

## Education

- 2021–2023 **DPhil (PhD), Computer Science**, University of Oxford, UK.  
(Expected) – Supervisors: Christoph Haase, James Worrell.
- 2020–2021 **MSc (M2), Parisian Master of Research in Computer Science (MPRI)**, Université de Paris, France.  
– Master’s thesis: *Computing Error Bounds for Asymptotic Expansions of Regular P-Recursive Sequences*.
- 2017–2021 **Diplôme d’Ingénieur**, Ecole Polytechnique, France.  
– Dissertation: *Computing input-output projections of dynamical models with applications to structural identifiability*.
- 2014–2018 **BSc, Mathematics**, Peking University, China.  
– Bachelor’s thesis: *The Tensor Product Standard Type Calculation Optimized by Graph Isomorphism Algorithm*.

## Publications and Preprints

### Preprints

- 2023 Ruiwen Dong. Termination of linear loops under commutative updates. 2023. <https://doi.org/10.48550/arXiv.2302.01003>.
- 2023 Ruiwen Dong. The identity problem in  $\mathbb{Z}\langle\mathbb{Z}\rangle$  is decidable. 2023. <https://doi.org/10.48550/arXiv.2302.05939>.
- 2022 Ruiwen Dong, Stephen Melczer, and Marc Mezzarobba. Computing error bounds for asymptotic expansions of regular P-recursive sequences. 2022. <https://arxiv.org/abs/2212.11742>.
- 2022 Ruiwen Dong. On the Identity Problem and the Group Problem in nilpotent groups. 2022. <https://arxiv.org/abs/2208.02164>.

### Peer-reviewed articles

- 2023 Ruiwen Dong, Christian Goodbrake, Heather A. Harrington, and Gleb Pogudin. Differential elimination for dynamical models via projections with applications to structural identifiability. *SIAM Journal on Applied Algebra and Geometry*, volume 7, pages 194–235. SIAM, 2023.
- 2023 Ruiwen Dong. Solving homogeneous linear equations over polynomial semirings. In *40th International Symposium on Theoretical Aspects of Computer Science, STACS*, volume 254 of *LIPIcs*, pages 26:1–26:19, 2023.
- 2023 Ruiwen Dong. Semigroup intersection problems in the Heisenberg Groups. In *40th International Symposium on Theoretical Aspects of Computer Science, STACS*, volume 254 of *LIPIcs*, pages 25:1–25:18, 2023.
- 2023 Ruiwen Dong. The Identity Problem in the special affine group of  $\mathbb{Z}^2$ . 2023. To appear in *LICS 2023*. <https://arxiv.org/abs/2301.09502>.
- 2022 Ruiwen Dong. On the Identity Problem for unitriangular matrices of dimension four. In *47th International Symposium on Mathematical Foundations of Computer Science, MFCS*, volume 241 of *LIPIcs*, pages 43:1–43:14, 2022.

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## Work experience

- March 2021, 6 months **Research Internship**, *Laboratoire Informatique de l'Ecole Polytechnique*, France.  
Research in asymptotic expansions of P-Recursive sequences.
- March 2020, 6 months **Research Internship**, *Laboratoire Informatique de l'Ecole Polytechnique*, France.  
Research in differential algebra.
- June 2019, 3 months **Industrial Internship**, *Phimeca Engineering*, France.  
Application of statistical learning in simulations of atmospheric dispersion of pollutants.

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## Conferences talks

- March 2023 **STACS 2022**, *Hamburg*, Germany.  
Semigroup intersection problems in the Heisenberg Groups
- March 2023 **STACS 2022**, *Hamburg*, Germany.  
Solving homogeneous linear equations over polynomial semirings
- October 2022 **RP 2022**, *MPI-SWS Kaiserslautern*, Germany.  
On the Identity Problem for unitriangular matrices of dimension four
- August 2022 **MFCS 2022**, *Vienna*, Austria.  
On the Identity Problem for unitriangular matrices of dimension four

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## Seminar talks

- October 2022 **OFCOURSE series**, *MPI-SWS Kaiserslautern*, Germany.  
The Identity Problem for unitriangular matrices of dimension four
- May 2022 **Verification series seminar**, *University of Liverpool*, UK.  
On the Identity Problem for unipotent matrix groups of nilpotency class at most ten
- March 2022 **IRIF verification seminar**, *IRIF*, France.  
The Identity Problem for unitriangular matrices of dimension four
- October 2020 **MAX team seminar**, *Ecole Polytechnique*, France.  
A new algorithm for finding the input-output equations of differential models
- April 2019 **Centre de Mathématiques Appliquées**, *Ecole Polytechnique*, France.  
A generalization of the preferential attachment model in graph theory

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## Reviewing work

ICALP 2022, SODA 2022, LICS 2023

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## Languages

Chinese	Native, C2	English	Fluent, C2
French	Fluent, C2	Russian	Fluent, C1
Polish	Fluent, C1	Turkish	Intermediate, B2

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## Programming languages and software

Python, Julia, C, C++, Java, R, MatLab, Sage, Git, LaTeX