

Sumanth Reddy Dadam

Contact Information

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Work Experience

Ford Motor Company

Senior Controls Software Engineer

Powertrain Embedded Research

Caterpillar Inc

Powertrain performance & Controls

Robert Bosch India

Research & Development Engineer

Dearborn, MI

Jun 2013 - Present

Peterborough, UK

May 2010 - Aug 2012

Bangalore, INDIA

May 2007 - Aug 2010

Education

Wayne State University

MS, Mechanical Engineering (Specialized in Electric-drive Vehicle and Thermal Engineering)

Visveswaraiah Technological University

Bachelor Degree - Mechanical Engineering

Detroit, MI

June 2012 - May 2014

Bangalore, India

Jul 2003 - May 2007

Skills

Programming Languages

C , C++ , Python

AI Products

LLMs, Natural Language Understanding & generation

Tools/Tech Stack

MISRA | Control Theory | PID | MPC

Git | GitHub

Linux | Bash

Vector CANalyzer | CAN

MATLAB/SIMULINK | Control desk

Multicore | AutoSAR

Model Based Design

Machine/Deep Learning | Neural Networks

TensorFlow | Keras

Computer Vision | OpenCV | Jupyter

Data pipeline technologies

Relational Databases

Research Publications

Journal Papers

- J1 ZHU, D., E. PRITCHARD, and SR DADAM. "Optimization of rule-based energy management strategies for hybrid vehicles using dynamic programming." *COMBUSTION ENGINES*: 3.
- J2 Dadam, Sumanth Reddy, Michiel Van Nieuwstadt, Allen Lehmen, Vinod Kumar Ravi, Vivek Kumar, and Rohit Bhat. "A Unique Application of Gasoline Particulate Filter Pressure Sensing Diagnostics." *SAE International Journal of Passenger Cars-Mechanical Systems* 14, no. 06-14-02-0007 (2021): 105-116.
- J3 Kumar, Vivek, Sumanth Reddy Dadam, Di Zhu, and Jan Mehring. "Fuel-Economy Performance Analysis with Exhaust Heat Recovery System on Gasoline Engine." *SAE International Journal of Engines* 15, no. 03-15-06-0045 (2022): 825-847.
- J4 Dadam, Sumanth Reddy, Imtiaz Ali, Di Zhu, and Vivek Kumar. "Effects of differential pressure measurement characteristics on high pressure-EGR estimation error in SI-engines." *International Journal of Engine Research* 24, no. 2 (2023): 481-493.

Conference Papers

- C1 Kumar, Vivek, Di Zhu, and Sumanth Reddy Dadam. *Intelligent Auxiliary Battery Control-A Connected Approach*. No. 2021-01-1248. SAE Technical Paper, 2021.
- C2 Dadam, Sumanth Reddy, Di Zhu, Vivek Kumar, Vinod Ravi, and Venkata Sai Srikar Palukuru. *Onboard Cybersecurity Diagnostic System for Connected Vehicles*. No. 2021-01-1249. SAE Technical Paper, 2021.
- C3 Dadam, Sumanth Reddy, Vinod Ravi, Robert Jentz, Vivek Kumar, and Sanyam Sharma. *Assessment of Exhaust Actuator Control at Low Ambient Temperature Conditions*. No. 2021-01-0681. SAE Technical Paper, 2021.
- C4 Dadam, Sumanth Reddy, Vivek Kumar, Vinod Kumar Ravi, Robert Jentz, and Herbert Meissner. *Diagnostic evaluation of exhaust gas recirculation (EGR) system on gasoline electric hybrid vehicle*. No. 2020-01-0902. SAE Technical Paper, 2020.
- C5 Kumar, Vivek, Di Zhu, and Sumanth Reddy Dadam. *Connected Vehicle Data-Prognostics and Monetization Opportunity*. No. 2023-01-1685. SAE Technical Paper, 2023.
- C6 Enhancing Precision in Exhaust Gas Recirculation Flow Measurement: Overcoming Challenges for Improved Engine Control and Emissions Reduction. <https://advanceseng.com/enhancing-precision-exhaust-gas-recirculation-flow-measurement-overcoming-challenges-improved-engine-control-emissions-reduction/>

Granted Patents Licensed , commercialized and in Production:

- P1 US 10323562 B2 - Gasoline particulate filter diagnostics
- P2 11073063 B2 - Gasoline particulate filter diagnostics
- P3 11073064 B2 - Gasoline particulate filter diagnostics
- P4 10323562 B2 - Gasoline particulate filter diagnostics
- P5 11073063 B2 - Gasoline particulate filter diagnostics
- P6 11073064 B2 - Gasoline particulate filter diagnostics
- P7 US 10844762 – Method for Variable Position Exhaust tuning Valve diagnostics
- P8 US 10632988 - Method and System for Exhaust Gas Recirculation System Diagnostics
- P9 11215532 - Methods and Systems for Exhaust Gas Recirculation System Diagnostics
- P10 11459964 - Methods and Systems for an Exhaust Gas Recirculation System

Other Granted Patents at USPTO:

Publication Number	Kind Code	Title
US11073063	B2	Gasoline particulate filter diagnostics
US11441499	B1	Methods and systems for controlling imbalance with an exhaust tuning valve
US11447143	B2	Methods and system for adjusting vehicle operation based on a predicted state of a vehicle occupant
US11261769	B2	Exhaust tuning system and method

US11415029	B1	Engine oil dilution control in automotive vehicles
US11073064	B2	Gasoline particulate filter diagnostics
US11002166	B2	Methods and systems for an active exhaust valve
US10928275	B1	Systems and methods for coordinating engine-off vehicle diagnostic monitors
US11401847	B2	Methods and systems for an exhaust tuning valve
US10961884	B1	Exhaust gas heat recovery device system and method
US11215532	B2	Methods and systems for exhaust gas recirculation system diagnostics
US11274637	B1	Methods and systems for egr system
US11136949	B1	Methods and systems for vehicle diagnostics
US10436087	B2	Heat exchanger for exhaust tuning systems
US10323562	B2	Gasoline particulate filter diagnostics
US11015511	B2	Methods and system for diagnosing active exhaust valves based on temperature and thermal image data
US10844762	B2	Method for variable position exhaust tuning valve diagnostics
US11053823	B2	Heat exchanger for exhaust tuning system
US11306670	B1	Systems and methods for relative humidity sensor diagnostics
US10632988	B2	Method and system for exhaust gas recirculation system diagnostics

Patent application at USPTO and rest of the world - China and Germany

Publication Number	Kind Code	Title
US20230098099A1	A1	Probability neural network for reduced battery power drain
US20210155258	A1	Vehicle sound attenuation
US20220298941	A1	Exhaust sound tuning system and method
US20220289211	A1	Methods and system for adjusting vehicle operation based on a predicted state of a vehicle occupant
US20220178319	A1	Methods and systems for an exhaust gas recirculation system
US20220311083	A1	Traction battery venting system and venting method
DE102022105311	A1	Emission tuning system and procedure
CN113606064	A	Method and system for exhaust gas recirculation system diagnosis
DE102021121271	A1	Methods and systems for vehicle diagnostics
CN114076020	A	Method and system for vehicle diagnosis
DE102022104858	A1	Methods and systems for an egr system
DE102020113158	A1	Procedures and systems for an active exhaust valve
CN111946465	A	Method and system for an active exhaust valve
DE102020123232	A1	Procedures and systems for an exhaust adjustment valve
CN112459908	A	Method and system for exhaust gas regulating valve
DE102020130822	A1	Vehicle noise reduction
CN112829764	A	Vehicle sound attenuation
DE102021111087	A1	Methods and systems for the diagnosis of exhaust gas recirculation systems
DE102020127394	A1	Method and system for adjusting vehicle operation based on a predicted condition of a vehicle occupant
CN112677908	A	Method and system for adjusting vehicle operation based on predicted state of vehicle passenger
DE102021101072	A1	Exhaust tuning system and procedure
CN113153541	A	Exhaust tuning system and method
DE102021103009	A1	System and method for exhaust gas heat recovery device
CN113250796	A	Exhaust heat recovery device system and method
DE102020130104	A1	Systems and methods for adjusting diagnostic monitoring of a vehicle with the combustion engine off
CN112814783	A	System and method for coordinating engine shutdown vehicle diagnostic monitoring
CN114922712	A	Engine oil dilution control in automobile
DE102022103195	A1	Engine oil dilution control in motor vehicles
DE102018119335	A1	Fuel particle diagnosis
CN110578630	A	Method and system for exhaust gas recirculation system diagnostics

CN111794841	A	Method and system for diagnosing an active exhaust valve based on temperature and thermal image data
CN109386362	A	Gasoline particles filter diagnostics
CN109695486	A	The method for being vented tuning valve diagnosis for variable position
CN109695499	A	For being vented the heat exchanger of tuning system
DE102020109125	A1	Method and system for diagnosis of switched outlet valves on the basis of temperature and thermal image data
CN114718752	A	System and method for relative humidity sensor diagnosis
DE102021131989	A1	Methods and systems for an exhaust gas recirculation system
DE102018126267	A1	Heat exchanger for exhaust adjustment system
DE102018126266	A1	Method for diagnosis of a vaccinating valve with a variable position
DE102019115695	A1	Method and system for the diagnosis of an exhaust gas recirculation system
DE102022100052	A1	Systems and methods for diagnostic relative humidity sensors

Media - Magazine

SAE International - Update Magazine - This article discussed my research pertaining to Modern approaches to electric vehicle noise and vibration under Sound Solution section. <https://www.nxtbook.com/smg/sae/21UPD08/index.php#/p/30>

Editorial, Reviewing and Refereeing Activities

- Associate Editor , SAE International Journal of Engines -2019
- Editorial Board , International Journal of Engine Research

Invited Speaker

- Invited Speaker April - 2020 Technical expert panel SAE World Congress- discussions addressing critical technology advancing the Software design, deployment and development of vehicles. " Topic – advancing Powertrain Calibration Controls NVH"
<https://www.sae.org/attend/wcx/2020/program/knowledge-bar>
- On-Board Diagnostics Symposium (OBD)-Americas 2020 – "Ford's Experience with Active exhaust Tuning Valve Diagnostics"
https://www.sae.org/servlets/techSession?EVT_NAME=OBDWE&GROUP_CD=TSESS&SCHED_NUM=320661&tab=sessionDetails&REQUEST_TYPE=SESSION_DETAILS
- Invited panelist for Technical Expert Panel Discussion to provide OEM perspective: ADAS and AD Localization, Sensing and Perception : June 2020 – "focus on technologies and processes for ADAS and AVS vehicle localization such as GPS and map-based solutions, perception such as camera, lidar and multi-sensor-based solutions.

Organizing and Chairing Conference Sessions

- FISITA World Congress 2021 – Chair and reviewer - Mobility comfort session
- Reviewer – IEEE - Energy Conversion Congress and Exposition (ECCE 2022).
- Reviewer – IEEE - IEEE TRANSPORTATION ELECTRIFICATION CONFERENCE
- Organizer, Reviewer, Powertrain NVH, WCX SAE World Congress 2020 .
- Organizer, Reviewer, Powertrain Actuators and Sensors, WCX SAE World Congress 2020 .
- Reviewer , PFL425 , On-board Measurement and Control , WCX SAE World Congress 2020 .
- Organizer, Reviewer, Co-Chair , AE 103 - ADAS and Autonomous Vehicle System: Perception/Sensing, WCX SAE World Congress 2020 .

Honors and Awards

- Three-time Recipient of an award under the Ford Motor Recognition Award Program
- MBD Leadership Award Recipient, Ford Motor Co.
- OCM recognition for significant contribution in the "2019 2.3L S550 Active Exhaust Program".
- Awarded Amazing Employee of the year 2011 at Caterpillar Inc.