

# Paper Submission Form - SAIP2025 Proceedings

Sections A, C, D, and E must be completed by all authors (including students) who submit papers. Section B is compulsory for students who submit manuscript(s).

## Section A: Paper Submission Information

Paper/Abstract ID	344
Paper title	Real-Time anomaly detection in high energy physics
Corresponding Author Name & Surname:	Ryan Justin Atkin
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## Section B: For Students & Supervisors

Supervisor Name & Surname:	James Keaveney
Supervisor Email Address:	james.keaveney@uct.ac.za

For this paper, the supervisor must agree/disagree with the following statements.

	Yes	No
1. I am aware that the above-mentioned paper is being submitted for possible publication in the Proceedings of the SAIP Conference. I am satisfied that the presented work is that of the listed authors. I hereby give consent to the submission	X	
2. I have proof-read the manuscript	X	
3. I am satisfied that the manuscript is written in appropriate English and is sufficiently free of grammatical and spelling errors	X	
4. I am familiar with the required manuscript format ("House Style"), and I am satisfied that this manuscript meets the criteria. I am aware that manuscripts not conforming with House Style may be desk rejected	X	
5. I am satisfied that the scientific content of this manuscript is of sufficient standard for it to be considered for publication in the Proceedings of the South African Institute of Physics Conference Proceedings	X	

Student Name & Surname: Ryan Atkin

Signature: ..  .....

Date: 31 July 2025

Supervisor Name & Surname: James Keaveney

Signature: ..  .....

Date: 31 July 2025

## Section C: Suggested Reviewers

Obtaining the two referee reports necessary for DHET subsidy is an onerous task.

Please provide the names and contact details of three qualified South African and/or international referees. Referees should have a PhD and expertise in the relevant area of Physics. Do not recommend referees who have co-authored a work with any of the authors on the manuscript within the past five (5) years. Manuscripts without three recommended referees may be subject to desk rejection.

Suggested Reviewers in your Research Field (Both local & international)		
	Reviewer Names & Surname	Reviewer's Email Address(es)
Suggested reviewer #1	Deepak Kar	deepak.kar@wits.ac.za
Suggested reviewer #2	Zinhle Buthelezi	edith.zinhle.buthelezi@cern.ch
Suggested reviewer #3	Muaaz Bhamjee	muaaz.bhamjee@up.ac.za

## Section D: Declaration of Novelty and Use of AI

### How is this submitted manuscript scientifically novel?

This manuscript introduces the first ever anomaly detection trigger for the ATLAS experiment at CERN

It explores the new territory of using auto-encoders, a form of deep neural network, to search for anomalous events in real-time in the ATLAS experiment, needing to juggle efficiency with hardware constraints

Please see the [Author Guidelines for the AI use policy](#).

### How was AI used in the generation of this manuscript?

AI was only used to check for language and grammar mistakes, as well as assist in rewording some difficult thoughts. AI was not used for any other purpose

## Section E: Plagiarism

	Yes
I am aware that plagiarism detection software may be used on my manuscript.	