

# BONGANI DINDI

MECHANICAL  
ENGINEERING  
2026 GRADUATE

## PROFILE

Motivated mechanical engineering graduate with strengths in CAD design, system modelling, and hands-on prototyping. Experienced in Python, SolidWorks, MATLAB, design and laboratory testing. Passionate about renewable energy systems, mechanical innovation, and applying analytical thinking to real-world engineering challenges.

## PROJECTS

- **Bi-Stable Clamp Valve Mechanism**
  - Role: Mechanical Designer
  - Tools: SolidWorks, Python
  - Designed and analyzed a 3D-printed bi-stable clamp for embedded 3D printing systems.
  - Modelled kinetic and kinematic behaviors of system using Python.
  - Performed geometric optimization and fatigue considerations for long-term use.
  - Wrote a technical report on system feasibility
- **Linear Reciprocating Wear Tester Recommissioning**
  - Role: Embedded Systems Developer & Mechanical Technician
  - Tools: Arduino Uno, C++, Sensors, SD Logging
  - Repaired mechanical components of the wear tester and restored full operational functionality.
  - Designed and integrated an Arduino-based control system for real-time sensing, actuation, and data acquisition.
  - Implemented interfaces for a Hall-effect sensor, relay module, keypad, SD card module, and LCD display to automate test cycles and enable live data recording.
- **Veterinary Positive-Displacement Infusion Pump**
  - Role: Mechanical Systems Designer
  - Tools: SolidWorks, Python
  - Designed a modular positive-displacement infusion pump for veterinary dosing and batch dispensing applications.
  - Analysed flow accuracy, back-pressure behavior, friction effects, and load-compensation requirements for reliable low-volume delivery.
  - Developed subsystem concepts for rate-control and volume-dispense modes, focusing on robustness, low power consumption, and high pressure capability.
  - Designed pump drivetrain

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- Below is the link to a website I created that details the projects I have completed.
- 🌐 <https://bongani-dindi.github.io>

## EDUCATION AND WORK EXPERIENCE

- KEARSNEY COLLEGE: 2019**
- UNIVERSITY OF CAPE TOWN: 2020-2026**
  - BSc(Eng) Mechanical Engineering
- NORTHLINK COLLEGE: 2024**
- ONE EIGHTY MATERIALS ENGINEERING SOLUTIONS (PTY) LTD : 2025**
  - Intern

## SKILLS

- Technical Skills: SolidWorks • MATLAB • Python • Arduino • Excel/VBA • Milling Machine Operation • Hand tool skills • Circuit Design Basics • Embedded system integration • Data Logging • Technical reporting • Prototyping workflow, iteration & test planning
- Mechanical Engineering Competencies: Mechanical design • Stress & fatigue analysis • Prototyping • Fluid dynamics • Vibrations • Experimental methods • Systems Thinking
- Professional Skills: Team collaboration • Technical communication • Attention to detail • Leadership • Problem-solving

## LANGUAGES

- English