScience!](#), [NBC News](#), [redOrbit](#), [Science Update radio / AAAS](#), [Tech Times](#), [Vice / Motherboard](#), [Der Standard](#) (Austria), [Yahoo! News](#) (Canada), [Gazeta Wyborcza](#) (Poland), [VladTime](#) (Russia), [Europa Press](#) (Spain)
- [Providence Journal](#). “‘Nerd Nite’ debut in Providence draws a curious crowd” by Carol Kozma
- [Vice / Motherboard](#). “These Are the Dinosaurs Paleontologists Want to See in Movies” by Becky Ferreira

### 2014

- **Lindgren et al 2014**, *Nature* press release: [EurekAlert!](#): “Fossil pigments reveal the colors of ancient sea monsters” • articles: [BBC](#), [Brown Daily Herald](#), [Brown University](#), [CBS News](#), [Discovery News](#), [National](#)

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[Geographic](#), [Phys.org](#), [redOrbit](#), [Science / AAAS](#), [The Scientist](#), [Laborwelt](#) (Germany), [Spiegel Online](#) (Germany), [Le Scienze](#) (Italy)

- [Nature](#). “Rival species recast significance of ‘first bird’” by Ewen Callaway
- [National Geographic](#). “Feathered Fossils Give Scaly Dinosaurs a Makeover” by Dan Vergano
- **Carney et al 2014**, *JVP* press release: [Society for Vertebrate Paleontology](#): “Taking a deeper look at ‘ancient wing’” • articles: [Vice / Motherboard](#), [Science World Report](#), [Science 2.0](#), [Biosphere](#)
- [LiveScience](#). “True Color of Dinosaur Feathers Debated” by Megan Gannon
- [COSMOS](#) (Australia). “The ever-changing land of the dinosaurs” by Becky Crew
- [Journal Sentinel](#). “Study finds new shades in proto-bird's feathers” by Jennifer Laaser
- [Chemistry World / Royal Society of Chemistry](#) (UK). “Colouring in the dinosaur book” by Emma Stoye

### 2012

- **Carney et al 2012**, *Nature Communications*  
press releases: [EurekAlert!](#), [Brown University](#): “Winged dinosaur Archaeopteryx dressed for flight” • articles: [The New York Times](#), [Nature](#), [Science / AAAS](#), [National Geographic](#), [Brown Daily Herald](#), [ScienceNews](#), [Huffington Post](#), [Medill Reports](#), [WSU](#), [COSMOS](#) (Australia), [Die Presse](#) (Austria), [Futura-Sciences](#)(France), [Hindustan Times](#) (India), [NRC](#) (Netherlands), [NWT Magazine](#) (Netherlands), [Scientias](#) (Netherlands), [Kennislink](#)(Netherlands), [La Razon](#) (Spain), [metrics](#) • video: [National Geographic/Brown University](#) • radio: National Geographic Weekend Radio,
- [Discover Magazine](#). “Archaeopteryx: The Embargoed Tattoo” by Carl Zimmer, The Loom blog.
- **Vinther et al 2012**, *Palaeontology* press release: [UT Austin](#): “CT scan and 3-D print help scientists reconstruct an ancient mollusk” • articles: [National Geographic](#), [Daily Mail](#), [Phys.org](#), [redOrbit](#), [Sci-News](#), [Science](#), [Space & Robots](#) • animation: [link](#)

### 2011

- **Carney et al 2011**, *Emerging Infectious Diseases* press release: [Brown University](#): “Software predicted virus risk in California epidemic” by David Orenstein • articles: [Medical Xpress](#), [redOrbit](#), [UPI](#)

### 2008

- **Carney et al 2008**, *Emerging Infectious Diseases* • article: [Yale University](#). “Aerial Spraying Effectively Reduces Incidence of West Nile Virus in Humans” by Michael Greenwood

### 2006

- [San Francisco Chronicle](#). “West Nile warning system: Citizens’ dead bird reports have helped control infected mosquitoes” by Sabin Russell
- [San Francisco Chronicle](#). “West Nile could get worse, expert warns: Virus outbreak could turn into major epidemic” by Sabin Russell
- [Smash Magazine](#). “Mastema” by Lauren Napier
- [Government Health IT](#). “Surveillance case study: Mosquito coasts” by Dibya Sarkar

### 2005

- San Francisco Chronicle. “Chronicles in Education: The New Science of Dinosaurs.” Contributor.

## ORAL PRESENTATIONS

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- “Making an *Impact* in and out of the classroom: the journey of a National Geographic Explorer”. National Geographic Learning virtual presentation to ESL educators in Latin America. 11/16/2023.
  - “Global Mosquito Observations Dashboard (GMOD): integrating citizen science platforms to enable next-generation surveillance of invasive and vector mosquitoes.” American Mosquito Control Association annual conference. Reno, NV. 03/02/2023.



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- “Leveraging citizen science & AI for the surveillance of invasive mosquito vectors.” Invited speaker for the One Health PACT meeting hosted by the University of Leiden, Netherlands. 11/10/2022.
- “Leveraging citizen science & AI for the surveillance of invasive mosquito vectors.” Invited speaker for the Mosquito BEACONS: Biodiversity Enhancement And Control Of Non-native Species meeting hosted by the University of Florida. 10/03/2022.
- “Artificial intelligence-enabled surveillance for *Anopheles stephensi*.” Invited speaker for the SEGA One Health workshop, *Risk of vector-borne diseases, climate change and health impacts*. Hosted by the Mauritius Ministry of Health and Wellness. 6/22/2022.
- “Developing and deploying artificial intelligence techniques for the citizen science surveillance of *Anopheles stephensi* in Africa.” Invited speaker for the World Malaria Day Symposium hosted by Johns Hopkins University. 4/25/2022.
- “AI-enabled citizen surveillance for invasive and vector mosquitoes.” One of nine invited featured speakers for the workshop, *Citizen Science & Digital Entomology in Mosquito-Borne Disease Surveillance in Europe*. 3/23/2022. [\[video\]](#)
- “AI-enabled citizen surveillance for *Anopheles stephensi*.” Invited featured speaker for the Innovative Vector Control Consortium’s *Tech Bites* series. 2/18/2022.
- “Origins.” Invited featured speaker for outreach webinar to high school students at Centro Escolar del Tepeyac in Naucalpan, Mexico. 6/11/2021.
- “New digital tools for fighting mosquito-borne diseases.” Invited featured speaker for NASA's *GLOBE Mission Mosquito* webinar series. 5/13/2021. [\[video\]](#)
- “Digital Dinosaurs & Diseases.” Invited featured speaker for the *Frontiers in Science* public lecture series. Florida Atlantic University. Boca Raton, FL. 2/21/2020.
- “Immersive Experience.” Invited by USF to represent the College of Arts & Sciences and present my lab’s digital paleontology and epidemiology research, via PowerPoint and hands-on demos. Synapse Summit. Tampa, FL. 2/11/2020.
- “*Archaeopteryx holographica*: Bringing the Urvogel back to life with scientific animation and VR/AR.” Invited symposium speaker. Also co-led lab’s station at the associated VIRTMorph symposium workshop. International Congress of Vertebrate Morphology conference. Prague, Czech Republic. 7/23/2019.
- “Evolution of the archosaurian shoulder joint and the flight stroke of *Archaeopteryx*”. Invited talk to the USF Pre-Veterinary Society. Tampa, FL. 04/17/2019.
- “Evolution of the archosaurian shoulder joint and the flight stroke of *Archaeopteryx*”. Society for Integrative & Comparative Biology annual conference. Tampa, FL. 01/05/2019.
- “*Archaeopteryx holographica*: bringing the Urvogel back to life with scientific animation and VR/AR.” Invited symposium speaker. Society of Vertebrate Paleontology annual conference. Albuquerque, NM. 10/19/2018
- “Digital Dinosaurs & Diseases: from *Archaeopteryx* to Zika.” Invited speaker. Biology Department Seminar, Southeastern Louisiana University. Hammond, LA. 9/6/2018.
- “Bringing dinosaurs back to life.” Invited speaker. Student matinees and VR/AR demonstrations. Virginia Living Museum. Newport News, VA. 5/19/2018.
- “Digital Dinosaurs.” Invited speaker. Evening presentation and VR/AR demonstration. Virginia Living Museum. Newport News, VA. 5/17/2018.
- “Digital Dinosaurs & Diseases: from *Archaeopteryx* to Zika.” Invited speaker. Taste of Science. Tampa, FL. 4/26/2018.
- “Origins.” Invited speaker. Student matinee (6th-8th graders). National Geographic Headquarters. Washington, DC. 4/20/2018.
- “On the unexpected origin of flight.” Invited speaker. National Geographic Nights evening presentation. National Geographic Headquarters. Washington, DC. 4/19/2018.
- “On the origin of flight: the ascent of maniraptora.” Invited speaker. Darwin Day event hosted by the Evolution Working Group and Institute for the Advanced Study of Culture and the Environment (IASCE), University of South Florida, Tampa, FL. 2018.

## RYAN CARNEY, PHD, MPH, MBA

- “Digital dinosaurs & diseases.” Invited speaker. SuperFAM TechTalk hosted by the Office of the Provost & Executive Vice President. University of South Florida, Tampa, FL. 2017.
- “Digital Dinosaurs & Diseases: from *Archaeopteryx* to Zika.” Invited keynote speaker. Undergraduate Research Conference. University of South Florida, Tampa, FL. 2017.
- “Digital Dinosaurs.” Invited speaker. Tampa Bay Fossil Club. Tampa, FL. 2017.
- “Digital Dinosaurs & Diseases: from *Archaeopteryx* to Zika.” Invited speaker. Dean’s Advisory Council. University of South Florida, Tampa, FL. 2017.
- “Digital Science: from *Archaeopteryx* to Zika.” Invited speaker. Emerging Explorer award presentation. National Geographic Society Explorers Festival. National Geographic Headquarters. Washington, DC. 2017. [[video](#)]
- “*Archaeopteryx* and the evolution of flying dinosaurs.” Invited keynote speaker. John H. Ostrom Symposium Series. Yale University, New Haven, CT. 2017.
- “Evolution of the archosaurian shoulder joint and the flight stroke of *Archaeopteryx*.” Invited symposium speaker. Society of Vertebrate Paleontology conference, Salt Lake City, UT, 2016.
- “Swinging for the fences.” Keynote speaker. Administrators Conference on Education, Albuquerque, NM, 2016.
- “A novel joint surface approach for studying skeletal evolution and motion.” International Congress of Vertebrate Morphology, Washington, DC, 2016.
- “Diseases & Dinosaurs.” Invited speaker. National Geographic Closer Look presentation. National Geographic Headquarters. Washington, DC, 2016.
- “Evolution of the archosaurian shoulder joint and the flight stroke of *Archaeopteryx*.” PhD dissertation defense. Brown University, Providence RI, 2016.
- “The 3D *Archaeopteryx* Project.” Society for Integrative and Comparative Biology, Division of Vertebrate Morphology regional meeting, University of Massachusetts Dartmouth, North Dartmouth, MA, 2015.
- “Imagining the Prehistoric.” Invited speaker. Nerd Nite, Providence, RI, 2015.
- “*Archaeopteryx* in 4D.” Invited symposium speaker. Society of Vertebrate Paleontology conference, Berlin, 2014.
- “Imagining the Prehistoric.” Science Communication Research Social, Brown University, 2014.
- “Imagining the Prehistoric.” Invited symposium speaker. National Geographic Society Explorers Symposium. National Geographic Headquarters. Washington, D.C., 2014.
- “*Archaeopteryx* and the evolution of the archosaur shoulder.” Society for Integrative and Comparative Biology, Division of Vertebrate Morphology regional meeting, Yale University, New Haven, CT, 2013.
- “Back in black: new evidence on the color and nature of the isolated *Archaeopteryx* feather.” International Congress of Vertebrate Morphology, Barcelona, Spain, 2013.
- “Back in black: new evidence on the color and nature of the isolated *Archaeopteryx* feather.” Society for Experimental Biology annual conference, Valencia, Spain, 2013.
- “*Archaeopteryx* feather color and mummified dinosaur skin.” Invited speaker. Geology Department, Brown University, Providence, RI, 2013.
- “A biologically-based GIS model for predicting outbreaks of mosquito-borne viral diseases.” Society for Integrative and Comparative Biology Annual Meeting, San Francisco, CA, 2013.
- “Back in black: new evidence on the color, ultrastructure, and nature of the isolated *Archaeopteryx* fossil feather.” University of Rhode Island Graduate Student Conference, Kingston, RI, 2012.
- “Back in black: new evidence on the color, ultrastructure, and nature of the isolated *Archaeopteryx* fossil feather.” Invited speaker. Brown University public forum, Providence, RI, 2012.
- “Back in black: new evidence on the color, ultrastructure, and nature of the isolated *Archaeopteryx* fossil feather.” Society for Integrative and Comparative Biology annual meeting, Charleston, SC, 2012.
- “Of bugs and birds: from vector-borne disease models to the color of flying dinosaur *Archaeopteryx*.” Invited speaker. BioMed Interdisciplinary Graduate Seminar Series, Brown University, Providence, RI, 2011.
- “Black feather color in *Archaeopteryx*.” Society of Vertebrate Paleontology conference, Las Vegas, NV, 2011.
- “Of bugs and birds: from ecological disease models to the color of *Archaeopteryx*.” Ecology & Evolutionary Biology departmental seminar, Brown University, Providence, RI, 2011.
- “What I did on my summer vacation at Google / ‘Search and Employ.’” Google, Mountain View, CA, 2009.
- “GoogLEcology and ROCnroll.” Google, Mountain View, CA. 2009.

