



**EXPERT REPORT COVER PAGE**

<b>Expert Personal Details</b>	
<b>Title:</b>	Ms
<b>Family Name:</b>	Gerhard
<b>Given Names:</b>	Jae
<b>Expert Work Details</b>	
<b>Occupation:</b>	Principal Scientist
<b>Company:</b>	Independent Forensic Services
<b>Work Address:</b>	[REDACTED]
<b>Suburb/Town:</b>	[REDACTED]
<b>State:</b>	NSW
<b>Post Code:</b>	[REDACTED]
<b>Work Country</b>	Australia
<b>Work Telephone:</b>	[REDACTED]
<b>E-mail Address:</b>	[REDACTED]



## EXPERT REPORT

Section 177, Evidence Act 1995 No. 25

<b>Name:</b>	Jae Gerhard	<b>Telephone:</b>	
<b>Address:</b>	Independent Forensic Services 		
<b>Occupation:</b>	Principal Scientist Independent Forensic Services		

### STATES:

1. This statement made by me accurately sets out the evidence that I would be prepared, if necessary, to give in court as a witness. This statement is true to the best of my knowledge and belief and I make it knowing that, if it is tendered in evidence, I will be liable to prosecution if I have wilfully stated in it anything that I know to be false, or do not believe to be true.
  
2. I acknowledge that I:
  - (i) have read the Expert Witness Code of Conduct in Schedule 7 of the NSW Uniform Civil Procedure Rule (Amendment 82) 2016, under the Civil Procedure Act 2005 and,
  - (ii) agree to be bound by the Code

### 1. Qualifications and Experience:

1.1.I hold a Bachelor of Science (in Biomedical Science)(Honours) from the University of Technology, Sydney.

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1.2. I also hold a Certificate IV in Scene of Crime Examination from Canberra Institute of Technology and a Certificate IV in Workplace Training and Assessment.

1.3. I am currently an Industry Fellow at the Centre of Forensic Science at the University of Technology, Sydney.

1.4. I have been employed in the forensic science field since 2002. During this time, I have undergone training and gained extensive knowledge and experience in forensic case assessment, item examination using various techniques for detecting and sampling biological material for DNA analysis, bloodstain pattern analysis, and the analysis and interpretation of DNA for criminal case work and human identification.

1.5. During the course of my employment, I have also undertaken numerous training courses and seminars (including but not limited to):

- ANZFSS 25<sup>th</sup> International Symposium on Forensic Science 'Forensics: Designing the future' Brisbane, (2022)
- Applying a Casework Assessment and Interpretation Approach to Probabilistic Genotyping Results Evaluative reporting for contact traces/activity level reporting workshop, International Symposium on Human Identification (2022)
- 31<sup>st</sup> International Symposium on Human Identification (ISHI) (2020)
- International Association of Bloodstain Pattern Analysts Annual Conference, (2020)
- International Symposium on Human Identification (2020)
- Validation Principles, Practices, Parameters, Performance Evaluations, and Protocols Workshop, International Symposium on Human Identification (2020)
- Case for DNA Evidence Based on Probabilistic Genotyping Workshop, International Symposium on Human Identification (2020)
- STRmix™ User Training (2016)
- ANZFSS 23rd International Symposium on the Forensic Sciences "Together Informing Justice" in Auckland, New Zealand (2016)
- Exploring Ways to Report DNA Findings given Activity Level Propositions Workshop (2014)
- ANZFSS 22nd International Symposium on the Forensic Sciences "Detect, Decipher and Deliver: the Future of Forensic Evidence" in Adelaide, Australia (2014)
- Advanced DNA Interpretation (2013)
- International Society of Forensic Genetics World Congress, Melbourne Australia (2013)
- ANZFSS 21st International Symposium on the Forensic Sciences "From Convicts to

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- Criminalistics” in Hobart, Australia (2012)
- Clandestine Laboratory Safety and Investigation (2011)
- Laboratory Based Bloodstain Pattern Analysis (2011)
- Impressions and Expressions, Expert Evidence in Report and Courts facilitated by the Australian Academy of Forensic Sciences (2011)
- Interpretation of Complex DNA Profiles (2010)
- ANZFSS 20th International Symposium on the Forensic Sciences “Forensic Science on Trial” in Sydney, Australia
- Bloodstain Pattern Analysis (2010)
- ANZFSS 19th International Symposium on the Forensic Sciences “Domestic Crime to International Terror” Melbourne, Australia (2008)
- Digital Crime Scene Photography (2006)
- Scene of Crime Examination (2005)
- Fingerprint Fundamentals (2005)
- Ridgeology (2005)
- Crime Scene Photography (35mm Film) (2005)
- Rapid Response and Disaster Victim Identification (2004)
- ANZFSS 17th International Symposium on the Forensic Science “Challenges and Changes” Wellington, New Zealand (2004)
- Bloodstain Pattern Analysis (2003)
- Introduction to Hair and Fibre Analysis (2003)
- Introduction to Crime Scene Analysis (2003)
- Court Presentation of Evidence (2003)
- Statistics for Forensic Biology (2003)

1.6. I am also a member of the following professional bodies:

- Australian and New Zealand Forensic Science Society (ANZFSS), professional member
- International Association of Bloodstain Pattern Analysts (IABPA)
- International Society of Forensic Genetics (ISFG)

1.7. I undertake annual proficiency testing in the areas of forensic DNA interpretation, including Y-STRs and bloodstain pattern analysis (BPA).

1.8. I have been accepted as an expert and given evidence in the following courts:

- NSW Local Court
- NSW District Court
- NSW Supreme Court
- County Court of Victoria
- Supreme Court of Victoria
- District Court of South Australia
- Federal Court of Western Australia
- Coroners Court of Northern Territory

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- Supreme Court of Northern Territory
- Supreme Court of Queensland
- Tauranga District Court (New Zealand)

2. Appendix A contains a list of references. Appendix B contains a copy of my curricula vitae.

### 3. **Source Material**

3.1. In the preparation of this report, I have been supplied and reviewed the following:

- Expert Brief to Independent Forensic Services (Scott Miller) - 24 April 2023
- Letter of Instruction – Scott Miller – 24 April 2023
- Clothing of Mr Scott Miller consisting of 1 x pair of blue jeans with brown belt attached, 2 x white t-shirts (described as top and bottom), 1 x pair of shoes, 1 x pair of socks

4. I have been requested to review the bloodstain pattern evidence on the clothing collected from Mr Miller and associated photographs.

5. The opinions in this report are wholly or substantially based on my specialised knowledge and experience.

### 6. **Limitations and Assumptions**

6.1. This report is independent and impartial and expresses my opinions based on the information provided. Should additional information be supplied I reserve the right to revise my findings.

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## 7. Background information

- 7.1. Information has been provided that Mr Miller was found deceased near Wharf 5, Hickson Road Darling Harbour, Sydney on Monday, 3 March 1997.
- 7.2. He is described in his last known sighting as appearing well dressed with no injuries and that his clothes appeared neat and tidy. The description provided of the clothes matches the description of the clothing that have been requested for examination.
- 7.3. The body of Mr Miller was located at the bottom of a small cliff approximately 7 metres high, in a location that was not readily accessible to the public. Entry to the area required passing a security checkpoint which was staffed at all times.
- 7.4. An autopsy of Mr Miller indicated that he sustained a large area of fracturing of the frontal bones as well as fracturing of both orbits (eye sockets), the nose and both maxillae (paired skeletal bone that forms the skeletal base of the face) as well as the mandible (lower jaw bone). Fractures to both wrists, abdominal bleeding, a laceration to the liver, a tear to the right kidney. There were also numerous other abrasions noted over the arms and the left calf.
- 7.5. An examination for the purposes of bloodstain pattern analysis were conducted by myself and another Independent Forensic Services scientist, Helen Roebuck on the 8 May 2023 at New South Wales Police Force (NSWPF) Pemulwuy Laboratory.

## 8. Technical information

8.1. This information is intended to provide the reader with background scientific information on technical issues addressed as part of this independent review.

### 8.2. Testing for biological fluids

8.2.1. Testing for biological fluids typically occurs in two stages:

- **Presumptive test** - a test that is highly sensitive to the substance being tested for, but will also react with other substances. In this case Hemastix™ has been used as a presumptive test for blood. This test is non-destructive as a small piece of filter paper is wiped over the suspected stain, and the chemical reagents are applied to this paper, leaving the stain uncompromised. The Hemastix™ test will react to blood

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(from any species) as well as other oxidising agents such as cleaning products and some plant materials.

- **Confirmatory test** – like the name suggests, a confirmatory test is specific to a substance and will confirm its presence. In this case a test known as ABACard® HemaTrace® was used as a confirmatory test for blood. This test is confirmatory for the presence of blood from humans, higher order primates (such as chimpanzees) and domestic ferrets. This testing is usually performed by excising a small portion of the stain, so that the material in the stain can be extracted in a specialised buffer. This buffer is then run on a cassette card that is impregnated with the antibodies for human blood. However, in this matter, non-destructive tests were performed, meaning portions of the staining that were tested were not excised.

### 8.3. Bloodstain Pattern Analysis (BPA)

- 8.3.1. Bloodstain pattern analysis involves the examination of the size, shape and distribution of blood stains to determine the events or mechanisms responsible for their deposition. It utilises the underpinning sciences of physics, mathematics and biology.
- 8.3.2. Due to the complexity of bloodstain pattern analysis, often it is not possible to determine the sequence of events or actions that resulted in the deposition of the blood staining, solely from visualising the bloodstains. Therefore, bloodstain pattern analysis often involves consideration of propositions presented by the relevant parties in the case. The blood pattern analyst can then use their expertise, and other information available in the case, to determine which of the supplied versions of events is the most likely explanation for any bloodstain patterns present.
- 8.3.3. Sometimes, within a crime scene, it is not possible to test every bloodstain, however, it is recommended that the presence of blood be verified with approved tests where ever possible. This may mean testing only one or two stains if they form part of a continuous pattern. If photographs are all that remain for evaluation, then it is recognised that an ABC approach to bloodstain pattern verification can be taken. This refers to using the appearance, behaviour and context of the stains to improve

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confidence that the stains are blood [1]. However, when examining crime scenes or physical items, it is also recommended that chemical tests for blood are conducted.

8.3.4. The definitions used in this report are from internationally recognised Organization of Scientific Area Committees for Forensic Science (OSAC BPA) terminology, published in the ASB technical report 033, first edition 2017, unless otherwise described.


## 9. Review of supplied crime scene photographs

- 9.1. Fifty low resolution photos have been provided in the expert brief for review. These photographs show a deceased man at the bottom of a cliff/rock face in an industrial area.
- 9.2. The deceased is wearing dark coloured shoes, blue jeans and a white t-shirt.
- 9.3. The deceased is lying face down, with an apparent blood pool with some flow moving away from the right side of the deceased.
- 9.4. Based on the asphalt surface in the industrial location where the deceased was located, it is very difficult to ascertain if there are any bloodstains on the ground in the area surrounding the deceased's location. Therefore, from the photographs alone it is not possible to ascertain if Mr Miller was moving with bleeding injuries on the ground at the bottom of the cliff. However, given the staining observed on the clothing and the nature of the injuries sustained, Mr Miller has not been upright and moving at the base of the cliff whilst bleeding.
- 9.5. There is no obvious bloodstaining that can be observed in the photographs taken from the top of the cliff. However, this does not preclude Mr Miller from having sustained a non-bleeding injury.

### 9.6. Posterior / rear surface of Mr Miller

- 9.6.1. There appears to be minimal apparent bloodstaining on the rear of the deceased. There are some dark discolorations on the white t-shirt. There appeared to be some dark staining in the rear right pocket of the jeans, however, upon examination of the jeans, no staining was located.

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9.6.2. There does not appear to be any bleeding injuries to the back of the head and the post mortem reports do not indicate there were any injuries to the rear of the head.

9.6.3. The right sleeve appears to have some red apparent bloodstaining where the blood has wicked through the fabric from the blood pool.

9.7. Anterior / front surface of the Mr Miller

9.7.1. No overall photographs of Mr Miller have been supplied; therefore, it is not possible to provide a commentary on the staining observed at the scene. The only photographs which show a portion of Mr Miller, show his face and his body with his t-shirt pulled up and his jeans open. Therefore, it is not possible to make further observations of the clothing in situ.

**10. Examination and interpretation of Item 1 – Blue jeans with brown belt attached (EFIMS barcode X0001676064)**

10.1. The examination was conducted on a pair of “JAG” brand, size 33 stone wash style jeans. These jeans have a white label “FS97/244-6b attached to the rear tag of jeans on the inner waistband. There was a brown leather belt attached to jeans, in the belt loops.

10.2. The jeans appeared to be in good but a dirty condition, with minimal damage/wear to the lower leg seams. There is generalised dirty staining over the front of the legs.

10.3. A small area of apparent wear and tear was located on the crotch area. This did not appear consistent with being caused by an action such as climbing over a barbed wire fence.

10.4. There were some green pencil markings on the jeans, in conjunction with the white FS label attached to the jeans, indicating the jeans have been previously examined by NSW Forensic and Analytical Science Service (NSWFASS), which would have been known at as the Division of Analytical Laboratories (DAL) at the time.

10.5. A white light and low powered magnification examination was performed on the jeans.

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- 10.6. A number of small discrete stains, which had slightly varied appearances and were red/orange/brown in colour were observed on the outside front and rear surfaces of the jeans. These stains were tested with Hemastix™, all stain tested negative for the presence of blood. A selection of the stains was also non-destructively sampled to conduct confirmatory blood testing. These tests also produced negative results, indicating that blood was not detected.
- 10.7. Some generalised dirt and a sticky residue was observed on the inside hems of the jeans. These stains also tested negative to a presumptive test for blood.
- 10.8. The inside of the pockets, the inner waist band of the jeans and the belt were also examined. The insides of the pockets were very clean and no bloodstaining was observed on any of these areas.

#### **11. Examination and interpretation of item 2 – white t-shirt (top) (EFIMS barcode X0001676064)**

- 11.1. The examination was conducted on a white “Trademark JAG” t-shirt. There was extensive dark red/black and heavy staining observed over the upper chest and neck region of the t-shirt. The t-shirt also has an overall dirty appearance. Some patchy areas of apparent mould were also observed over the heaviest areas of staining. This staining appears to be saturation<sup>1</sup> staining from blood soaking into and wicking through the fabric.
- 11.2. A white light and low powered magnification examination was performed on the t-shirt.
- 11.3. The heavy staining on the t-shirt was confirmed as being human or higher order primate blood.
- 11.4. A number of smaller stains, approximately 1mm in diameter were observed within the heavy staining. That is, these smaller stains appeared as darker stains within the overall saturation<sup>1</sup> staining. These stains are approximately circular in shape, that is they have no direction. These small apparent spatter<sup>2</sup> stains are created when a force in addition to gravity is applied to liquid blood. These stains are more predominant on the

<sup>1</sup> Saturation – A bloodstain resulting from the accumulation of liquid blood in an absorbent material.

<sup>2</sup> Spatter - A bloodstain resulting from an airborne blood drop created when an external force is applied to liquid blood

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right side of the shirt.

- 11.5. In my opinion, these stains could be the result of an external force being applied to the liquid blood, such as (i) blood being expelled from an airway (expired) shortly after a fall or (ii) liquid blood being distributed as a result of an impact such as a fall.
- 11.6. The heavy staining on the front of the shirt of the shirt is consistent with Mr Miller having facial injuries and remaining prone. Based on the supplied photographs this staining is also consistent with the position he was found with little to no movement once this bleeding had started.
- 11.7. The rear of the t-shirt has heavy blood staining predominantly on the right sleeve. There are also a number of areas of non-descript<sup>3</sup> bloodstaining on the back area of the shirt and left sleeve. There appears to have been some stains or portion of stains removed from the shirt, they are outlined in red pencil and labelled with i, ii, iii and iv. The additional report of Ms Friedman of the Division of Analytical Laboratories dated 19 May 1998 indicates these stains matched the reference DNA profile of Mr Miller. The previous sampling of these small stains does not alter my ability to provide an opinion on the bloodstaining on the t-shirt as enough staining remains to classify them as non-descript. It would also not alter my opinion, if the stains that are wholly removed could be categorised as spatter stains, as bloodstain pattern opinion evidence relies on looking at the overall bloodstain patterns and is not reliant on individual bloodstains.
- 11.8. In my opinion, the bloodstains located on the back of the t-shirt are not indicative of an assault or of Mr Miller being upright with a bleeding injury. It is possible they could have result from blood being distributed as a result of the fall from the cliff and landing on the back of Mr Miller.
- 11.9. The heavier type bloodstaining also appears to have wicked through the fabric as it becomes lighter in colour the further it moves from the front of the shirt.
- 11.10. The distribution of blood requires an initial impact to result in the opening of a freely bleeding wound, then subsequent strikes can distribute spatter<sup>4</sup> type stains. If there had been a single impact which created blood flow, then drip<sup>5</sup> type staining can result, if the

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<sup>3</sup> Non-descript – bloodstains, that based on their appearance can't not be categorised to determine their method of deposition.

<sup>4</sup> Spatter - A bloodstain resulting from an airborne blood drop created when an external force is applied to liquid blood

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individual is upright and bleeding. Therefore, in my opinion, the absence of drip<sup>5</sup> type stains or stains exhibiting directionality indicates that Mr Miller was not upright and bleeding whilst wearing the t-shirt. There is also no evidence of spatter<sup>6</sup> type stains that would indicate the Mr Miller has been struck or hit on more than one occasion causing a distribution of blood.

11.11. There is also an absence of drag or grab marks on the shirt that would indicate that Mr Miller has been moved/dragged. Furthermore, no flow<sup>7</sup> type patterns that would indicate that Mr Miller was moved whilst freely bleeding were observed.

11.12. It should also be noted, no damage was observed on the shirt.

**12. Examination and interpretation of Item 3 - white t-shirt (bottom) (EFIMS barcode X0001676064)**

12.1. The examination was conducted on a white t-shirt, with no manufacturer label present.

12.2. This t-shirt had an overall dirty appearance with dark staining that appears to be mostly consistent with the staining observed on the outer t-shirt, and in my opinion the distribution of the staining is consistent with the t-shirt being worn underneath Item 2. Similar type mouldy areas were also observed on the heavy areas of staining.

12.3. A white light and low powered magnification examination was performed on this t-shirt.

12.4. No drip<sup>8</sup> or spatter<sup>9</sup> type stains were observed on this t-shirt.

12.5. Some areas of damage (small holes) were observed on the front centre of the t-shirt and the neckline. This damage appears to be from wear and tear. These areas of damage were also not present on the outer shirt.

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<sup>5</sup> Drip stain - bloodstain resulting from a falling drop that formed due to gravity


<sup>6</sup> Spatter - A bloodstain resulting from an airborne blood drop created when an external force is applied to liquid blood

<sup>7</sup> Flow pattern - A bloodstain resulting from the movement of a volume of blood on a surface due to gravity or movement of the target

<sup>8</sup> Drip - bloodstain resulting from a falling drop that formed due to gravity

<sup>9</sup> Spatter - A bloodstain resulting from an airborne blood drop created when an external force is applied to liquid blood

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**13. Examination and interpretation of Item 4 – pair of brown shoes (EFIMS barcode X0000643237)**

- 13.1. The examination was conducted on a pair of “Rivers” brand apparent leather brown shoes with laces.
- 13.2. The shoes appear clean but well-worn appearance with no damage observed other than just general wear. The soles also appear clean but worn.
- 13.3. A white light and low powered magnification examination was performed on the shoes.
- 13.4. No bloodstaining was observed on the shoes.

**14. Examination and interpretation of Item 5 – pair of socks (EFIMS barcode X0000643237)**

- 14.1. The examination was conducted on a pair of “Disney” brand socks with a “Goofy” pattern.
- 14.2. The socks are well worn. One sock has a large hole in the sole area along with other smaller holes on the sole of the sock. The other sock has small holes on the sole.
- 14.3. A white light and low powered magnification examination was performed on the shoes.
- 14.4. An area of reddish staining was located on the sock with the smaller holes, on the top, ribbed area. This stain was tested with a presumptive test for blood, which was negative. A confirmatory test was also conducted on this stain which was also negative.

**15. Conclusion**

- 15.1. When considering the bloodstain patterns identified on all of the items of clothing examined, no bloodstains (such as spatter<sup>10</sup> or drips<sup>11</sup>) were observed to indicate that Mr Miller was assaulted (resulting in bleeding injuries) at the top or the bottom of the cliff.

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<sup>10</sup> Spatter - A bloodstain resulting from an airborne blood drop created when an external force is applied to liquid blood

<sup>11</sup> Drip - bloodstain resulting from a falling drop that formed due to gravity

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15.2. In my opinion, the bloodstaining patterns observed on the clothing and in the photographs are consistent with the position Mr Miller was found at the bottom of the cliff following a fall. Furthermore, there is no evidence of significant movement of Mr Miller once his bleeding facial injuries occurred.

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Expert Report of Jae Gerhard  
Case No: IFS2023020  
Inquest into the death of Mr Scott Miller

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**Appendix A**

1. Wonder, A.Y., *Blood Dynamics*. 2001: Academic Press.
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A handwritten signature in black ink, appearing to read "Jae Gerhard", written over a horizontal line.

Jae Gerhard  
Independent Forensic Services  
29 May 2023

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## Appendix B

### Personal Details

Name: Jae Gerhard

Address: [REDACTED]

Contact No.: [REDACTED]

Email: [REDACTED]

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### Skills and experience

Jae is a Forensic Biologist and certified trainer with over 18 years' experience in an operational forensic setting, offering expertise in biological fluid detection and identification, bloodstain pattern analysis, DNA analysis and interpretation as well as the provision of expert evidence.

Core Expertise is offered in the following areas:

- Detection and Confirmation of Biological fluids in the field and laboratory
- Bloodstain pattern analysis (BPA)
- Disaster victim identification (DVI)
- Parentage and familial relationship reporting
- DNA analysis and Interpretation (including complex/mixed DNA profiles)
- Crime scene examination
- Complex case assessment and management
- Procedure and Workflow development
- Training and Mentoring to scientific and non-scientific audiences
- Provision of expert evidence in court

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### Court presentation of evidence

Accepted and presented evidence in court in multiple jurisdictions including:

NSW Local Court

NSW District Court

NSW Supreme Court

County Court of Victoria

Supreme Court of Victoria

District Court of South Australia

Federal Court of Western Australia

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Coroners Court of Northern Territory  
Supreme Court of Northern Territory  
Supreme Court of Queensland  
Tauranga District Court (New Zealand)

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## Education

Certificate IV in Training and Assessment from Central Coast Community College, 2008.

Certificate IV in Scene of Crime Officer (SOCO) Training from the Canberra Institute of Technology, 2005. Bachelor of Science (in Biomedical Science) (Honours) from the University of Technology, Sydney and produced a thesis in forensic DNA analysis in conjunction with the Australian Federal Police (AFP) forensic services, 2002.

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## Professional Memberships (current)

Member of Australian and New Zealand Forensic Science Society (ANZFSS)

Full member of International Association of Bloodstain Pattern Analysts (IABPA)

Member of International Society of Forensic Genetics (ISFG)

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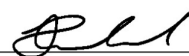
## Professional Development/Training

A scientist committed to ongoing professional development and continuous learning, has participated in formal training throughout her career as well as industry seminars, conferences and presentations.

Training courses and seminars attended include, but are not limited to:

- ANZFSS 25th International Symposium on Forensic Science 'Forensics: Designing the future' Brisbane, 2022
- Applying a Casework Assessment and Interpretation Approach to Probabilistic Genotyping Results Evaluative reporting for contact traces/activity level reporting workshop, International Symposium on Human Identification (2022)
- Evaluative reporting for contact traces/activity level reporting 2021)

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- 1<sup>st</sup> International Symposium on Human Identification (ISHI) (2020)
- Arguing the case for DNA evidence based on probabilistic genotyping (2020)
- Validation Principles, practises, parameters, performance evaluations and protocols (2020)
- International Association of Bloodstain Pattern Analysts Annual Conference (2020)
- International Symposium on Human Identification (2020)
- Validation Principles, Practices, Parameters, Performance Evaluations, and Protocols Workshop, International Symposium on Human Identification (2020)
- Case for DNA Evidence Based on Probabilistic Genotyping Workshop, International Symposium on Human Identification, virtual (2020)
- STRmix™ User Training (2016)
- ANZFSS 23rd International Symposium on the Forensic Sciences “Together Informing Justice” in Auckland, New Zealand (2016)
- Exploring ways to report DNA findings given activity level propositions Workshop (2014)
- ANZFSS 22<sup>nd</sup> International Symposium on the Forensic Sciences “Detect, Decipher, Deliver: The Future of Evidence” in Adelaide, Australia (2014)
- Advanced DNA Interpretation Workshop (2013)
- 25th Congress of the International Society of Forensic Genetics, Melbourne, Australia (2013)
- Effective Forensic Science: Are we using our Experts Effectively? Facilitated by the Australian Academy of Forensic Science (2013)
- ANZFSS 21<sup>st</sup> International Symposium on the Forensic Sciences “Convict to Criminalistics: Past, Present and Future” in Hobart, Australia (2012)
- Clandestine Laboratory Safety and Investigation (2011)
- Laboratory Based Bloodstain Pattern Analysis (2011)
- Impressions and Expressions, Expert Evidence in Report and Courts facilitated by the Australian Academy of Forensic Sciences (2011)
- Interpretation of Complex DNA Profiles (2010)
- ANZFSS 20th International Symposium on the Forensic Sciences “Forensic Science on Trial” in Sydney, Australia (2010)
- Bloodstain Pattern Analysis (2010)
- Applied Biosystems GeneMapper IDx User Training (2009)
- ANZFSS 19th International Symposium on the Forensic Sciences “Domestic Crime to International Terror” Melbourne, Australia (2008)
- Digital Crime Scene Photography (2006) Scene of Crime Examination (2005)

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- Fingerprint Fundamentals (2005)
- Ridgeology (2005)
- Crime Scene Photography (35mm Film) (2005)
- Developing Project Management Expertise (Introduction to Project Management) (2005)
- Rapid Response and Disaster Victim Identification (2004)
- Disaster Victim Scene Practitioner (2004)
- ANZFSS 17th International Symposium on the Forensic Science “Challenges and Changes” Wellington, New Zealand (2004)
- Bloodstain Pattern Analysis (2003)
- Introduction to Hair and Fibre Analysis (2003)
- Introduction to Crime Scene Analysis (2003)
- Court Presentation of Evidence (2003)
- Statistics for Forensic Biology (2003)

A full list of training courses can be provided upon request.

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## Awards

Humanitarian Overseas Service Medal “Indian Ocean Clasp”. Awarded for overseas service rendered in relation to the DVI investigation following the 2004 Boxing Day tsunami, 2006.

Australian Federal Police Operations Service Medal. Awarded for services to Operation Alliance relating to the 2002 Bali Bombings DVI and criminal investigations, 2003.

Oscar Rivers Schmalzbach Research Grant from the Australian Academy of Forensic Sciences, 2002.

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## Publications and Presentations

Bloodstain Pattern Analysis. Chapter 97 in Expert Evidence Edited Freckleton and Selby, 2011.

The Design and Construction of Two Mobile Forensic Laboratories. Presentation ANZFSS Conference, Sydney Australia, 2010.

DNA Analysis of Blood Following Structural Fire. Presentation ANZFSS Conference, Melbourne Australia, 2008.

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DNA Analysis of Samples Related to Human Nail Material. Poster Presentation ANZFSS Conference, Wellington New Zealand, 2004.

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## Career Profile

### Principal Scientist

**May 2012 – Current**

INDEPENDENT FORENSIC SERVICES

*Independent Forensic Services offers forensic biology consultancy in criminal matters*

- Critical appraisal and evaluation of forensic reports, case files and source documents in relation to forensic biology, DNA analysis, bloodstain pattern analysis and crime scene examination
- Reporting of findings in the context of the case and producing a clear and concise report suitable for court presentation. Operating wholly in an independent manner, ensuring paramount duty is to the court
- Conduct examinations/re-examinations of items and scenes for biological evidence
- Conduct or facilitate DNA testing and interpretation of DNA results
- Appear as an expert witness and/or assist with appropriate lines of questioning for court
- Conduct bespoke training
- Conduct annual proficiency testing in DNA interpretation and bloodstain pattern analysis
- Deliver educational seminars and training to the legal community

### Parentage Reporting Officer

**May 2015 - September 2017**

GENOMIC DIAGNOSTICS

*Genomic Diagnostics, focus on leading the way in providing accessible, quality genetic testing answers to improve your health.*

- NATA accredited parentage DNA reporting scientist
- Interpret DNA profiles
- Perform statistical analysis in relation to parentage and familial DNA testing
- Prepare reports and provide expert evidence to the courts

### Industry Fellow

**May 2014 – Current**

CENTRE OF FORENSIC SCIENCE, UNIVERSITY OF TECHNOLOGY SYDNEY

*The Centre gathers academics and associate industry partners who share the vision that crime reduction, crime solving and national security in general are important for society.*

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Jae Gerhard

Independent Forensic Services

29 May 2023

- Conduct lectures as requested
- Assist development and presentation of course material
- Assist in teaching of practical sessions
- Assist in course marking and grading

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**Forensic Biology Reporting Officer**

**Aug 2008 – May 2012**

NSW POLICE FORCE FORENSIC SERVICES GROUP

*The NSW Police Force Forensic Services Group provides specialised technical crime scene support to all Police throughout NSW. The Forensic Biology Laboratory was established to provide comprehensive forensic biology services, from crime scene to court room.*

- Examination of a variety of items/crime scenes for the presence of biological evidence using light sources, chemical tests and immunological techniques
- Performing examinations in conjunction other disciplines for complex major crimes to maximise evidence recovery
- Provide biological advice and forensic support to other forensic disciplines and police investigators
- Prepare reports and statements to investigators and provide expert evidence to the courts
- Review case notes/examinations and files of other staff members
- Determining and validating testing systems, including DNA analysis processes
- Writing standard operating procedures and manuals
- Provide training on the forensic biology discipline to other policing areas as required
- Provide training/mentoring on examination techniques and case management to junior staff
- Triaging and evaluating cases to determine the most appropriate route for analysis
- Mentoring and supervising team members
- Perform the role of Assistant Chemist and Clandestine Laboratory Investigations

Selected as one of two scientists involved in the Mobile Laboratory Project that was being funded as part of New South Wales DNA Advancement Program. The team comprised of engineers, project management and other technical specialists involved in the design and construction of two mobile laboratories. These laboratories have to capability to respond and conduct analysis in the areas of forensic biology, fingerprint detection and enhancement, clandestine laboratory analysis as well as explosives and bioterrorism incidents. Produced the Standard Operation Procedures and Training Manuals for the use of these specialised vehicles.

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**Crime Scene Officer**

**September 2005 – August 2008**

NSW POLICE FORCE FORENSIC SERVICES GROUP

- Assess, record and collect forensic evidence from crime scenes and persons, both living and deceased. Predominantly relating to fingerprint evidence.

Signature: \_\_\_\_\_



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- Enhance and collect fingerprint evidence from items seized from crime scenes using appropriate chemical enhancement techniques and visualisation using a variety of light sources.
- Provide training and support to police officers in relation Livescan fingerprint devices.
- Perform verification of Livescan fingerprints for confirmation of identity for police stations throughout NSW.
- Scan and search fingerprint evidence collection from crime scenes on the National Automated Fingerprint System (NAFIS).

### **Forensic Biology Reporting Officer**

**Oct 2002 – Oct 2005**

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AUSTRALIAN FEDERAL POLICE FORENSIC SERVICES

*AFP Forensic Service provides a range of forensic services in support of the AFP's national and ACT Policing outcomes and also provides assistance where required to other Commonwealth agencies and State/Territory law enforcement bodies. The service seeks to serve Police and the justice system by providing services that are fault free, timely, impartial, and customer focused.*

- Examination of a variety of items collected from crime scenes in the ACT, nationally and internationally for the presence of biological evidence.
- Attend crime scenes as required for biological advice and assistance.
- Provide biological advice and forensic support to other forensic disciplines and police investigators.
- Apply technical expertise to the DNA analysis of a wide range of samples.
- Interpret DNA profiles, perform statistical analysis and add DNA profiles to the DNA Database in accordance with ACT and Commonwealth Forensic Procedures legislation.
- Prepare statements and provide evidence in court as required.
- Assist in the maintenance laboratory instruments in accordance with NATA requirements.
- Provide DNA Awareness training as required.
- Train new staff in examination techniques and DNA analysis processes.
- Develop and maintain training modules and procedure modules as required.

### **Forensic Biology Assistant**

**May 2002 – Oct 2002**

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AUSTRALIAN FEDERAL POLICE FORENSIC SERVICES

- Filing and retrieving case files are requested.
- Creation of Biology "children" within AFP PROMIS System.
- Destruction of case records and samples for expired reference samples in accordance with ACT and Commonwealth legislation.
- Compiling and paginating case files for case reporting scientists.
- Performing access checking for samples on the biology database.

Signature: \_\_\_\_\_



Jae Gerhard

Independent Forensic Services

29 May 2023