

# Anupam Das

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## Professional experience

- upcoming Marie Skłodowska-Curie fellow. Department of Computer Science, University of Copenhagen. European Commission project number 753431. Call H2020-MSCA-IF-2016, mathematics panel.
- 10/16 - 12/16 Visting Scholar at Department of Mathematics, UC Berkeley, California. Participant of *Logical Structures in Computation* program, Simons Institute.
- 10/14 - present Postdoctoral researcher. LIP, École Normale Supérieure de Lyon.
- 04/14 - 07/14 Participant of IHP Trimester in *Semantics of proofs and certified mathematics*. IHP, Paris.
- 11/13 - 09/14 Inria postdoctoral fellow. LIX, École Polytechnique.
- 09/11 - 12/11 Participant of MALOA *Special Semester in Logic and Complexity*. Charles University, Prague.
- 10/10 - 10/13 PhD in Computer Science, University of Bath. Supervised by Alessio Guglielmi and John Power.
- 10/06 - 08/10 Bachelor's and Master's studies in Mathematics, University of Oxford.

## Publications

- 28/12/16 On linear rewriting systems for Boolean logic and some applications to proof theory. Anupam Das & Lutz Straßburger. Journal *Logical Methods in Computer Science* special issue *Selected papers of RTA and TLCA 2015*.  
<http://lmcs.episciences.org/2621>
- 25/08/16 Free-cut elimination in linear logic and an application to a feasible arithmetic. Patrick Baillot & Anupam Das. Proceedings of *CSL 2016*.  
<http://dx.doi.org/10.4230/LIPIcs.CSL.2016.40>
- 05/07/16 From positive and intuitionistic bounded arithmetic to monotone proof complexity. Anupam Das. Proceedings of *LICS 2016*.  
<http://doi.org/10.1145/2933575.2934570>
- 03/09/15 On nested sequents for constructive modal logics. Ryuta Arisaka, Anupam Das & Lutz Straßburger. Journal *Logical Methods in Computer Science*.  
[http://dx.doi.org/10.2168/LMCS-11\(3:7\)2015](http://dx.doi.org/10.2168/LMCS-11(3:7)2015)
- 06/07/15 A complete axiomatization of MSO on infinite trees. Anupam Das & Colin Riba. Proceedings of *LICS 2015*.  
<http://dx.doi.org/10.1109/LICS.2015.44>
- 29/06/15 No complete linear term rewriting system for propositional logic. Anupam Das & Lutz Straßburger.

- Proceedings of *RTA 2015*.  
<http://dx.doi.org/10.4230/LIPIcs.RTA.2015.127>
- 06/03/15 On the relative proof complexity of deep inference via atomic flows. Anupam Das. *Journal Logical Methods in Computer Science* special issue *Selected papers of the Turing Centenary Conference: CiE 2012*.  
[http://dx.doi.org/10.2168/LMCS-11\(1:4\)2015](http://dx.doi.org/10.2168/LMCS-11(1:4)2015)
- 14/07/14 On the pigeonhole and related principles in deep inference and monotone systems. Anupam Das. Proceedings of *CSL-LICS 2014*.  
<http://doi.org/10.1145/2603088.2603164>
- 24/06/13 Rewriting with linear inferences in propositional logic. Anupam Das. Proceedings of *RTA 2013*.  
<http://dx.doi.org/10.4230/LIPIcs.RTA.2013.158>
- 18/06/12 Complexity of deep inference via atomic flows. Anupam Das. Proceedings of *Turing Centenary Conference: CiE 2012*.  
[http://dx.doi.org/10.1007/978-3-642-30870-3\\_15](http://dx.doi.org/10.1007/978-3-642-30870-3_15)
- 04/07/11 On the proof complexity of cut-free bounded deep inference. Anupam Das. Proceedings of *Tableaux 2011*.  
[http://dx.doi.org/10.1007/978-3-642-22119-4\\_12](http://dx.doi.org/10.1007/978-3-642-22119-4_12)

## Preprints

- 2016 From focussed proof systems to complexity bounds. Anupam Das.  
<http://www.anupamdas.com/foc-sys-complexity.pdf>
- 2012 Characterising aspects of proof compression. Anupam Das.  
<http://www.anupamdas.com/comp-mech.pdf>

## PhD thesis

- 20/10/14 The complexity of propositional proofs in deep inference. Defended on 18<sup>th</sup> October 2013, Department of Computer Science, University of Bath.  
<http://anupamdas.com/Thesis-AnupamDas.pdf>

## Selected invited talks

- 15/12/16 From focussed proof systems to complexity bounds. Invited talk at *DaleFest*, seminar in honour of the 60<sup>th</sup> birthday of Dale Miller, Paris.
- 02/09/16 Proof complexity of deep inference: a survey. Invited talk at *LCC 2016*, Marseille.
- 05/02/15 Theories of bounded arithmetic for deep inference proof systems. Invited talk at *CHoCoLa séminaire*, Lyon.
- 24/01/13 A new proof of the propositional pigeonhole principle, for weak monotone systems. Invited talk at 19<sup>th</sup> *Wessex Theory Seminar*, Swansea.

## Workshops and conferences without published proceedings

- 02/08/16 Intuitionistic bounded arithmetic and monotone proof complexity. *Logic Colloquium 2016*, Leeds.

- 03/04/16 Towards feasibility in arithmetic via linear logic. *DICE 2016*, Eindhoven.
- 05/07/15 Bounded arithmetic for monotone and deep inference systems. *LCC 2015*, Kyoto.
- 13/07/14  $n^{O(\log \log n)}$ -size monotone proofs of the weak pigeonhole principle. *Proof Complexity 2014*, Vienna.
- 15/05/14 Towards a bounded arithmetic for analytic deep inference. *PCC 2014*, Paris.
- 06/11/13 Some ideas on bounded arithmetics for systems of monotone proofs. *LIX Colloquium 2013*, Paris.
- 17/08/12 Combinatorial principles in deep inference. *PCC 2012*, Copenhagen.
- 24/11/11 On proof compression mechanisms and deep inference. *LAC-GeoCal 2011*, Paris.

## Other workshops, conferences and schools

- 27 - 31/08/13 *LOGOI summer school*, Turin. Accommodation grant awarded.
- 29/06 - 01/07/13 *CSEDays '13* school in algorithms and complexity (colocated with *CSR '13*), Ural Federal University, Ekaterinburg. Accommodation grant awarded.
- 22 - 27/07/13 *Logic Colloquium 2013*, Évora. ASL travel grant awarded.
- 05 - 18/02/12 *Logic and interactions winter school*, CIRM, Marseille. Accommodation grant awarded.

## Supervision

- 06/16 - 08/16 Cameron Calk. A graph theoretic extension of Boolean logic. Undergraduate internship, ENS Lyon. Co-supervised by Olivier Laurent.  
Internship report: <http://www.anupamdas.com/graph-bool.pdf>
- 07/12 - 09/12 Alvin Šipraga. An automated search of linear inference rules. Undergraduate internship, University of Bath. Co-supervised by Alessio Guglielmi.  
Internship report: <http://arcturus.su/mimir/autolininf.pdf>  
Source code: <http://github.com/blahblahson/mimir/>

## Teaching

- upcoming Lecturer for the tutorial *From proof systems to complexity bounds*, to be co-located with *Tableaux 2017*, *FroCoS 2017*, and *ITP 2017*, Brasilia.
- 01/16 - present Laboratory tutor for *Introduction aux réseaux et au web*. Informatique year 1, Université Claude Bernard Lyon 1.
- 01/16 - 05/16 Tutor and course assistant for *Logique mathématique*. Informatique year 3, ENS Lyon.
- 09/15 - 01/16 Tutor and course assistant for *Théorie de la programmation*. Informatique year 3, ENS Lyon.
- 03 - 14/08/15 Lecturer for *Normalisation and Deep Inference*. *ESSLLI 2015*, Barcelona.  
<http://www.cs.bath.ac.uk/ag/ESSLLI/>
- 02/13 - 05/13 Classroom tutor for *Algebra 2B*. Mathematics year 2, University of Bath.
- 10/12 - 01/13 Laboratory tutor for *Programming and Discrete Mathematics*. Mathematics year 1, University of Bath.
- 02/12 - 05/12 Laboratory tutor for *Analytical Mathematics for Applications*. Computer Science year 1, University of Bath.
- 02/11 - 05/11 Classroom tutor for *Algebra 2B*. Mathematics year 2, University of Bath.

## Professional service

Reviewer for *CSL '16*, *FoSSaCS '16*, *LPAR '15*, *ICALP '15*, *FoSSaCS '15*, *APPA '14*, *LMCS*, *ToCL*, *AMS*.

- upcoming Chair of the 4<sup>th</sup> *workshop on Structures and Deduction*, to be co-located with *FSCD '17*, Oxford. Co-chaired by Kaustuv Chaudhuri & Willem Heijltjes.
- upcoming Chair of the 2<sup>nd</sup> *Logic Mentoring Workshop*, to be co-located with *LICS '17*, Reykjavík. Co-chaired by Valeria Vignudelli & Fabio Zanasi.  
<http://lics.rwth-aachen.de/lics17/lmw.html>
- 07-10/11/16 Organising committee member of *Linear Logic: interaction, proofs and computation*, Lyon.  
<http://ll2016.sciencesconf.org/>
- 14 - 16/12/15 Organiser of the *Workshop on Efficient and Natural Proof Systems*, Bath. Co-organised by Paola Bruscoli, Willem Heijltjes & Lutz Straßburger.  
<http://www.cs.bath.ac.uk/ag/ENPS/wenps2015.html>
- 11-12/04/15 Program committee member of *DICE 2015*, Queen Mary University, London.  
<http://dice15.computing.dundee.ac.uk/>
- 23/05/12 Organiser of the 14<sup>th</sup> *Wessex Theory Seminar*, University of Bath.  
<https://wiki.bath.ac.uk/display/wessex/14th+Wessex+Theory+Seminar>