DR JOSHUA BLINKHORN

joshuablinkhorn@hotmail.co.uk

PERSONAL DETAILS

Name: Joshua Lewis Blinkhorn

Email: joshuablinkhorn@hotmail.co.uk

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. *December 2019 - September 2021*

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).

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

Hardness Characterisations and Size-Width Lower Bounds for QBF Resolution.
Logic in Computer Science, University of Saarbrücken, July 2020 (conference talk)
SAT and Interactions, Dagstuhl, February 2020 (contributed talk).

Building Strategies into QBF Proofs.
TU Wien, Vienna, September 2019 (invited talk).
QBF Workshop, Lisbon, July 2019 (contributed talk).
Institute for Mathematical Sciences, Chennai, February 2019 (invited talk).
Symposium on Theoretical Aspects of Computer Science, Berlin, Febraury 2019 (conference talk).

Proof Complexity of QBF Symmetry Recomputation.
Theory and Practice of Satisfiability Testing, Lisbon, July 2019 (conference talk)

Size, Cost and Capacity: A Semantic Technique for Hard Random QBFs.
Technical Workshop, Berlin, August 2018 (contributed talk)
Innovations in Theoretical Computer Science, MIT, January 2018 (conference talk)
Proof Complexity Workshop, Oxford University, July 2018 (contributed talk).
British Colloquium on Theoretical Computer Science, Royal Holloway, March 2018 (contributed talk).

Genuine Lower Bounds for QBF Expansion.
Symposium on Theoretical Aspects of Computer Science, Caen, February 2018 (conference talk).

Dynamic Dependency Awareness for QBF.
International Joint Conference on AI, Stockholm, July 2018 (conference talk)

Shortening QBF Proofs with Dependency Schemes.
Theory and Practice of Satisfiability Testing, Melbourne, August 2017 (conference talk)

Dependency Schemes: Semantics and Soundness in QBF Calculi.
Principles and Practice of Constraint Programming, Toulouse, September 2016 (conference talk).
SAT and Interactions, Dagstuhl, September 2016 (contributed talk).
QBF Workshop, Bordeaux, July 2016. (contributed talk)

Dependency Schemes and Soundness in QBF Calculi.
Logic Colloquium, ASL European summer meeting, Leeds, August 2016 (contributed talk).
British Colloquium on Theoretical Computer Science, Belfast, March 2016 (contributed talk).

TEACHING

Friedrich Schiller University, Jena

Quantified Boolean Formulas: Solving and Proofs (Lecturer)
Lecture, Summer Semester 2021

Algorithmic Proofs (Module Leader)
Laboratory course, Summer Semester 2019, Winter Semester 2020/2021

Cryptography (Module Leader)
Laboratory course, Winter Semester 2019/2020

University of Leeds

Procedural Programming (Module Assistant)
Practical demonstrating and marking of coursework for two presentations, 2016 and 2018.