

Curriculum Vitae
April Isch Neander

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Organismal Biology and Anatomy
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Education

- M.S. Biomedical Visualization, University of Illinois at Chicago, 2012
Graduate Research Project: Visualizing the Parasagittal Step Cycle of *Kryptobaatar dashzevegi*, a Multituberculata with Transitional Shoulder Girdle.
- B.A. Biology, University of Vermont, 2010
Minor in Studio Art

Awards

- 2016 Lanzendorf PaleoArt Prize for Computer Imaging and Animation.
Haramiyavia: Publicity Video for Mandible Reconstruction
Society of Vertebrate Paleontology
- 2019 Lanzendorf PaleoArt Prize for Scientific Illustration
Vilevolodon 2942 Teeth
Society of Vertebrate Paleontology
- 2021 Palaeoart: judges' choice
Triassic: Lystrosaurus and Thrinaxodon
Triassic Vertebrate Paleontology Meetup (TVPM) 2021

Peer-Reviewed Scientific Publications

- Zhou, C. F., Bhullar, B. A. S., **Neander, A. I.**, Martin, T., & Luo, Z. X. (2019). New Jurassic mammaliaform sheds light on early evolution of mammal-like hyoid bones. **Science**, 365(6450), 276-279.
- Meier, M. M. M., ... Neander, A. I., et al. (2018). Cosmic History and a Candidate Parent Asteroid for the Quasicrystal-bearing Meteorite Khatyrka. **Earth and Planetary Science Letters** 490:122-131. (A. I. Neander among 11 authors)
- Meng, Q. J., Grossnickle, D. M., Liu, D., Zhang, Y. G., **Neander, A. I.**, Ji, Q., & Luo, Z. X. (2017). New gliding mammaliaforms from the Jurassic. **Nature**, 548(7667), 291.
- Luo, Z. X., Meng, Q. J., Grossnickle, D. M., Liu, D., **Neander, A. I.**, Zhang, Y. G., & Ji, Q. (2017). New evidence for mammaliaform ear evolution and feeding adaptation in a Jurassic ecosystem. **Nature**, 548(7667), 326.
- Girard, R., Zeineddine, H. A., Orsbon, C., ... Neander, A. I., ... Luo, Z.-X., Awad, I. (2016). Micro-computed tomography in murine models of cerebral cavernous malformations

as a paradigm for brain disease. **Journal of Neuroscience Methods**, 271, 14-24. (A. I. Neander among 20 authors of this paper)

Meier, M. M., Bindi, L., Busemann, H., Heck, P. R., **Neander, A. I.**, Maden, C., ... & Wieler, R. (2016, March). Cosmic-ray exposure and shock degassing ages of the quasicrystal-bearing Khatyrka meteorite. In **Lunar and Planetary Science Conference** (Vol. 47, p. 1226).

Meier, M. M. M., Bindi, L., Busemann, H., Heck, P. R., **Isch Neander, A.**, Maden, C., ... & Wieler, R. (2015). Shedding Light on the Origin of the Quasicrystal-Bearing Khatyrka Meteorite. **LPI Contributions**, 1856, 5035.

Luo, Z. X., Meng, Q. J., Ji, Q., Liu, D., Zhang, Y. G., & **Neander, A. I.** (2015). Evolutionary development in basal mammaliaforms as revealed by a docodontan. **Science**, 347(6223), 760-764.

Art Publications and Exhibits

Art and Illustrations in Other Peer-Reviewed Publications

Jones, K. E., Angielczyk, K. D., Polly, P. D., Head, J. J., Fernandez, V., Lungmus, J. K., ... & Pierce, S. E. (2018). Fossils reveal the complex evolutionary history of the mammalian regionalized spine. **Science**, 361(6408), 1249-1252.

Schultz, J. A., Zeller, U., & Luo, Z. X. (2017). Inner ear labyrinth anatomy of monotremes and implications for mammalian inner ear evolution. **Journal of morphology**, 278(2), 236-263.

Schultz, J. A., Bhullar, B. A. S., and Z.-X. Luo. (2017). Re-examination of the Jurassic mammaliaform *Docodon victor* by computed tomography and occlusal functional analysis. **Journal of Mammalian Evolution**. (doi.org/10.1007/s10914-017-9418)

Anthwal, N. Urban, D. J., Luo, Z.-X., Sears, K. E., and Abigail S. Tucker (2017). Meckel's cartilage breakdown offers clues to mammalian middle ear evolution. **Nature Ecology & Evolution**. 1:0093. (DOI: 10.1038/s41559-017-0093)

Chen, M., Z.-X. Luo, and G. P. Wilson. (2017). The postcranial skeleton of *Yanoconodon allini* from the Early Cretaceous of Hebei, China and its implications for locomotor adaptation in eutriconodontan mammals. **Journal of Vertebrate Paleontology**. e1315425 (23 pages) (DOI: 10.1080/02724634.2017.1315425)

Luo, Z. X., Schultz, J. A., & Ekdale, E. G. (2016). Evolution of the Middle and Inner Ears of Mammaliaforms: The Approach to Mammals. In J. A. Clack et al. (editors) **Evolution of the Vertebrate Ear** (pp. 139-174). **Springer Handbooks for Auditory research (Volume 59)**, Springer International Publishing.

Luo, Z. X. (2015). Origin of the mammalian shoulder. In K. P. Dial et al. (Editors) **Great Transformations: Major Events in the History of Vertebrate Life**. The University of Chicago Press, Chicago, Illinois, 167-187.

Chen, M. (2015). Investigating the functional morphology, locomotor diversification, and paleoecology of Mesozoic mammals **Doctoral Dissertation**. Department of Biology, University of Washington.

Luo, Z. X., Gatesy, S. M., Jenkins, F. A., Amaral, W. W., & Shubin, N. H. (2015). Mandibular and dental characteristics of Late Triassic mammaliaform Haramiyavia and their ramifications for basal mammal evolution. *Proceedings of the National Academy of Sciences*, 112(51), E7101-E7109.

Hopson, James A. (2015). Fossils, Trackways, and Transitions in Locomotion. In Dial, Kenneth P., Neil Shubin, and Elizabeth L. Brainerd (Editors). *Great transformations in vertebrate evolution* (pp. 125-141). University of Chicago Press.

Meng, Q. J., Ji, Q., Zhang, Y. G., Liu, D., Grossnickle, D. M., & Luo, Z. X. (2015). An arboreal docodont from the Jurassic and mammaliaform ecological diversification. *Science*, 347(6223), 764-768.

Zhou, C. F., Wu, S., Martin, T., & Luo, Z. X. (2013). A Jurassic mammaliaform and the earliest mammalian evolutionary adaptations. *Nature*, 500(7461), 163-167.

Yuan, C. X., Ji, Q., Meng, Q. J., Tabrum, A. R., & Luo, Z. X. (2013). Earliest evolution of multituberculate mammals revealed by a new Jurassic fossil. *Science*, 341(6147), 779-783.

Art in Exhibits

3D reconstruction of *Haramiyavia* jaw on display at Smithsonian National Museum of Natural History, Washington, D.C. Reopening 2019.

Public Exhibition “Mesozoic Mammals from China,” Beijing Museum of Natural History, Beijing, China. June-July 2018. Visualizations and publicity videos for the BMNH-UChicago scientific publications are shown in this exhibition.

Art & Science Show, University of Chicago, Chicago, IL, 2018

Maiopatagium Glider Scene, accepted to Guild of Natural Science Illustrators Conference Members Exhibition, American Association for the Advancement of Science (AAAS) Art Gallery, Washington, DC, 2018

Docodont Scene, accepted to Guild of Natural Science Illustrators Conference Members Exhibition, Warren Wilson College, Asheville, NC, 2017

Art & Science Show, University of Chicago, Chicago, IL, 2017

Megaconus illustration featured in Cliff Field Gardens Timeline, Seaton, Devon, England. 2015.

Art & Graphics in Notable Media, Print or Online Press

Panciroli, E. (2021). Beasts before us: The untold story of mammal origins and evolution. Bloomsbury Sigma. Chapter illustrations.

Gonçaves, Ingrid (2017, Fall) Mammals Like Us. The University of Chicago Magazine Volume 110 (1): 42-47.

Maiopatagium Glider Scene. (2017). Published in press coverage associated with Meng et al. (2017). Artistic reconstruction of *Maiopatagium* in Jurassic environment.

Foraging Gliding Eleutherodontid. (2017). Published in press coverage associated with Luo et al. (2017). Artistic reconstruction of *Vilevolodon* eating a fruit-like structure.

Brusatte, S., Luo, Z. X. (2016). Ascent of the Mammals. **Scientific American**, June 2016 Issue: 30-35. Centerfold illustrations.

Prothero, D. R. (2016). The Origin and Early Evolution of Mammals. In **The Princeton Field Guide to Prehistoric Mammals** (pp. 20-36). Princeton University Press.

Chang, Kenneth. (2015, November 16). Jawbone in Rock May Clear Up a Mammal Family Mystery. *The New York Times*.

Docodont Scene. (2015). Published in press coverage associated with Luo, Meng, et al. (2015) and Meng et al. (2015). Artistic reconstruction of docodont mammals including *Agilodocodon* and *Docofossor*.

Rugosodon Reconstruction. (2013). Published in press coverage associated with Yuan et al. (2013).

Megaconus Reconstruction. (2013). Published in press coverage associated with Zhou et al. (2013).

Presentations and Workshops

PaleoCT Video Training Course, 2021. Two hour online video training written, recorded, animated, and edited by AI Neander for use in training new users at the UChicago PaleoCT Lab, University of Chicago, Chicago, IL.

Full-day Workshop at 78th Annual SVP Meeting, 2018. "Techniques in Digital Scientific Illustration: A Guide to Improving Workflow."

Scientific Illustration workshop for the University of Chicago Undergraduate Paleontology Club, Chicago, IL, May 2018

Neander, A. I. (2018). *Some Challenges and Solutions to the Needs of Scanning Diverse Natural History Specimens*. Presentation, 4th Annual GE Industrial X-Ray & CT Forum, Cincinnati, OH.

Hurdle, K., & Neander, A. I. (2018). *Lucy and the 3D Printer*. Workshop, Expanding Your Horizons, University of Chicago, Chicago, IL.

Neander, A. I., & Tietjen, K. (2016) *Scientific Illustration: various media in a nutshell*. Lightning talk, Darwinian Cluster Retreat, Chicago, IL.

Professional Experience

Micro-CT

- Experience with GE Phoenix v|tome|x s micro/nano CT at UChicago PaleoCT since 2014
- Initial CT training, Steinmann-Institut für Geologie, Mineralogie und Paläontologie at Universität Bonn, Germany, 2014
- X-ray Computed Tomography (CT) – Advanced Scan Operator/Intermediate Data Analyst, GE Inspection Academy, 2015
- Troubleshooting and maintenance such as rotating targets, changing filaments, and replacing broken parts such as vacuum pump, targets, target holders, etc.

- Research and experiment in new ways to scan natural history specimens
- Train new users of UChicago PaleoCT lab (trained 32 users 2015-2017)
- Wrote and updated lab manual for PaleoCT lab
- Created online training course and resource portal for training new users in the UChicago PaleoCT Lab that includes two hours of video content and quizzes and other content on Canvas
- Administration of CT lab and users including scanning various specimens, safety documentation, billing, ordering parts, troubleshooting technical issues, training new users, and arranging for GE Preventative Maintenance

CT Segmentation

- Experience since 2011
- Mimics, Materialise Training, 2012
- Train student to use Mimics
- Familiar with various CT segmentation softwares including Materialise Mimics and 3-matic, FEI Avizo, VG Studio Max, OsiriX, 3D Slicer, and ORS Dragonfly

Illustration and Animation

- Practiced in watercolor, gouache, oil pastel, figure drawing and other traditional media
- Professional experience with 2D software: Adobe Illustrator (8+ years experience), Adobe Photoshop (14+ years), Affinity Photo and Affinity Designer (2 years)
- Professional experience with 3D software: Autodesk Maya (7 years), Autodesk Meshmixer (4 years), Pixologic Sculpttris (3 years), MeshLab (5 years), Occlusal Fingerprint Analyser (5 years), Blender (4 years)
- Professional experience with video editing software: Adobe After Effects (7 years), Blender (4 years)

3D printing

- 8 years experience with Makerbot Replicator 2
- Create and edit 3D models for printing
- Troubleshooting and maintenance including installing new parts such as the thermocouple, bar mount assembly, fans, gantry, etc.
- Train students on use of Makerbot Replicator 2 and how to prepare models for printing

Professional Affiliations

Student Member Association of Medical Illustrators 2011-2012

Guild of Natural Science Illustrators, 2013-Present

Society of Vertebrate Paleontology, 2014-Present