

**UNIVERSITY OF PRETORIA**

**CURRICULUM VITAE: DINEO RAMATLO**

**1. BIOGRAPHICAL SKETCH**

| <b>1.1 GENERAL INFORMATION</b> |  |                                     |                 |                            |               |                          |                                     |                            |   |
|--------------------------------|--|-------------------------------------|-----------------|----------------------------|---------------|--------------------------|-------------------------------------|----------------------------|---|
| <b>Surname</b>                 | Ramatlo  |                                     |                 |                            |               |                          |                                     |                            |   |
| <b>First names</b>             | Dineo Anna Marry   |                                     |                 | <b>ID Number</b>           |               |                          |                                     |                            |   |
| <b>Citizenship</b>             | South African  |                                     |                 | <b>Title</b>               | Ms            | <b>Female</b>            | <input checked="" type="checkbox"/> | <b>Male</b>                | <input type="checkbox"/>                |
| <b>Place of birth</b>          | Pretoria   |                                     |                 | <b>Date of birth</b>       |               |                          | 09 October 1991                     |                            |   |
| <b>Population group</b>        | <b>African</b>   | <input checked="" type="checkbox"/> | <b>Coloured</b> | <input type="checkbox"/>   | <b>Indian</b> | <input type="checkbox"/> | <b>White</b>                        | <input type="checkbox"/>   | <b>Other</b><br><i>(Please specify)</i> |
| <b>Department</b>              | Mechanical and Aeronautical Engineering                            |                                     |                 | <b>Position</b>            |               |                          | Lecturer                            |                            |   |
| <b>Direct Telephone</b>        | 012 420 2462   |                                     |                 | <b>Direct Telefax</b>      |               |                          |                                     |                            |   |
| <b>E-mail</b>                  | <a href="mailto:dineo.ramatlo@up.ac.za">dineo.ramatlo@up.ac.za</a> |                                     |                 |                            |               |                          |                                     |                            |   |
| <b>Date of appointment</b>     | 01/01/2020   |                                     |                 | <b>Permanent full-time</b> |               |                          | <input checked="" type="checkbox"/> | <b>Temporary full-time</b> | <input type="checkbox"/>                |

| <b>1.2 ACADEMIC QUALIFICATIONS OBTAINED</b> |                        |                                     |             |                     |
|---|------------------------|-------------------------------------|-------------|---------------------|
| <b>Degree/ Diploma</b>                      | <b>Field of study</b>  | <b>Higher education institution</b> | <b>Year</b> | <b>Distinctions</b> |
| MEng  | Mechanical Engineering | University of Pretoria              | 2016        | Cum Laude           |
| BEng (Hons)                                 | Mechanical Engineering | University of Pretoria              | 2014        | N/A                 |
| BEng  | Mechanical Engineering | University of Pretoria              | 2013        | N/A                 |

| <b>1.3 WORK EXPERIENCE TO DATE</b> |                                     |                                       |
|------------------------------------|-------------------------------------|---------------------------------------|
| <b>Name of employer</b>            | <b>Capacity and/or type of work</b> | <b>Period From (mm//yy to mm//yy)</b> |
| CSIR                               | Masters Studentship                 | January 2015 – September 2016         |
| CSIR                               | Doctoral Studentship                | October 2016 – December 2016          |
| CSIR                               | Researcher                          | January 2017 – December 2019          |
| University of Pretoria             | Lecturer                            | January 2020 - Present                |

## 2. TEACHING ACTIVITIES

| <b>2.1 Courses presented</b>                   |  |                                   |
|--|--|-----------------------------------|
| <b>Course</b>                                  | <b>Level (e.g. second year, Masters)</b> | <b>Self developed (Yes or No)</b> |
| MSD 210 Dynamics                               | Second year                              | No                                |
| MPR 213 Programming and Information Technology | Second year                              | No                                |
|  |  |                                   |

| <b>2.2 Other education and pedagogic courses presented</b> |             |                    |
|--|-------------|--------------------|
| <b>Course</b>  | <b>Year</b> | <b>Institution</b> |
|  |             |                    |

## 3. TEACHING OUTPUTS

| <b>3.1 Educational publications and products</b> |
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|  |

## 4. OTHER TEACHING CONTRIBUTIONS

| <b>4.1 Membership of national and international bodies</b> |
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|  |

| <b>4.2 Visits to local and overseas universities as guest professor or lecturer in regard to teaching</b> |
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|   |

| <b>4.3 Participation in national and international teaching associations, bodies, committees</b> |
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|  |

## 5. POSTGRADUATE SUPERVISION

| 5.1 Supervision or co-supervision of students who have completed degrees |   |            |                  |                             |
|--|---|------------|------------------|-----------------------------|
| Name of student  | Degree <sup>1</sup> /Title of dissertation/ thesis and date completed | Supervisor | Co-supervisor(s) | Duration of studies (years) |
|  |   |            |                  |                             |

| 5.2 Current post-graduate students |   |               |            |                  |                      |
|------------------------------------|---|---------------|------------|------------------|----------------------|
| Name of student                    | Degree <sup>2</sup> enrolled for and date of first registration | Project title | Supervisor | Co-supervisor(s) | Year of registration |
|                                    |   |               |            |                  |                      |

## 6. RESEARCH FUNDING

| 6.1 Obtaining research funds (Optional) |  |             |                     |
|---|--|-------------|---------------------|
| Origin of research funds                | Title of research project or programme | Duration    | Money allocated (R) |
| NRF Thuthuka Fund                       | Guided wave ultrasound monitoring      | 2020 - 2021 | R280 000            |
|   |  |             |                     |

<sup>1</sup> Indicate whether Honours, Masters research, Masters coursework with dissertation or Doctorate

<sup>2</sup> Indicate whether Honours, Masters research, Masters coursework with dissertation or Doctorate

## 7. RESEARCH OUTPUTS

### 7.1 Publications in peer-reviewed or refereed journals

#### Publications published in peer-reviewed or refereed journals

1. P. W. Loveday., C. S. Long and D. A. Ramatlo.; "Mode repulsion of ultrasonic guided waves in rails", *Ultrasonics*, vol. 84, pg. 341-349, 2018. (Impact Factor=3.01)
2. D. A. Ramatlo., D. N. Wilke and P. W. Loveday.; "Development of an Optimal Piezoelectric Transducer to Excite Guided Waves in a Rail Web", *NDT & E International Journal*, vol. 95, pg. 72-81, 2018. (Impact Factor=3.46)
3. C. S. Long., P. W. Loveday., D. A. Ramatlo and E. Andhavarapu.; "Numerical verification of an efficient coupled SAFE-3D FE analysis for guided wave ultrasound excitation", *Finite Elements in Analysis and Design*, vol. 149, pg. 45-56, 2018. (Impact Factor=2.95)
4. D. A. Ramatlo., C. S. Long., P. W. Loveday and D. N. Wilke.; "A Modelling Framework for Simulation of Ultrasonic Guided Wave-Based Inspection of Welded Rail Tracks", *Ultrasonics*, vol. 108, pg. 01-18, Accepted 23 June 2020. (Impact Factor=3.01.)

### 7.2 Books and/or chapters in books

*Provide full details, including full titles, names of all the authors, publishers, dates, page numbers etc. Specify your exact contribution to the book e.g. editorial role, co-author*

### 7.3 Published full-length conference papers/keynote addresses

*Provide full details of each publication, including full titles, names of all the authors, journals, dates, page numbers etc.*

1. D. A. Ramatlo., D. N. Wilke and P. W. Loveday.; "Optimal Design of a Piezoelectric Transducer to Excite Ultrasonic Guided Waves", *10th South African Conference on Computational and Applied Mechanics*, South Africa, 3-5 October 2016.
2. P. W. Loveday and D. A. Ramatlo; "Experimental Observation of Computed Ultrasonic Guided Wave Dispersion Phenomena", *10th South African Conference on Computational and Applied Mechanics*, South Africa, 3-5 October 2016.

- 3.D. A. Ramatlo., C. S. Long., P. W. Loveday and D. N. Wilke.; “SAFE-3D analysis of a piezoelectric transducer to excite guided waves in a rail web”, in *Review of Progress in Quantitative Non-destructive Evaluation*, eds. D. E. Chimenti and L. J. Bond, (American Institute of Physics 1706, Melville, NY) 020005 (2016).
- 4.D. A. Ramatlo., D. N. Wilke and P. W. Loveday.; “Optimal Design of a Piezoelectric Transducer for Exciting Guided Wave Ultrasound in Rails”, *43rd Annual Review of Progress in Quantitative Non-destructive Evaluation*, Georgia, 16-22 July 2016.
- 5.P. W. Loveday., D. A. Ramatlo and F. Burger; “Monitoring of Rail Track Using Guided Wave Ultrasound”, *19th World Conference on Non-Destructive Testing*, Munich, 2016
- 6.P. W. Loveday., R. M. C. Taylor., C. S. Long and D. A. Ramatlo.; “Monitoring the Reflection from an Artificial Defect in Rail Track using Guided Wave Ultrasound”, *44th Annual Review of Progress in Quantitative Non-destructive Evaluation*, Utah, 16-21 July 2017.
- 7.D. A. Ramatlo., P. W. Loveday., C.S Long and D. N. Wilke; “Estimation of probability of defect detection by combining simulated defect signatures with measured ultrasonic guided wave signals”, *11th South African Conference on Computational and Applied Mechanics*, South Africa, 17-19 September 2018.
- 8.K. Dhuness., D. A. Ramatlo., C. S. Long and P. W. Loveday.; “Temperature Compensation for Ultrasonic Guided Wave Measurements”, *11th South African Conference on Computational and Applied Mechanics*, South Africa, 17-19 September 2018.
- 9.C. S. Long., D. A. Ramatlo., and P. W. Loveday.; “Comparison between SAFE forced response and Abaqus/Explicit solutions of a rail excited at a cut-off frequency”, *11th South African Conference on Computational and Applied Mechanics*, South Africa, 17-19 September 2018.

#### **7.4 Non-refereed publications or popular articles**

*Provide full details of each publication, including full titles, names of all the authors, journals, dates, page numbers etc.*

#### **7.5 Patents**

*Provide full details of provisional or full patents*

#### **7.6 Technical reports**

*Provide full details.*

## 8. OTHER SCHOLARLY RESEARCH-BASED CONTRIBUTIONS

### 8.1 Participation in conferences, workshops and short courses - specify type of contribution

*Provide full details of participation in national and international conferences etc*

#### 8.1.1 National

1. D. A. Ramatlo; "Fusing Simulated Defect Signatures with Experimental Measurements to Predict the Probability of Defect Detection in Rails", *6th CSIR Emerging Researchers Symposium*, South Africa, 28-29 June 2018.

#### 8.1.2 International

1. Manfred Johannes and D. A. Ramatlo., "Advancing NDE Education for Future Engineers – A South African Perspective", *43rd Annual Review of Progress in Quantitative Non-destructive Evaluation*, Georgia, 16-22 July 2016. (Presented by D.A Ramatlo)
2. D. A. Ramatlo., C. S. Long., P. W. Loveday and D. N. Wilke.; "Guided wave ultrasound Modelling framework for simulation of features and defects in welded rail tracks", *47th Annual Review of Progress in Quantitative Non-destructive Evaluation*, Minneapolis, 26-30 July 2020.

### 8.2 Teamwork and collaboration with others:

#### ***Other researchers (national and international)***

1. Professor Philip Loveday – University of the Witwatersrand (2015 - Present)
2. Dr Craig Long – CSIR Manufacturing Cluster (2015 - Present)

#### ***Other research institutions (national and international)***

1. University of the Witwatersrand
2. CSIR Manufacturing Cluster

#### ***Industry***

### 8.3 Membership in national and international bodies

*List all the scientific associations or societies to which you belong. Name your involvement, e.g. honorary member, founder member, full member, chairman, president, secretary*

**8.4 Visits to local and overseas universities or research institutes as guest professor or researcher**

*Details are required*

**9. ARTISTIC OUTPUTS (if applicable)**

9.1 Provide full details of artistic outputs, including public reviews of work, coordinating reports by experts in the field, publisher, production company etc

**10. MANAGEMENT AND ADMINISTRATIVE DUTIES**

10.1 List your involvement in departmental activities (e.g. administrative functions), faculty (e.g. Faculty Committees) or other university activities.

MechEng Marketing Committee - 2020

**11. COMMUNITY SERVICE OR PROFESSIONAL SKILLS**

**11.1 Outreach projects**

*(e.g. project titles, institutions and communities involved, etc.)*

**11.2 Professional service performed**

*(e.g. courses presented, lectures at professional associations/clubs, radio or TV appearances, outside expert or appointment committee, etc.)*

**11.3 Clinical service**

*(e.g full detail of rank/level of joint appointment, level of clinical service rendering responsibilities, university administration and academic responsibilities, CPD involvement, clinical trials involvement, etc.)*

**11.4 Involvement with other universities/scientific institutions**

*(e.g. external examiner, editor of journal, advisory council, CSIR, SA Council for Scientific Professions)*

**11.5 Referee duties**

*(e.g. journals, dissertations/theses)*

**12. AWARDS AND SCIENTIFIC/SCHOLARLY RECOGNITION****12.1 Evaluation status as scientist/scholar**

*(e.g. NRF; first evaluation and date, subsequent evaluations and dates)*

**12.2 Research awards and prizes**

1. NRF Thuthuka Grant. 2020-2021.
2. CSIR-MSM Best Masters Student. 2017.
3. Third Prize at the QNDE 2015 conference student poster competition. 2015.

**12.3 Teaching awards and prizes**

*Full details are required*

**12.4 Artistic awards and prizes**

*Full details required*