Danel Ahman

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Education

University of Edinburgh, Edinburgh, United Kingdom

Theoretical Computer Science, PhD **2012 – 2017 (thesis submitted 28.02.2017)**

- Thesis topic: Fibred Computational Effects
- Supervisor: Gordon Plotkin

University of Cambridge, Cambridge, United Kingdom

Advanced Computer Science, MPhil (with Distinction) **2011 – 2012**

- Dissertation: Computational effects, algebraic theories and normalization by evaluation
- Supervisor: Sam Staton

Tallinn University of Technology, Tallinn, Estonia

Informatics, BSc (Cum Laude) **2007 – 2010**

Professional experience

Prosecco Team at Inria Paris, France

Postdoctoral Researcher **April 2017 - ...**

Microsoft Research, USA

Internship (with Nikhil Swamy) **May 2016 - August 2016**

The formal theory of preorder-indexed state monads in F*.

Internship (with Mihai Budiu) **September 2014 - November 2014**

Theory and practice of multi-linear programming with big data.

University of Edinburgh, United Kingdom

Teaching support **2012 – 2015**

Delivering tutorials, supervising laboratory groups, marking coursework.

Institute of Cybernetics at Tallinn University of Technology, Estonia

Internship (with Tarmo Uustalu) **June 2011 – September 2011**

Studying the comonadic structure of container datatypes.

Internship (with Marko Kääramees) **March 2011 – June 2011**

Studying model-based efficient on-line testing of non-deterministic and reactive systems.

Department of Computer Science at Tallinn University of Technology, Estonia

Teaching **February 2011 – June 2011**

Lecturing and giving tutorials for a course on "Operating systems and network administration"

Active Systems Ltd, Estonia

Internships **summers 2007, 2008, 2009, 2010**

Areas of interest

Category theory, dependent types, computational effects, programming languages

Publications

D. Ahman, T. Uustalu. Taking Updates Seriously *In R. Eramo, M. Johnson, eds., Proc. of 6th Int. Wksh. on Bidirectional Transformations, BX 2017 (Uppsala, April 2017), to appear.*

D. Ahman, C. Hriţcu, G. Martínez, G. Plotkin, J. Protzenko, A. Rastogi, and N. Swamy. Dijkstra monads for free. *In A. Gordon, ed., Proc of 44th ACM SIGPLAN Symposium on Principles of Programming Languages, POPL 2017, pp. 515-529. ACM Press, 2017.*

D. Ahman, N. Ghani, G.D. Plotkin. Dependent types and fibred computational effects. *In B. Jacobs, C. Löding, eds., Proc. of 19th Int. Conf. on Foundations of Software Science and Computation Structures, FoSSaCS 2016, v. 9634 of LNCS, pp. 36–54. Springer, 2016.*

D. Ahman, T. Uustalu. Directed containers as categories. *In R. Atkey, N. Krishnaswami, eds., Proc. of 6th Wksh. on Mathematically Structured Functional Programming, MSFP 2016, v. 207 of EPTCS, pp. 89–98. Open Publishing Assoc., 2016.*

D. Ahman, T. Uustalu. Coalgebraic update lenses. *In B. Jacobs, A. Silva, S. Staton, eds., Proc. of 30th Conf. on Mathematical Foundations of Programming Semantics, MFPS XXX, ENTCS, v. 308, pp. 25–48. Elsevier, 2014.*

D. Ahman, T. Uustalu. Update monads: cointerpreting directed containers. *In R. Matthes, A. Schubert, eds., Post-proc. of the 19th Meeting "Types for Proofs and Programs", TYPES 2013, v. 26 of LIPIcs, pp. 1–23, Dagstuhl Publishing, 2014.*

D. Ahman, J. Chapman, T. Uustalu. When is a container a comonad? *Logical Methods in Computer Science, v. 10, n. 3, article 14, 2014.*

D. Ahman, S. Staton. Normalization by evaluation and algebraic effects. *In D. Kozen, ed., Proc. of 29th Conf. on Mathematical Foundations of Programming Semantics, MFPS XXIX, v. 298 of ENTCS, pp. 51–69, Elsevier, 2013.*

D. Ahman, T. Uustalu. Distributive laws of directed containers. *Progress in Informatics, v. 10, pp. 3–18, National Institute of Informatics, 2013.*

D. Ahman, J. Chapman, T. Uustalu. When is a container a comonad? *In L. Birkedal, ed., Proc. of 15th Int. Conf. on Foundations of Software Science and Computation Structures, FoSSaCS 2012, v. 7213 of LNCS, pp. 74–88. Springer, 2012.*

D. Ahman, M. Kääramees. Constraint-based heuristic on-line test generation from non-deterministic I/O EFSMs. *In A. K. Petrenko and H. Schlingloff, eds., Proceedings of 7th Workshop on Model-Based Testing, MBT 2012, v. 80 of EPTCS, pp. 115–129, Open Publishing Assoc., 2012.*

Extended abstracts

D. Ahman, G.D. Plotkin. Refinement types for algebraic effects. *Extended abstract in T. Uustalu, ed., Book of abstracts of the 21th Meeting "Types for Proofs and Programs", TYPES 2015, pp. 10–11. Inst. of Cybernetics, 2015.*

D. Ahman, T. Uustalu. From stateful to stackful computation. *Extended abstract presented at the 3rd ACM SIGPLAN Workshop on Higher-Order Programming with Effects, HOPE 2014.*

D. Ahman, T. Uustalu. Coalgebraic update lenses. *Extended abstract in H. Herbelin, P. Letouzey and M. Sozeau, eds., Book of abstracts of the 20th Meeting "Types for Proofs and Programs", TYPES 2014, pp. 16–17. Institut Henri Poincaré, 2014.*

D. Ahman. Refinement types and algebraic effects. *Extended abstract presented at the 2nd ACM SIGPLAN Workshop on Higher-Order Programming with Effects, HOPE 2013.*

D. Ahman, T. Uustalu. Update monads: cointerpreting directed containers. *Extended abstract in R. Matthes, ed., Book of abstracts of the 19th Meeting "Types for Proofs and Programs", TYPES 2013, pp. 16–17. Institut de Recherche en Informatique de Toulouse, 2013.*

D. Ahman, T. Uustalu. Distributive laws of directed containers (extended abstract). *In L. Schröder, D. Pattinson, eds., Short Contributions of 11th Int. Wksh. on Coalgebraic Methods in Comput. Sci., CMCS '12, pp. 1–3. Inst. of Cybernetics, 2012.*

Awards

PhD scholarship from the Archimedes Foundation (for 2015–2016), 2015

Institute of Cybernetics paper of the year 2012, 2013

Travel scholarship from the Archimedes Foundation for MFPS XXIX and LICS 2013, 2013

PhD scholarship from the University of Edinburgh (for 2012–2015), 2012

3rd prize at the Estonian Ministry of Education and Research dissertations competition, 2012

Estonian Academy of Sciences dissertation award, 2012

Google prize for the best research dissertation in MPhil program Advanced Computer Science, University of Cambridge, 2012

Citrix prize for the best student in MPhil program Advanced Computer Science, University of Cambridge, 2012

Nominee for best paper award at ETAPS'12, 2012

Tallinn University of Technology Rector's 100 best starting students award, 2008