ADAM N ROUNTREY

Research Museum Collection Manager
University of Michigan Museum of Paleontology
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EDUCATION / ACADEMIC POSITIONS

Research Museum Collection Manager, University of Michigan (2013-present)

Research Assistant Professor, University of Western Australia (2012-2013)

Postdoctoral Scholar, University of Michigan (2009-2012)

PhD, Geology (2009) – University of Michigan "Life Histories of Juvenile Woolly Mammoths from Siberia: Stable Isotope and Elemental Analyses of Tooth Dentin"

MS, Geology (2006) – University of Michigan

BS (magna cum laude), Environmental Studies, (2003) – Randolph-Macon College

PUBLICATIONS (* = student paper)

D'Andrea, A., **et al.** (2022) Copyright and Legal Issues Surrounding 3D Data. In: Moore, J, **Rountrey, A**., Scates Kettler, H. (eds.), *3D Data Creation to Curation: Community Standards for 3D Data Preservation*. Association of College and Research Libraries, Chicago, Illinois, pp. 205—257.

Moore, J, **Rountrey, A.**, Scates Kettler, H. (Eds.). (2022) *3D Data Creation to Curation: Community Standards for 3D Data Preservation*. Association of College and Research Libraries, Chicago, Illinois.

Martin, R.A., **et al.** (2021) Fluctuation of body mass in cotton rats and pocket gophers during the late Cenozoic in the Meade basin of Kansas: possible influence of the Huckleberry Ridge Ash-fall. *Historical Biology* 34(6):983-994.

Moore, J., **Rountrey, A.**, Scates Kettler, H. (2019). CS3DP: Developing Agreement for 3D Standards and Practices Based on Community Needs and Values. In Grayburn, J., Lischer-Katz, Z., Golubiewski-Davis, K., Ikeshoji-Orlati, V. (Eds.), *3D/VR in the Academic Library: Emerging Practices and Trends*. Council on Library and Information Resources. Arlington, Virginia.

*Ong, J.L., **et al.** (2018). A boundary current drives synchronous growth of marine fishes across tropical and temperate latitudes. *Global Change Biology* 24(5):1894-1903. DOI: 10.1111/gcb.14083.

Holen, S.R., **et al.** (2018). Broken bones and hammerstones at the Cerutti Mastodon site: a reply to Haynes. *PaleoAmerica* 4(1):8-11.

Holen, S.R., **et al.** (2018). Reply to Ferraro, J.V, et al. Contesting early archaeology in California. *Nature* 544:E3. DOI: 10.1038/nature25166.

Holen, S.R., **et al.** (2017). Disparate Perspectives on Evidence from the Cerutti Mastodon Site: A Reply to Braje et al. *PaleoAmerica* DOI: 10.1080/20555563.2017.1396836.

Grigoriev, S.E., Fisher, D.C., Obada, T., Shirley, E.A., **Rountrey, A.N.**, et al. (2017). A woolly mammoth (*Mammuthus primigenius*) carcass from Maly Lyakhovsky Island (New Siberian Islands, Russian Federation. *Quaternary International,* 445:89-103.

*Cherney, M.D., Fisher, D.C., **Rountrey, A.N.**, (2017). Tusk pairs in the Ziegler Reservoir mastodon (*Mammut americanum*) assemblage: Implications for site taphonomy and stratigraphy. *Quaternary International,* 443A:168-179.

Holen, S.R., **et al.** (2017). A 130,000-year-old archaeological site in southern California, USA. *Nature* 544(7651):179.

*Ong, J.L., **Rountrey, A.N.**, Marriott, R.J., Newman, S.J., Meeuwig, J.J., Meekan, M.G. (2017). Cross-continent comparisons reveal differing environmental drivers of growth of the coral reef fish, *Lutjanus bohar*. *Coral Reefs* 36:195.

*Ong, J.J.L., **Rountrey, A.N.**, Zinke, J., Meeuwig, J.J., Grierson, P.F., O'Donnell, A.J., Newman, T.J., Lough, J.M., Trougan, M., Meekan, M.G. (2016). Evidence for climate-driven synchrony of marine and terrestrial ecosystems in northwest Australia. *Global Change Biology*, 22(8):2776-2786.

*Ong, J.J.L., **Rountrey, A.N.**, Meeuwig, J.J., Newman, S.J., Zinke, J., Meekan, M.G. (2015). Contrasting environmental drivers of adult and juvenile growth in a marine fish: implications for the effects of climate change. *Nature – Scientific Reports* 5, article 10859.

*Nguyen, H.M., **Rountrey, A.N.**, Meeuwig, J.J., Coulson, P.G., Feng, M., Newman, S., Waite, A.M., Wakefield, C., Meekan, M.G. (2015). Growth of a deep-water, predatory fish is influenced by the productivity of a boundary current system. *Nature - Scientific Reports* 5, article 9044.

Fisher, D.C., Cherney, M.D., Newton, C., **Rountrey, A.N.**, Calamari, Z.T., Stucky, R.K., Lucking, C., Petrie, L. (2014). Taxonomic overview and tusk growth analyses of Ziegler Reservoir proboscideans. *Quaternary Research* 82(3):518–532.

Miller, I.A., Pigati, J.S., Anderson, R.S., Johnson, K.R., Mahan, S.A, **et al.** (2014). Summary of the Snowmastodon Project Special Volume: A high-elevation, multi-proxy biotic and environmental record of MIS 6–4 from the Ziegler Reservoir fossil site, Snowmass Village, Colorado, USA. *Quaternary Research* 82(3):618–634.

Fisher, D.C., Shirley, E.A., Whalen, C.D., Calamari, Z.T., **Rountrey, A.N.**, Tikhonov, A.N., Buigues, B., Lacombat, F., Grigoriev, S., Lazarev, P.A. (2014). X-ray computed tomography of two mammoth calf mummies. *Journal of Paleontology* 88(4).

Rountrey, A.N., Coulson, P.G., Meeuwig, J.J., Meekan, M. (2014). Water temperature and fish growth: otoliths predict growth patterns of a marine fish in a changing climate. *Global Change Biology* 20(8):2450–2458.

Zinke, J., **Rountrey, A.N.**, Feng, M., Xie, S.-P., Dissard, D., Rankenburg, K., Lough, J.M., McCulloch, M.T. (2014).Corals record long-term Leeuwin current variability including Ningaloo Niño/Niña since 1795. *Nature Communications* 5, 3607, doi:10.1038/ncomms4607.

Rountrey, A.N., Fisher, D.C., Tikhonov, A.N., Kosintsev, P.A., Lazarev, P.A., Boeskorov, G., Buigues, B. (2012). Early tooth development, gestation, and season of birth in mammoths. *Quaternary International* 255:196–205.

Fisher, D.C., Tikhonov, A.N., Kosintsev, P.A., **Rountrey, A.N.**, Buigues, B., van der Plicht, J. (2012). Anatomy, death, and preservation of a woolly mammoth calf, Yamal Peninsula, Northwest Siberia. *Quaternary International* 255:94–105.

van Geel, B., Fisher, D.C., **Rountrey, A.N.**, van Arkel, J., Duivenvoorden, J.F., Nieman, A.M., van Reenen, G.B.A., Tikhonov, A.N., Buigues, B., Gravendeel, B. (2011). Palaeo-environmental and dietary analysis of intestinal contents of a mammoth calf (Yamal Peninsula, northwest Siberia). *Quaternary Science Reviews* 30:3935–3946.

Simmer, J. P., Papagerakis, P., Smith, C. E., Fisher, D. C., **Rountrey, A. N.**, Zheng, L., Hu, J. C-C. (2010). Regulation of dental enamel shape and hardness. *Journal of Dental Research* 89:1024–1038.

Fisher, D. C., **Rountrey, A. N.**, Beld, S.G., Fox, D.L., Gohman, S., Tikhonov, A. N., Mol, D., Buigues, B., Boeskorov, G.G., Lazarev, P. A. 2010. Life history of the Yukagir mammoth. In: Lazarev, P., Boeskorov, G., Maschenko, E. (eds.), *Proceedings of the IV International Mammoth Conference*, Institute of Applied Ecology of the North, Yakutsk, Yakutia, Russian Federation, pp. 54—63.

Rountrey, A. N., Fisher, D. C., Mol, D., Buigues, B., Tikhonov, A. N., Lazarev, P. A., Boeskorov, G. G. 2010. Stable isotope time-series in juvenile mammoth tusks. In: Lazarev, P., Boeskorov, G., Maschenko, E. (eds.), *Proceedings of the IV International Mammoth Conference*, Institute of Applied Ecology of the North, Yakutsk, Yakutia, Russian Federation, pp. 235—243.

Fisher, D. C., Beld, S. G., **Rountrey, A. N.** 2008. Tusk record of the North Java mastodon. In: Allmon, W.D., Nester, P.L. (Eds.), Mastodon Paleobiology, Taphonomy, and Paleoenvironment in the Late Pleistocene of New York State: Studies on the Hyde Park, Chemung, and Java sites. *Palaeontographica Americana* 61:399–445.

Rountrey, A. N., Fisher, D. C., Vartanyan, S., Fox, D. L. 2007. Carbon and nitrogen isotope analyses of a juvenile woolly mammoth tusk: Evidence of weaning. *Quaternary International* 169-170:166–173.

Wood, A. R., Zelditch, M. L., **Rountrey, A. N.**, Eiting, T. P., Sheets, H. D., Gingerich, P. D. 2007. Multivariate stasis in the dental morphology of the Paleocene-Eocene condylarth *Ectocion*. *Paleobiology* 33:248-260.

Rountrey, A. N., Fisher, D. C., Vartanyan, S., Fox, D. L. 2005. Stable isotope analysis of a juvenile woolly mammoth (*Mammuthus primigenius*) tusk from Wrangel Island. In: Agenbroad, L.D., Symington, R.L. (eds.), *Second International World of Elephants Congress, Short Papers and Abstracts*, Mammoth Site of Hot Springs, South Dakota, pp. 148-151.

CONFERENCE ABSTRACTS

*Shirley, E.A., et al. (2022). Tusk growth and preservational setting of an LGM mammoth at the margin of the ice sheet. Society of Vertebrate Paleontology November 2022 Program Guide (82nd Annual Meeting).

*Shirley, E.A. et al. (2019). Souble-scanning and Gaussian blurring improve quality of paleontological CT data: experiments with two mammoth tusks. Society of Vertebrate Paleontology October 2019 Meeting Program (79th Annual Meeting).

Bahameem, A.A., **et al.** (2018). 3D Modeling of an *Elephas recki* Skeleton from the Pleistocene of Northwestern Saudi Arabia. Society of Vertebrate Paleontology October 2018 Abstracts of Papers 78th Annual Meeting.

Rountrey, A.N., Levine, M.S. (2018). Community standards for 3D data preservation: ownership of 3D data. Society of Vertebrate Paleontology October 2018 Abstracts of Papers 78th Annual Meeting.

Wilson, J.A., Vander Weele, D.J., **Rountrey, A.N.** (2018) Cross-sectional geometry of the fore and hind limbs of *Jobaria tiguidensis* and the evolution of mesaxony and entaxony in sauropods. Society of Vertebrate Paleontology October 2018 Abstracts of Papers 78th Annual Meeting.

Johnston, S., Minnebo, A., **Rountrey, A.**, Sanders, W. (2018). Trading Places: Solutions to Challenges in Moving a Large Vertebrate Paleontology Collection. Association for Materials & Methods in Paleontology 2018 Annual Meeting.

Fisher, D.C., **Rountrey, A.N.** (2017). 3D Surface Models in Paleontology and Archaeology. Inaugural Digital Data in Biodiversity Research Conference 5-6 June 2017.

*Minnebo, A., **Rountrey, A.**, Sanders, W. (2016). Thinking inside the box: Construction of inexpensive, lightweight storage containers for medium-sized fossil specimens. Society of Vertebrate Paleontology Annual Meeting 2016.

Rountrey, A.N., Coulson, P.G., Feng, M., Meekan, M., Meeuwig, J.J., Newman, S.J., Nguyen, H.M., Waite, A.M., Wakefield, C.B. (2013). Otolith chronologies from the southeastern Indian Ocean reveal the effects of temperature and current flow on the growth of fishes in a boundary current ecosystem. 3rd International Sclerochronology Conference Programme and Abstracts.

Fisher, D.C., Cherney, M.D., **Rountrey, A.N**, Calamari, Z.T. 2013. Paleobiology of Snowmass Proboscideans (Pleistocene, Colorado). Geological Society of America Abstracts with Programs 45(7).

Whalen, C.D., Shirley, E., Fisher, D.C., **Rountrey, A.N.**, Calamari, Z.T., Tikhonov, A.N., Buigues, B., Grigoriev, S., Holmes, C.E., Lacombat, F. 2012. 3D visualization and analysis of CT imaging in two mammoth calves. Geological Society of America Abstracts with Programs 44(7):370.

Rountrey, A.N., Fisher, D.C., Lee, W. 2011. Synchrotron X-ray phase-contrast imaging of mammoth dentin. Geological Society of America Abstracts with Programs 43(5): 616.

Rountrey, A.N., Fisher, D.C. 2010. An evaluation of pretreatment methods for stable isotope analysis of dentin carbonate. Journal of Vertebrate Paleontology, SVP Program and Abstracts Book 2010: 154A.

Rountrey, A.N., Fisher, D.C., Tikhonov, A.N., Kosintsev, P.A., Lazarev, P.A., Boeskorov, G., Buigues, B. 2010. Dentin microstructure, stable isotopes, and elemental ratios in the teeth of two mummified woolly mammoth calves. Quaternaire, Hors série, 3(Abstracts of the Vth International Conference on Mammoths and Their Relatives):70—71.

Fisher, D., **Rountrey, A.**, Smith, K., Fox, D. 2010. Stable isotope time series and dentin increments elucidate Pleistocene proboscidean paleobiology. Geophysical Research Abstracts 12:EGU2010-7081-1.

Fisher, D.C., Tikhonov, A.N., Kosintsev, P.A., **Rountrey, A.N.**, Buigues, B., van der Plicht, H. 2010. Anatomy, death, and preservation of a woolly mammoth calf, Yamal Peninsula, Northwest Siberia. Quaternaire, Hors série, 3(Abstracts of the Vth International Conference on Mammoths and Their Relatives):54—55.

Van Geel, B., Guthrie, R.D., Fisher, D.C., Altmann, J.G., Broekens, P., Bull, I.D., Gill, F.L., Gravendeel, B., Jansen, B., Nieman, A.M., **Rountrey, A.N.**, van Reenen, G.B.A. 2010. Paleoecological studies of mammoth and mastodon feces and the evidence for coprophagy. Quaternaire, Hors série, 3(Abstracts of the Vth International Conference on Mammoths and Their Relatives):98—99.

Fisher, D., **Rountrey, A.**, Tikhonov, A., Buigues, B., van der Plicht, H. 2009. Life history of a remarkably preserved woolly mammoth calf from the Yamal Peninsula, northwestern Siberia. Journal of Vertebrate Paleontology, SVP Program and Abstracts Book 2009: 96A.

Rountrey, A., Fisher, D., Haynes, G., Vartanyan, S. 2009. Compositional variation in the tusk dentin of a juvenile African elephant and a juvenile woolly mammoth: Seasonal patterns and weaning. Geological Society of America Abstracts with Programs 41(7): 66.

Fisher, D., **Rountrey, A.**, Tedor, R. 2008. Paleobiological analysis of a Holocene mammoth tusk, St. Paul, Pribilof Islands, Bering Sea. Journal of Vertebrate Paleontology: Abstracts of Papers for the 68th Annual Meeting 28 (Supplement to Number 3): 77A.

Rountrey, A., Fisher, D., Haynes, G. 2008. Growth increment and stable isotope analyses of a juvenile African elephant tusk: An interpretive reference for studies of juvenile woolly mammoth tusks. Journal of Vertebrate Paleontology: Abstracts of Papers for the 68th Annual Meeting 28(Supplement to Number 3): 134A.

Rountrey, A., Fisher, D., Mol, D., Buigues, B., Tikhonov, A., Lazarev, P., Boeskorov, G. 2007. Stable isotope time-series in juvenile mammoth tusks. IV International Mammoth Conference, Yakutsk, Sakha Republic, Russian Federation.

Rountrey, A., Fisher, D., Mol, D., Lazarev, P., Boeskorov, G. 2007. Prenatal to early juvenile woolly mammoth life history as revealed by structural and compositional analyses. Journal of Vertebrate Paleontology: Abstracts of Papers for the 67th Annual Meeting 27(Supplement to Number 3):136A.

Rountrey, A., Fisher, D. 2006. Quantitative methods for extraction of life history data from proboscidean tusk growth records. Journal of Vertebrate Paleontology: Abstracts of Papers for the 66th Annual Meeting 26(Supplement to Number 3): 116A–117A.

Rountrey, A. N., Fisher, D.C., Vartanyan, S., Fox, D. L. 2005. Carbon and nitrogen isotope evidence of weaning in a juvenile woolly mammoth. Journal of Vertebrate Paleontology: Abstracts of Papers for the 65th Annual Meeting 25(Supplement to Number 3): 107A.

Wood, A., Desilva, J., Eiting, T.**, Rountrey, A.**, Whitlock, J., Zeldich, M. 2005. Multivariate tests of evolutionary mode in *Ectiocion* teeth. Journal of Vertebrate Paleontology: Abstracts of Papers for the 65th Annual Meeting 25(Supplement to Number 3): 132A.

GRANTS/FUNDING

- 2017	National Leadership Grant (IMLS) with WUSTL and University of Iowa, “Community Standards for 3D Data Preservation”- $100k
- 2017	Funding to support digitization and improvements to the UM Museum of Paleontology Paleobotany and Vertebrate Paleontology catalogs (UM internal)- $17k
- 2016	Funding to support digitization of the UM Museum of Paleontology Paleobotany Catalog (UM internal)- $7k.
- 2012	UWA Research Collaboration Award, Reconstructing the effects of climate on fish growth in space and time- $8k
- 2009-2011	NIH R21, Developmental Dynamics of Enamel Formation (co-authored proposal) - $232k
- 2008	Rackham Predoctoral Fellowship ~$28K
- 2004-2006	Turner Awards in Earth Science and GSA Graduate Student Research Grant ~$9K

HONORS & AWARDS

- 2020	Kay Beattie Outstanding Employee Award (UM)
- 2011	Governor’s Award for Historic Preservation (Riley Mammoth Site)
- 2010	John Dorr Graduate Academic Achievement Award (UM)

- 2008-2009 Rackham Predoctoral Fellowship (UM)
- 2008 Phi Kappa Phi Honor Society
- 2007 Ermine Cowles Case Student Award (UM)
- 2006 Best Presentation: Michigan Geophysical Union
- 2003-pres Phi Beta Kappa Society

TEACHING EXPERIENCE

-2022 UROP mentor (undergraduate research experience- Univ. Michigan) projects- 1) Development of archival photographic documentation procedures and digital asset management at the Museum of Paleontology 2) Digital reconstruction of an ancient whale, *Basilosaurus isis* 3)Curatoing 170 years of science at the U-M Museum of Paleontology Library and Archive

-2022 Museum Studies Program undergraduate internship mentor- Beatrix Dergis

-2021-present Dissertation committee member: Ethan Shirley (Paleontology- Univ. Michigan).

-2021 Museum Studies Program graduate capstone project mentor- Revitalizing the RMC: Articulating a Shared, Collective Vision of the Research Museums Center to the Michigan Academic Community, Albert Cavallaro, Angie Feak, Veronica Williamson

2020 Museum Studies Program undergraduate internship mentor- Lili Calderon-Moscrip

- 2013-2017 Co-supervisor: Joyce Ong (Marine Science Ph.D. – Univ. Western Australia)

- 2013 Unit coordinator (lead instructor)- Biological Oceanography (Univ. Western Australia)
  - -Designed, prepared and presented PowerPoint lectures
  - -Organized course content and logistics
  - -Supervised two teaching assistants and a technician
  - -Supervised laboratory exercises
  - -Organized and lead a ship-based field trip for 50 students

- 2012-2015 Dissertation committee member: Michael Cherney (Paleontology- Univ. Michigan).

- 2012-2013 Supervised master's internship: "Establishing biochronologies for tropical fishes to understand climate change" (Univ. Western Australia)

- 2012 Supervised honors thesis: "Evaluating the effects of climate change on hapuku (*Polyprion oxygeneios*) in western Australian waters using an otolith increment chronology" (Univ. Western Australia)

- 2006-2008 Graduate Student Instructor- Invertebrate Paleontology Laboratory (Univ. Michigan)
  - -Designed, prepared and presented PowerPoint lectures
  - -Supervised laboratory exercises
  - -Organized and curated teaching specimens
  - -Developed online specimen photo database to facilitate teaching and studying
  - -Led overnight field trip

- 2005 Graduate Student Instructor- Introductory Geology Laboratory (Univ. Michigan)
  - -Designed, prepared and presented lab and discussion section lectures
  - -Supervised laboratory exercises

SERVICE

-2022-present	Co-Organizer GLAM-IT Community of Practice (Univ. Michigan)- working group discussing IT issues emerging in galleries, libraries, archives, and museums
-2022-present	US Federal Collections Committee- Society for the Preservation of Natural History Collections
- 2022-present	NoCTURN (Non-clinical Computed Tomography Users Research Network) Reuse workgroup
- 2020-present	Audubon Core 3D Imagery and Data task group
- 2019-present	Specify Consortium (database software) Science/User Advisory Committee- Chair 2020-
- 2019-2020	UM Research Museums Center Integrated Pest Management Committee
- 2018	Invited speaker at Library of Congress Born to be 3D: Digital Stewardship of Intrinsic 3D Data forum
- 2017-present	UM Research Museums Center Joint Collections Operations Committee (developing policies for pest management, security, access, emergency management, and regulatory compliance)- Chair 2021-
- 2017-present	UM Research Museums Center Environment and Outreach Committee (developing exhibits and outreach programs)
- 2016	Co-presenter at UM Museum of Natural History Science Café on the Bristle Mammoth
-2013-present	Identified fossils at the UM Museum of Natural History annual ID day
- 2012-2013	Facilitated and organized the scientific involvement of UWA faculty in the Shell Prelude Site Operational and Scientific Monitoring Program (oil spill response and research contract)
- 2012-2013	Guest Curator for “Tremendous Tuskers” at the Georgia Southern University Museum
- 2011	Represented Museum of Paleontology at University of Michigan President’s Advisory Group
- 2011-present	Reviews for National Geographic RCEG, Quaternary International, Ecological Indicators, and PLOS One
- 2007-present	Numerous tours/presentations for visiting student groups (K-12 and university) and general public, University of Michigan

PUBLIC OUTREACH

Invited Lectures

-2018	“3D Data Preservation: Museum Perspective”, Foundations of digital curation class (UMSI 667)
-2018	Contemporary Trends in Information Science: Digital Curation in Action, UM QuasiCon
- 2017	Photogrammetry of Collections, UM Collections Committee

- 2016 “Science Café: A Mammoth Find”, UM Museum of Natural History

- 2013 “Tree-ring methods applied to fish otolith studies in coastal Western Australia”, Institute of Advanced Studies, University of Western Australia.

- 2012 “Biological recording structures in fish and woolly mammoths: otoliths and teeth as indicators of climate response and individual ‘life history’”, School of Environmental Systems Engineering and the Oceans Institute Seminar Series, University of Western Australia

- 2011 “Lyuba: A Spectacular Baby Woolly Mammoth from Northwest Siberia”, University of Michigan IDEA Institute

- 2011 “Stable Isotope Time Series from Teeth in the Study of Mammoth Life History”, FBI Laboratory, Quantico, VA

- 2011 “Mammoths and Mastodons in the Great Lakes Region”, Lakeshore Museum, Muskegon, MI

- 2011 “Understanding Mammoths and Mastodons”, Anchorage Museum, Anchorage, AK

Media Appearances/other

- 2019 AAM Blog- “Making a Museum in the Age of 3D Digital Models”

- 2014 UM News (segment on UM Online Repository of Fossils)

- 2010 Daily Planet (segment on mammoth discovery in Michigan), Discovery Channel Canada

- 2009 “Waking the Baby Mammoth”, National Geographic Channel

- 2008 “Baby Mammoth”, Discovery Channel

SKILLS AND RESEARCH EXPERIENCE

Programming: R, Python, Java, ImageJ, JavaScript, three.js, MySQL, PHP, Arduino

-Created ImageJ plugin “IncMeas” (Java) for measuring growth increments along polyline transects. The plugin is currently in use at the University of Michigan, University of Western Australia, Murdoch University, University of Utah, Kent State University,and the University of Manitoba.

-Developed WebGL-based interactive 3D object viewer and “BonePicker” for the University of Michigan Online Repository of Fossils (UMORF) using JavaScript and the three.js libraries.

-Created and manage database back end (MySQL) and dynamic pages (PHP/JavaScript) for UMORF website.

-Developed a hands-free, voice recognizing web app for rapid collection inventory work.

-Highly proficient (14+ years of experience) with **R** Statistical Computing Package
-large data management/organization/scripting, time series (dendrochronology methods, ARIMA models), generalized linear and additive mixed effects models, data mining (boosted regression trees, ANN), model selection, principal components analysis, multidimensional scaling, archetypal analysis, mapping (geospatial), three-dimensional surface mesh calculations, agent-based simulations, geometric morphometrics

-wrote several R scripts used in workbook for “Geometric Morphometrics for Biologists” (Zelditch et al., 2012)
-wrote script to interface with GeoCommunicator and automatically import boundary coordinates from the Public Land Survey System to UMMP specimen database

-Agent-based simulation in Java/Repast (modeling appositional growth)

GIS/Remote Sensing:

-Geospatial processing/analysis in R, ArcMap, QGIS, Beam VISAT, and SeaDAS (7)

-Processing large data sets (spatial time series) in R

3D Modeling and visualization

-Analysis, visualization, and segmentation of X-ray computed tomography and magnetic resonance data using Amira, VGStudio Max, and ImageJ

-Creation of 3D surface meshes from solid objects using photogrammetry (3DSOM, 123D Catch, VisualSFM, CMPMVS, Agisoft, RealityCapture), contact digitizers (MicroScribe), laser scanning digitizers (HandyScan, Cyberware), and Kinect. Trained students.

-Operation and routine maintenance of Nikon XTH 225 micro CT scanner for creation of x-ray tomographic data

-Designed and constructed light box and Arduino-based automated photogrammetry system for UM Museum of Paleontology. Trained students in use.

-Editing and rendering digital models using 3D Studio Max, Blender, Meshlab. Trained students in use.

-Developed WebGL-based interactive 3D object viewer and “BonePicker” for the University of Michigan Online Repository of Fossils (UMORF) using JavaScript and the three.js libraries.

-Helped design and plan exhibits at the UM Museum of Natural History using 3D visualizations

-Produced still renderings and animations from 3D models for UM Museum of Natural History exhibits

-Responsible for operation of the UM Museum of Paleontology PrintrBot Plus and Gigabot 3+ XLT 3D printers.
-Experience with Cura, Simplify3D, Netfabb, and Repetier Server
-Produced models and 3D-printed parts for many exhibits at the UM Museum of Natural History

Electronics

-Designed and built an automated photogrammetry system utilizing an Arduino, stepper motor, and camera control interface

-Created an electronic temperature and humidity monitoring/archiving system and website using Arduino, sensors, html, javascript, MySQL, and PHP

-Designed and built a large hot-wire foam cutter for use in constructing specimen cradles.

Image Analysis: OPTIMAS- including scripting, ImageJ- including plugin design and programming

Museum Legal:

-Worked with UM General Counsel, government agencies, and others regarding permits, repository agreements, donations, intellectual property rights, and licensing

-Drafted contracts

-Designed UM Museum of Paleontology accession process

Museum Collection Move Logistics:

-Helped design new UM Museum of Paleontology collection storage facilities and collections operations

-Managed the inventory and movement of all UM Museum of Paleontology vertebrate and paleobotany specimens to new storage facilities

Microanalysis:

-Stable isotope (C,O,N) microsampling and sample pretreatment (apatite/collagen)

-including design and implementation of an image enhancement/mapping method for precise, high-resolution, serial sampling of tooth dentin

-ICP-MS (Finnigan Element- solution and laser ablation) operation, data processing, and sample preparation

-Thin section production (tusks and other teeth, fish otoliths)

-designed method for registering physical thin section planes to microCT data

-Managed a wet lab used to prepare mineralized biological samples for isotopic and elemental analysis

-taught students preparation methods

Miscellaneous software:

-Visual Fox Pro

-KE Emu

-Specify (database)

-Microsoft Word, PowerPoint, Excel,

-Adobe Photoshop, Illustrator

-Fusion 360

-Morphometrics: IMP, TPSDig, R

Other:

-Molding and casting specimens using a variety of media (silicone, polyurethane, epoxy, polyester), as well as reproduction of non-moldable specimens using microCT and 3D printing (13+ years)

-taught students molding and casting

-Authorized UM-LSA Machine Shop user – experience with vertical mill, band saw, and engine lathe

-Experience with Epilog Laser Cutter/Engraver

-Experience designing and building with 80/20 extruded aluminum
    -Designed and built adjustable 80/20 shipping crate for large specimen transfers
    -Designed and built adjustable 80/20 skull mount for Bristle Mammoth Exhibit at UMMNH

-Experience in remote fieldwork conditions (Siberian Arctic, 5 field seasons)

-Experience in archaeological excavation (Michigan, 2 field seasons)

-PADI Open Water Diver (SCUBA)

-Amateur Radio Operator (FCC General class)

-Apply First Aid certificate (Australia- HLTFA301C)

REFEREES

Daniel C. Fisher (Ph.D. Supervisor)
Claude W. Hibbard Collegiate Professor of Paleontology
Director, Museum of Paleontology
Museum of Paleontology
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