

# Curriculum Vitae

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## a) Academic Qualifications

Degree	Institution	Year
PhD in Zoology	Stellenbosch University, South Africa	2015
Masters in Evolutionary and Behavioural Biology	University of Antwerp, Belgium	2011
Bachelor in Biology	University of Antwerp, Belgium	2009

## b) Academic and Professional Positions Held

Position	Institution/Organization	Duration
<b>Research Fellow</b>	Stellenbosch University, South Africa	2025 - Present
<b>Co-director &amp; Lead Researcher</b>	BiorteX, South Africa	2024 - Present
<b>Research Fellow</b>	Advanced Concepts Team, European Space Agency (ESA), The Netherlands	2022 - 2023
<b>Research Associate</b>	Laboratory of Functional Morphology, University of Antwerp, Belgium	2021 - Present
<b>Postdoctoral Research Fellow</b>	Laboratory of Functional Morphology, University of Antwerp, Belgium	2020 - 2021
<b>FWO-Flanders Postdoctoral Research Fellow</b>	Laboratory of Functional Morphology, University of Antwerp, Belgium	2017-2020
<b>Postdoctoral Fellow</b>	Stellenbosch University, South Africa	2015 - 2017

### c) Research Grants and Scholarships

Grant Title	Organization/Funding Body	Year
MSCA Doctoral Network	European Union	2021
FWO-Flanders Research Grant	Research Foundation Flanders	2019
University Research Fund (BOF) – Small Project	University of Antwerp	2018
FWO-Flanders Postdoctoral Fellowship	Research Foundation Flanders	2017
Subcommittee B Postdoctoral Fellowship	Stellenbosch University	2016 + 2017
NRF Innovation Scholarship for Non-South African citizen	National Research Foundation	2014
Stellenbosch University Merit Bursary	Stellenbosch University	2013 + 2014
Departmental bursary for international student	Stellenbosch University	2012 + 2013
National Geographic Young Explorers Grant	National Geographic Society	2011

### d) Academic Prizes and Awards

Awards/Grant title	Organization/Funding Body	Year
Henri Schouteden Award	Royal Flemish Academy of Belgium for Science and the Arts	2021
Postdoctoral Fellow Award for Exceptional Achievement	Stellenbosch University	2017
DRD-Dirk Stephan Award	Stellenbosch University	2016
New Voices in Science: Best popular science talk	Stellenbosch University	2015
New Voices in Science: Best 60-second video	Stellenbosch University	2015
Best oral (PhD) presentation	Herpetological Association of Africa, Gobabeb (Namibia)	2014
Best oral (PhD) presentation	17th European Congress of Herpetology, Vesprem (Hungary)	2013
<< Jacques Kets >> Biology Award for best Master thesis	Antwerp ZOO Society & the Royal Belgian Zoological Society	2011

### e) Conference Presentations and Workshops

Role in presentation	Organization	Year
Keynote Presentation	6th International Conference on Tomography of Materials and Structures, (ICTMS) Cape Town, South Africa	2024
Organizer & Oral Presentation	International Symposium on Palaeo-bioinspiration (PALBINS), Paris, France	2023
Keynote Presentation	Materials in the Space Environment (ISMSE 15 / ICPMSE 13), Leiden, The Netherlands	2022
Symposium Organizer & Oral Presentation	9th World Congress of Herpetology, Dunedin, New Zealand	2020
Keynote Presentation	20th Annual International Conference RAPDASA, Bloemfontein, South Africa	2019
Oral Presentation	12th International Congress of Vertebrate Morphology, Prague, Czech Republic	2019
Keynote Presentation	19th European Congress of Herpetology, Salzburg, Austria	2017
Workshop	19th European Congress of Herpetology, Salzburg, Austria	2017
Oral Presentation	8th World Congress of Herpetology, Hangzhou, China	2016
Oral Presentation	Imaging with Radiation (IMGRAD) Conference, Stellenbosch, South Africa	2015
Oral Presentation	12th Conference of the Herpetological Association of Africa, Gobabeb, Namibia	2014
Oral Presentation	17th European Congress of Herpetology, Vespem, Hungary	2013

### f) Publication history

1. Annear, E., Van Linden, L., MacLaren, J.A., Baeckens, S., **Broeckhoven, C.** and Van Damme, R. (2025). Intraspecific variation in osteoderm morphology in a cordylid lizard. *Zoological Journal of the Linnean Society* 205: p.zlaf184.
2. Ebel, R., **Broeckhoven, C.**, Stanley, E.L., Ramm, T. and Keogh, J.S. (2025). Dermal armour in lizards: osteoderms more common than presumed. *Zoological Journal of the Linnean Society* 204: p.zlaf070.

3. Aish, A., **Broeckhoven, C.**, Buffa, V., Challands, T., Du Plessis, A., Fletcher, T., Frey, E., Garrouste, R., Houssaye, A., Lecointre, G. and Perricone, V. (2025). Palaeo-bioinspiration draws on the fossil record to advance innovation. *Communications Biology*, 8: 706.
4. **Broeckhoven, C.** and Winters, S. (2023). Biomimethics: a critical perspective on the ethical implications of biomimetics in technological innovation. *Bioinspiration & biomimetics* 18: 053001.
5. **Broeckhoven, C.** and du Plessis, A. (2023). Convergent Evolution: Theory and Practice for Bioinspiration. In *Convergent Evolution: Animal Form and Function* (pp. 559-579). Cham: Springer International Publishing.
6. Leitão, H.G., Diedericks, G., **Broeckhoven, C.**, Baeckens, S. and Svardal, H. (2023). Chromosome-level genome assembly of the cape cliff lizard (*Hemicordylus capensis*). *Genome Biology and Evolution* 15: evad001.
7. Inacio Veenstra, L.L. and **Broeckhoven, C.** (2022). Revisiting the thermoregulation hypothesis of osteoderms: a study of the crocodylian *Paleosuchus palpebrosus* (Crocodylia: Alligatoridae). *Biological Journal of the Linnean Society* 135: 679-691.
8. **Broeckhoven, C.** and du Plessis, A. (2022). Escaping the labyrinth of bioinspiration: biodiversity as key to successful product innovation. *Advanced Functional Materials* 32: 2110235.
9. **Broeckhoven, C.** (2022). Intraspecific competition: A missing link in dermal armour evolution?. *Journal of Animal Ecology* 91: 1562-1566.
10. Diedericks, G., **Broeckhoven, C.**, von der Heyden, S., Weyl, O.L. and Hui, C. (2022). The Role of Directed Dispersal in Driving Genetic and Morphological Structure in Invasive Smallmouth Bass. *Frontiers in Ecology and Evolution* 9: 790829.
11. du Plessis, A. and **Broeckhoven, C.** (2022). Functional synergy of biomimicry and additive manufacturing: Toward a bio-enhanced engineering approach. In *Biomimicry for materials, design and habitats* (pp. 269-289). Elsevier.
12. du Plessis, A., Babafemi, A.J., Paul, S.C., Panda, B., Tran, J.P. and **Broeckhoven, C.** (2020). Biomimicry for 3D concrete printing: a review and perspective. *Additive Manufacturing* 38: 101823.
13. du Plessis, A., **Broeckhoven, C.**, Yadroitsava, I., Yadroitsev, I., Hands, C. H., Kunju, R. and Bhate, D. (2019). Beautiful and Functional: A Review of Biomimetic Design in Additive Manufacturing. *Additive Manufacturing* 27: 408-427.
14. Bauer, A. M., Childers, J. L., **Broeckhoven, C.** and Mouton, P.L.F.N. (2019). A new *Nucras* Gray, 1838 (Squamata: Lacertidae) from the Strandveld of the Western Cape, South Africa. *Zootaxa* 4560: 149-163.
15. **Broeckhoven, C.** (2019). Defensive Morphology. In J.C. Choe (Ed.), *Encyclopedia of Animal Behavior, Second Edition* (Pp. 318–326). Elsevier: Academic Press.
16. du Plessis, A. and **Broeckhoven, C.** (2018). Looking deep into nature: A review of micro-computed tomography in biomimicry. *Acta Biomaterialia* 85: 27-40.
17. Mouton, P.L.F.N., Flemming, A., Bates, M. and **Broeckhoven, C.** (2018). The relationship between generation gland morphology and armour in Dragon Lizards (*Smaug*): a reassessment of ancestral states for the Cordylidae. *Amphibia-Reptilia* 39: 457-470.
18. **Broeckhoven, C.** and du Plessis, A. (2018). X-ray microtomography in herpetological research: a review. *Amphibia-Reptilia* 39: 377–401.

19. **Broeckhoven, C.**, de Kock, C. and Hui, C. (2018). Sexual dimorphism in the dermal armour of cordyline lizards (Squamata: Cordylinae). *Biological Journal of the Linnean Society* 125:30–36.
20. **Broeckhoven, C.**, El Adak, Y., Hui, C., Van Damme, R. and Stankowich, T. (2018). On dangerous ground: the evolution of body armour in cordyline lizards. *Proceedings of the Royal Society B: Biological Sciences* 285: 20180513.
21. **Broeckhoven, C.**, Mouton, P.L.F.N. and Hui, C. (2018). Proximate causes of variation in dermal armour: insights from armadillo lizards. *Oikos* 127: 1449-1458.
22. du Plessis, A., **Broeckhoven, C.**, Yadroitsev, I., Yadroitsava, I. and le Roux, S.G. (2018). Analyzing nature's protective design: The glyptodont body armor. *Journal of the Mechanical Behavior of Biomedical Materials* 82: 218-223.
23. du Plessis, A., **Broeckhoven, C.** and le Roux, S.G. (2017). Snake fangs: 3D morphological and mechanical analysis by microCT, simulation and physical compression testing. *GigaScience* 7: 1-8.
24. **Broeckhoven, C.**, du Plessis, A. and Hui, C. (2017). Functional trade-off between strength and thermal capacity of dermal armor: insights from girdled lizards. *Journal of the Mechanical Behavior of Biomedical Materials* 74: 189-194.
25. Baeckens, S., Herrel, A., **Broeckhoven, C.**, Vasilopoulou-Kampitsi, M., Huyghe, K., Goyens, J. and Van Damme, R. (2017). Evolutionary morphology of the lizard chemosensory system. *Scientific Reports* 7: p.10141.
26. **Broeckhoven, C.** and du Plessis, A. (2017). Has snake fang evolution lost its bite? New insights from a structural mechanics viewpoint. *Biology Letters* 13: p.20170293.
27. **Broeckhoven, C.**, de Kock, C. and Mouton, P.L.F.N. (2017). Sexual dimorphism in osteoderm expression and the role of male intrasexual aggression. *Biological Journal of the Linnean Society* 122: 329-339.
28. du Plessis, A., **Broeckhoven, C.**, Guelpa, A. and le Roux, S.G. (2017). Laboratory x-ray micro-computed tomography: a user guideline for biological samples. *GigaScience* 6: 1-11.
29. **Broeckhoven, C.**, A. Du Plessis, S. G. Le Roux, P. le F. N. Mouton, and C. Hui. (2016). Beauty is more than skin deep: a non-invasive protocol for *in vivo* anatomical study using micro-CT. *Methods in Ecology and Evolution*. 8: 358–369.
30. **Broeckhoven, C.**, G. Diedericks, C. Hui, B. G. Makhubo, and P. le F. N. Mouton. (2016). Enemy at the gates: rapid defensive trait diversification in an adaptive radiation of lizards. *Evolution*. 70: 2647–2656.
31. **Broeckhoven, C.**, and P. le F. N. Mouton. (2015). Some like it hot: camera traps unravel the effects of weather conditions and predator presence on the activity levels of two lizards. *PLoS One* 10: e0137428.
32. **Broeckhoven, C.**, G. Diedericks G., and P. le F. N. Mouton, P. le F. N. (2015). What doesn't kill you might make you stronger: functional basis for variation in body armour. *Journal of Animal Ecology* 84: 1213-1221.
33. **Broeckhoven, C.**, and P. le F. N. Mouton. (2015). Hit or miss: functional mechanisms underlying prey capture efficiency in cordylid lizards. *Journal of Arid Environments* 120: 7274.
34. **Broeckhoven, C.**, and P. le F. N. Mouton. (2014). Under pressure: morphological and ecological correlates of bite force in the rock-dwelling lizards *Ouroborus*

- cataphractus* and *Karusasaurus polyzonus* (Squamata: Cordylidae). *Biological Journal of the Linnean Society* 111: 823-833.
35. Mouton, P. le F. N., A. F. Flemming, and **C. Broeckhoven**. (2014). Generation gland morphology in cordylid lizards: An evolutionary perspective. *Journal of Morphology* 275: 456-464.
  36. **Broeckhoven, C.**, and P. le F. N. Mouton. (2013). Influence of diet on prehension mode in cordylid lizards: a morphological and kinematic analysis. *Journal of Zoology* 291: 286-295.