

# 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	243
Paper title	Deep Learning for High Throughput Decision Making on Diamond Content of PET Activated Kimberlite Rocks
Corresponding Author Name & Surname:	Nicholas Connell
Corresponding Author Email Address:	nickpconnell@gmail.com

## Section B: For Students & Supervisors

Supervisor Name & Surname:	Charis Harley
Supervisor Email Address:	charley@uj.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: ..... Nicholas Connell Signature: ..... Date: ..... 31/07/2025

Supervisor Name & Surname: ..... Charis Harley Signature: ..... Date: ..... 31/07/2025

## 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	Turgay Celik	celikturgay@gmail.com
Suggested reviewer #2	Pavel Bokov	pavel.bokov@necsa.co.za
Suggested reviewer #3	Lesego Moloko	lesego.moloko@necsa.co.za

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

### How is this submitted manuscript scientifically novel?

The novelty of this manuscript lies in its use of AI, in particular convolution neural networks, to classify three dimensional images of kimberlite rocks generated through positron emission tomography as diamond containing or barren. Furthermore, the method of synthesizing data for training purposes is novel in its application to autonomous decision making in the diamond mining industry in this particular case.

**Please see the Author Guidelines for the AI use policy.**

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

No AI was used to write this manuscript. However, the content of this manuscript concerns AI and AI training.

## Section E: Plagiarism

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