



Universiteit
Leiden
The Netherlands

Computerised Modelling for Developmental Biology

Bertens, L.M.F.

Citation

Bertens, L. M. F. (2012, September 12). *Computerised Modelling for Developmental Biology*. Retrieved from <https://hdl.handle.net/1887/19772>

Version: Corrected Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/19772>

Note: To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/19772> holds various files of this Leiden University dissertation.

Author: Bertens, Laura M.F.

Title: Computerised modelling for developmental biology : an exploration with case studies

Date: 2012-09-12

PUBLICATIONS

Bertens, L.M.F., Slob, J., Verbeek, F.J., 'A generic organ based ontology system, applied to vertebrate heart anatomy, development and physiology', *Journal of Integrative Bioinformatics* 8:2 (2011), 167.

Bertens L.M.F., Kleijn J., Koutny M., Verbeek F.J., 'Modelling gradients using Petri nets', in: *Proceedings International Workshop on Biological Processes & Petri Nets (BioPPN) Braga, Portugal, June 21 2010*, 55-69.

Bertens L.M.F., Richardson M.K., Verbeek F.J., 'Analysis of cardiac development in the turtle *Emys orbicularis* (Testudines: emidydae) using 3-D computer modelling from histological sections', *Anatomical Record* 293:7 (2010), 1104-1114.

Yan, K., Bertens, L.M.F., Verbeek, F.J., 'Image registration and realignment using evolutionary algorithms with high resolution 3D model from human liver', *Proceedings 11th IASTED International Conference on Computer Graphics and Imaging* (2010), track 679-014.

Bertens, L.M.F., Jansen, H.J., Kleijn, J., Koutny, M., Verbeek, F.J., 'Using Petri nets in higher level developmental biology: a case study on the AP axis development in *Xenopus laevis*', *LIACS Technical Report, 2009-03* (2009).

Brittijn, S.A., Duivesteijn, S.J., Belmamoune, M., Bertens, L.M.F., Bitter, W. *et al.*, 'Zebrafish development and regeneration: new tools for biomedical research', *International Journal of Developmental Biology* 53:5-6 (2009), 835-850.

Putten, P.W.H. van der, Bertens, L.M.F., Liu, J., Hagen, F, Boekhout, T., Verbeek, F.J., 'Classification of Yeast Cells from Image Features to Evaluate Pathogen Conditions', *Proceedings of SPIE* 6506 (2007), 650601-14.

CURRICULUM VITAE

Laura Bertens was born on May 28 1981, in Zeist, the Netherlands. She studied Classics at Leiden University and completed her Master's degree in May 2007, with a thesis on aspects of the archaeology of Classical Greek religion. Starting in 2001, she studied Biology at Leiden University and in March 2007 she finished her Master's degree with a specialisation in Bio-informatics and Developmental Biology. Her Master's projects focused on the 3D computer visualisation of heart development of the turtle *Emys orbicularis* and the visualisation of processes in the immune system of the zebrafish embryo, using *in situ hybridisation*.

In September 2007 she started her PhD in the research group Imaging and Bioinformatics, part of the Leiden Institute of Advanced Computer Science (LIACS) at Leiden University, under the supervision of Dr. Ir. Fons Verbeek. During this period she also studied Art History at Leiden University. She is currently finishing her Bachelor's degree in Art History and is employed in a research project, concerning the theoretical and practical application of computer ontologies to canons of art history and the humanities.

ACKNOWLEDGEMENTS

I have been supported and helped by more people than I can mention here. I would like to explicitly thank a few.

My parents and brothers, who support and share my interest in both sciences and humanities; with your combined knowledge and love of all things academic, you have helped me solve many of my scientific problems (often by not saying anything).

My research group mates, specifically my long-time colleagues Joris and Amalia, thanks for all the computer support, Monty Python quotes and film nights, in addition to the tremendous help with my research.

Thanks to the Computer Science students who contributed to the Petri net research, in particular Erik Zandvliet and Erik, Jaron and Wouter. I hope your future research will be live, unbounded and conflict-free.

My closest friends, in particular my paranymphs Esther and Floor, who have witnessed both the beginning and the completion of my PhD; thanks for helping me in all areas of life, not in the least my research. Thanks for vrijmibos, endless amounts of tea and pasta salad and Mies and Teun.

My fellow classicists, thanks for reminding me, over coffee and dinner in Leiden and Berlin, that Classical antiquity can be as relevant as state-of-the-art computer analysis.

My fellow art historians, thanks for the continuous interest in what must have been for the most part an unintelligible topic. Thanks for library sessions, Berlin and the opportunity to think outside the borders of predefined scientific fields and integrate my research interests.

Merci les mecs, pour le LFL et les petits déjeuners réconfortants sur les quais de Paris et de Genève.

And thanks to all people not mentioned here, who nonetheless played an important role in completing this work, by either helping me with the content or with the peripheral support. It is true what they say: dimmi con chi vai e ti dirò chi sei.