

JOSHUA BLINKHORN

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PERSONAL DETAILS

Name: Joshua Lewis Blinkhorn

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Telephone: (+44)7719 773541

Date of birth: 18-09-1984

Nationality: British

ACADEMIC POSITIONS

Friedrich Schiller University, Jena - Postdoctoral Researcher in Computer Science

Conducting research and lecturing in proof complexity.

from September 2018

EDUCATION

Leeds University - PhD

October 2015 - December 2019

Thesis title: *Quantified Boolean Formulas: Proof Complexity and Models of Solving.*

Supervised by Professor Olaf Beyersdorff.

Open University - First Class BSc. in Mathematics

September 2009 - June 2015

Average marks of 98% (coursework) and 96% (examinations).

Huddersfield New College, Huddersfield, West Yorkshire

September 2001 - July 2003

A-levels in Mathematics (B), Music (B) and Music Technology (A), and an AS-level in Politics (A).

Crossley Heath Grammar School, Halifax, West Yorkshire

September 1996 - July 2001

Six GCSEs at grade A* and four GCSEs at grade A.

JOURNAL PUBLICATIONS

Beyersdorff, O., Blinkhorn, J.: *A Simple Proof of QBF Hardness.*

Information Processing Letters (IPL), 2021

Beyersdorff, O., Blinkhorn, J., Mahajan, M.: *Building Strategies into QBF Proofs.*

Journal of Automated Reasoning (JAR), 65(1), 2021

Beyersdorff, O., Blinkhorn, J.: *Dynamic QBF Dependencies in Reduction and Expansion.*

ACM Transactions on Computational Logic (ToCL), 21(2), 2020.

Beyersdorff, O., Blinkhorn, J.: *Lower Bound Techniques for QBF Expansion.*

Theory of Computing Systems (ToCS), 64(3), 2020.

Beyersdorff, O., Blinkhorn, J., Hinde, L.: *Size, Cost and Capacity: A Semantic Technique for Hard Random QBFs.*

Logical Methods in Computer Science (LMCS) 15(1), 2019.

Beyersdorff, O., Blinkhorn, J., Chew, L., Schmidt, R., Suda, M.: *Reinterpreting Dependency Schemes: Soundness Meets Incompleteness in DQBF.*

Journal of Automated Reasoning (JAR), 63(3), 2019.

CONFERENCE PUBLICATIONS

Blinkhorn, J., Peitl, T., Slivovsky, F.: *Davis and Putnam meet Henkin: Solving DQBF with Resolution*. International Conference on Theory and Practice of Satisfiability Testing (SAT), 2021 (in press).

Beyersdorff, O., Blinkhorn, J., Mahajan, M., Peitl, T., Sood, G.: *Hard QBFs for Merge Resolution*. Foundations of Software Technology and Theoretical Computer Science (FSTTCS), 2020.

Beyersdorff, O., Blinkhorn, J., Mahajan, M.: *Hardness Characterisations and Size-Width Lower Bounds for QBF Resolution*. Logic in Computer Science (LiCS), 2020.

Beyersdorff, O., Blinkhorn, J., Peitl, T.: *Strong (D)QBF Dependency Schemes via Tautology-free Dependency Schemes*. International Conference on Theory and Practice of Satisfiability Testing (SAT), 2020.

Beyersdorff, O., Blinkhorn, J.: *Proof Complexity of QBF Symmetry Recomputation*. International Conference on Theory and Practice of Satisfiability Testing (SAT), 2019.

Beyersdorff, O., Blinkhorn, J., Mahajan, M.: *Building Strategies into QBF Proofs*. Symposium on Theoretical Aspects of Computer Science (STACS), 2019.

Beyersdorff, O., Blinkhorn, J.: *Dynamic Dependency Awareness for QBF*. International Joint Conference on Artificial Intelligence (IJCAI), 2019.

Beyersdorff, O., Blinkhorn, J.: *Genuine Lower Bounds for QBF Expansion*. Symposium on Theoretical Aspects of Computer Science (STACS), 2018.

Beyersdorff, O., Blinkhorn, J., Hinde, L.: *Size, Cost and Capacity: A Semantic Technique for Hard Random QBFs*. Innovations in Theoretical Computer Science (ITCS), 2018.

Blinkhorn, J., Beyersdorff, O.: *Shortening QBF Proofs with Dependency Schemes*. International Conference on Theory and Practice of Satisfiability Testing (SAT), 2017. **Best paper award.**

Beyersdorff, O., Blinkhorn, J.: *Dependency Schemes in QBF Calculi: Semantics and Soundness*. International Conference on Principles and Practice of Constraints Programming (CP), 2016.

TALKS

Conference talks for publications listed above are not included.

Hardness Characterisations and Size-Width Lower Bounds for QBF Resolution. SAT and Interactions, Dagstuhl, February 2020.

Building Strategies into QBF Proofs. TU Wien, Vienna, September 2019.

Institute for Mathematical Sciences, Chennai, February 2019.

Size, Cost and Capacity: A Semantic Technique for Hard Random QBFs. Proof Complexity Workshop, Oxford, July 2018. British Colloquium on Theoretical Computer Science (BCTCS), Royal Holloway, March 2018.

Dependency Schemes: Semantics and Soundness in QBF Calculi. SAT and Interactions, Dagstuhl, September 2016. QBF Workshop, Bordeaux, July 2016.

Dependency Schemes and Soundness in QBF Calculi. Logic Colloquium, ASL European summer meeting, Leeds, August 2016.

TEACHING

Friedrich Schiller University, Jena

Quantified Boolean Formulas: Solving and Proofs

Lecture, Summer Semester 2021 (current)

Algorithmic Proofs

Laboratory course, Summer Semester 2019, Winter Semester 2020/2021

Cryptography

Laboratory course, Winter Semester 2019/2020

University of Leeds

Procedural Programming

Practical demonstrating and marking of coursework for two presentations, 2016 and 2018.