

**EUROPEAN
CURRICULUM VITAE
FORMAT**



PERSONAL INFORMATION

Name

SHETHIA FENIL PANALAL

Address

Telephone

E-mail

Nationality

INDIAN

Date of birth

WORK EXPERIENCE

- May 2022 to October 2022

Winner of the scholarship (Borsa Di Formazione, Protocol Number 1168 of date 26/04/2022) for the topic: Models and control algorithms based on artificial intelligence and machine learning for the reduction of CO2 emissions in high-performance engines

- Name and address of employer
- Main activities and responsibilities

Department of Industrial Engineering, Alma Mater Studiorum – University of Bologna, Bologna Italy

- Engine installation and conduction of test at the test bench
- Development of 0-D combustion models based on Artificial Intelligence
- Validation of models by comparing the results with experimental data
- Data analysis of the recorded data at the engine test cell using Matlab/Simulink

- October 2021 to April 2022

Internship

- Name and address of employer
- Main activities and responsibilities

Engine Test Cell, Department of Industrial Engineering, Alma Mater Studiorum – University of Bologna, Via Terracini, 40131, Bologna.

- Engine installation and conduction of test at the test bench
- Development of 0-D combustion models based on Artificial Neural Networks
- Developed a user-developed Matlab GUI to automatically train and test the Neural Networks
- Development of ANN-based, engine simulator
- Validation of the models and simulator by comparing the results with experimental data
- Data analysis of the recorded data at the engine test cell using Matlab/Simulink

- July 2015 to May 2019

Design Engineer

- Name and address of employer
- Main activities and responsibilities

Eros Elevators, 405 Bharat Industrial Estate, Sewri, Mumbai, 400015

- Modelling and FEA simulation of mechanical components
- 2D drawings for manufacturing

- September 2013 to July 2015

Cadd Engineer

- Name and address of employer
- Main activities and responsibilities

Cadd Center, A-306, Om Rachna, Sector-17, Vashi, Navi Mumbai, 400703

- Instructor on CAD software (Solidworks, Catia, Ansys, AutoCAD)
- 3D Modelling of components for outsourced projects

- July 2010 to September 2010

Short Internship

- Name and address of employer
- Main activities and responsibilities

Swastik Auto Works, S.K. Bole Road, Prabhadevi, Mumbai 400028

- Assisting in maintenance of passenger cars

- December 2009 to May 2010 & June 2008 to November 2008
- Name and address of employer
- Main activities and responsibilities

Internship (Sandwich Trainee)

TATA Motors Limited, Sector 15, MIDC, Pimpri Colony, Pimpri-Chinchwad, Pune, 411018

- Development of a function in a control system for automotive application
- Developing and simulating control circuits for automotive application in software environment
- Carried out mechanical assembly of a study 1.4L, inline 4-cylinder petrol engine

EDUCATION AND TRAINING

- November 2022 to Present
- Name of organization
 - Topic
- Title of qualification
- September 2019 to April 2022
- Name of organization
 - Thesis
- Title of qualification awarded
- September 2010 to June 2019
- Name of organization
 - Thesis
- Title of qualification awarded
- August 2006 to July 2010
- Name of organization
 - Thesis
- Title of qualification awarded
- November 2020 to December 2022

Automotive Engineering for Intelligent Mobility, Curriculum 2: Energy Systems, Powertrains, Vehicle Performance

Alma Mater Studiorum - University of Bologna

Analysis and Advanced Modelling of Phenomenon and Technologies Related to the Implementation of New Propulsion Systems and Fuels to Reduce CO₂ Emissions

Doctor of Philosophy (PhD)

Advanced Automotive Engineering – Advanced Powertrains, Bologna

Motorvehicle University of Emilia Romagna (MUNER)

Master Thesis Title: “Development and validation of an artificial intelligence-based, control-oriented simulator of a high-performance spark ignition engine”.

Master’s Degree in Advanced Automotive Engineering (Final Grade: 107/110)

Mechanical Engineering

K. J. Somaiya College of Engineering (Mumbai University)

Bachelor Thesis Title: “Study of design of airplane wings”.

Bachelor of Engineering in Mechanical Engineering (Final Grade, 7th, and 8th Semester: 973/1500, First Class, 84.2/110 in Italian Grade)

Mechanical Engineering

Agnel Polytechnic, Vashi (Maharashtra State Board of Technical Education)

Diploma Thesis Title: “Design and fabrication of windmill (microgeneration)”.

Diploma in Mechanical Engineering (Final Grade, 7th, and 8th Semester: 875/1025, First (distinction) Class, 99.3/110 in Italian Grade)

Training and Seminars

- **Short course**, Alma Mater Studiorum - University of Bologna and KTH Engineering Mechanics, Topic: “Uncertainty Analysis for Engineers”. By Prof. Henrik Alfredsson, Location: Online Lesson, Date: 13/02/2023 to 15/02/2023, Duration: 10 hours.
- **Short course @ Engine Test Cell**, Department of Industrial Engineering, Alma Mater Studiorum - University of Bologna, Topic: “An Overview of a Model-Based Combustion Control Algorithm and its implementation in a Rapid Control Prototyping System Designed for the Engine Test Bench”. By Dott. Ing. Alessandro Brusa. Location: Engine Test Cell, Via Umberto Terracini 24/26, 40131, Bologna, Date: 15/12/2022 & 21/12/2022, Duration: 8 hours.
- **Short course**, Alma Mater Studiorum - University of Bologna and KTH Mekanik, Topic: “Short Course on Data Driven Methods in Engineering (Part 2)”. By Prof. Ricardo Vinuesa, Location: Online Lesson, Date: 29/11/2022 to 12/12/2022, Duration: 12 hours.
- **Muner Winter School**, MUNER Higher Education, Topic: “Future of Automotive for Intelligent Mobility”, Location: Online School, Date: 17/11/2022 to 07/12/2022, Duration: 90 hours.

- **Online Training**, Gamma Technologies, Topic: "GT-Suite Introduction Training", Location: Online, Date: 06/12/2021 to 07/12/2021, Duration: 9 hours.
- **Online Training**, Gamma Technologies, Topic: "GT-Suite Exhaust Aftertreatment Training", Location: Online, Date: 09/12/2021 to 10/12/2021, Duration: 16 hours.
- **Safety Training**, Alma Mater Studiorum - University of Bologna, Topic: "Module 1: Safety General Training", Location: Online, Date: 20/11/2020, Duration: 4 hours.
- **Safety Training**, Alma Mater Studiorum - University of Bologna, Topic: "Module 2: Safety Specific Training (Part 1)", Location: Online, Date: 20/11/2020, Duration: 4 hours.

EXTRA-CURRICULAR ACTIVITIES

- February 2020 to Present
- Name of organization
 - Main activities
- March 2020 and March 2022
- Name of organization
 - Main activities
- January 2015 to January 2019
- Name of organization
 - Main activities
- August 2011 to August 2013
- Name of organization
 - Main activities

Powertrain Engineer

Unibo Motorsports Formula SAE Combustion Team, Bologna, Italy

- Energy consumption analysis for a preliminary concept of hybrid powertrain
- Developed a model for fuel film compensation using Matlab/Simulink
- Data analysis
- Technician

Tutor - Part Time

Alma Mater Studiorum – University of Bologna

Supporting/assisting the professors in the blended mode of teaching

Technical Inspector

Formula Bharat (Indian Formula SAE Race), India

- Technical Inspector
- Document Reviewer

Powertrain Manager and Team Member

Orion Racing India, Formula SAE Combustion Team, Mumbai, India

- Engine calibration using Motec M400 ECU
- Data analysis
- Technician

PUBLICATIONS

- Description

Author and Presenter at international conferences, for the following papers:

- Journal Papers
 - Brusa, A., Shethia, F., Mecagni, J., and Cavina, N., "Advanced, Guided Procedure for the Calibration and Generalization of Neural Network-Based Models of Combustion and Knock Indexes," *SAE Int. J. Engines* 17(2):2024, <https://doi.org/10.4271/03-17-02-0009>
 - Brusa, A., Mecagni, J., Shethia, F., and Corti, E., "Model-Based Combustion Control to Reduce the Brake Specific Fuel Consumption and Pollutant Emissions under Real Driving Maneuvers," *SAE Int. J. Engines* 17(1):2024, <https://doi.org/10.4271/03-17-01-0007>
- Technical Papers
 - Shethia, F., Mecagni, J., Brusa, A., Cavina, N. et al., "Performance Assessment of a Model-Based Combustion Control System to Decrease the Brake Specific Fuel Consumption," SAE Technical Paper 2023-24-0027, 2023, <https://doi.org/10.4271/2023-24-0027>
 - Shethia, F., P., Mecagni, J., Brusa, A., Cavina, N., "Development and Software-in-the-Loop Validation of an Artificial Neural Network-

MOTHER TONGUE Gujarati

OTHER LANGUAGES

- Reading skills Proficient (C1)
- Writing skills Proficient (C1)
- Reading skills Proficient (C1)

- Reading skills Advanced Beginner (A2.2)
- Writing skills Advanced Beginner (A2.2)
- Reading skills Advanced Beginner (A2.2)

- Reading skills Proficient
- Writing skills Competent
- Reading skills Proficient

- Reading skills Proficient
- Writing skills Competent
- Reading skills Proficient

TECHNICAL SKILLS AND COMPETENCES

- Computer Skills

English

Proficient (C1)

Proficient (C1)

Proficient (C1)

Italian

Advanced Beginner (A2.2)

Advanced Beginner (A2.2)

Advanced Beginner (A2.2)

Marathi

Proficient

Competent

Proficient

Hindi

Proficient

Competent

Proficient

Applications

- Matlab/Simulink → Expert
- OBI Indicating System → Advance Beginner
- GT Power → Advance Beginner
- INCA → Proficient
- Solidworks → Expert
- PTC Creo → Proficient
- NX Cad → Proficient
- Catia → Proficient
- Ansys → Proficient
- AutoCAD → Proficient
- Mircosoft Office → Proficient

OTHER SKILLS AND COMPETENCIES

- Cycling
- Basketball
- Reading

REFERENCE

- Name and title Vinay Parab, P. Eng., MSc Mechanical Engineer
 - E-mail
 - Telephone

BOLOGNA, 27/10/2023

Fenil Panalal Shethia

DICHIARAZIONI SOSTITUTIVE DI CERTIFICAZIONI

(art. 46 D.P.R. n. 445/00)

DICHIARAZIONI SOSTITUTIVE DELL'ATTO DI NOTORIETA'

(art. 47 D.P.R. n. 445/00)

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DICHIARA

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Bologna, 27 Ottobre 2023

Fenil Panalal Shethia

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