

## Jack Oliver Southgate

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<b>ABOUT</b>	I am a postdoc in rigidity theory, a field in the intersection of geometry and combinatorics. Rigidity theory is concerned with answering questions such as "when and how may we deform a set of points in space subject to some subset of their pairwise distances unchanged?" I am also interested in algebraic combinatorics and discrete geometry problems resembling origami.	
<b>POSITIONS</b>	<i>Semester Postdoctoral Fellowship</i> ICERM, Brown University	Winter-Spring 2025
<b>EDUCATION</b>	<i>PhD Mathematics</i> University of St Andrews <i>Volume Rigidity of Simplicial Complexes</i> (supervised by Louis Theran)	2020-24
	<i>MSci Mathematics</i> University of Bristol First Class with Honours Undergraduate theses: <ul style="list-style-type: none"><li>• <i>Intersections on Toric Varieties</i> (supervised by Farhad Babaei)</li><li>• <i>A Geometric Group Theory Approach to the Bieberbach Theorem</i> (supervised by Mark Hagen)</li></ul>	2016-20 2019-20 2018-19
<b>PRE-PRINTS</b>	<i>Minimal Face Numbers for Volume Rigidity</i> <i>arXiv:2306.13560</i> Under review	2023
	<i>Bounds on Embeddings on Triangulations of Spheres</i> <i>arXiv:2301.04394</i>	2023
<b>EVENTS ATTENDED</b>	<i>Applied Algebra and Geometry Network 17<sup>th</sup> Meeting</i> Invited Speaker Presented <i>Volume Rigidity of Simplicial Complexes</i> University of York	Dec. 2023
	<i>Focus Program on Geometric Constraint Systems</i> Presented <i>Minimal Face Numbers for Volume Rigidity</i> Fields Institute, University of Toronto	Summer 2023
	<i>Applied Algebra and Geometry Network 16<sup>th</sup> Meeting</i> Bayes Centre, University of Edinburgh	Jul. 2023
	<i>SIAM Conference on Applied Algebraic Geometry</i> Presented <i>Bounds on Embeddings of Triangulations of Spheres</i> Technische Universiteit Eindhoven	Jul. 2023

	<i>Graph Rigidity and Applications</i> Presented <i>Bounds on Embeddings of Triangulations of Spheres</i> Lancaster University	Apr. 2023
	<i>Pure Postgraduate Research Day</i> Organiser Presented <i>Bound on Embeddings of Triangulations of Spheres</i> University of St Andrews	Dec. 2022
	<i>LMS Research School on Knowledge Exchange on Rigidity, Flexibility and Applications</i> Lancaster University	Jul. 2022
	<i>29<sup>th</sup> British Combinatorial Conference</i> Presented <i>Global Area Rigidity of Generic Hypergraph Frameworks</i> Lancaster University	Jul. 2022
	<i>St Andrews Combinatorics Day</i> Presented <i>Global Area Rigidity of Generic Hypergraph Frameworks</i> University of St Andrews	May 2022
	<i>Thematic Program on Geometric Constraint Systems, Framework Rigidity, and Distance Geometry</i> Programmes attended: Fields Institute, University of Toronto	Winter-Spring 2021
	<i>Toric Arrangements in Bristol</i> University of Bristol	Sept. 2019
<b>TEACHING</b>	University of St Andrews	2020-23
	Private Tuition	2023
<b>OTHER</b>	<i>St Andrews Learning Lean (StALL)</i> Group sessions to learn the programming language Lean Co-organiser	2023
	<i>Pure Postgraduate Research Day</i> Organiser	2022
	<i>Graduate Course on Combinatorial and Geometric Rigidity</i> Co-note Taker	2021
<b>PERSONAL INTERESTS</b>	I am a keen walker and runner, having explored the Scottish Highlands and run several marathons and half-marathons over the course of my PhD. I enjoy playing music and attending gigs.	
	I can speak French to roughly the B1 CEFR level.	