Rohan Dekate

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Objective

To pursue a research-oriented career for the advancement of a holistic vision of technology and sustainability; using and improving my set of skills as an engineer and striving to facilitate mutual progress in society.

Education

Purdue University **May 2024**
Master of Science in Mechanical Engineering (MSME) | GPA 3.9/4.0 *West Lafayette, Indiana*

- Concentration: Computational Science & Engineering.
- Master's Thesis: *Multi-level Deep Operator Learning with Applications to Distributional Shift, Uncertainty Quantification, and Multi-fidelity Learning.* Advisors: Dr. Guang Lin.
- Coursework: Numerical Methods in Mechanical Engineering, Deep Learning, Autonomous Systems, Scientific Machine Learning, Reinforcement Learning.
- Graduate Teaching Assistant: Numerical Methods in Mechanical Engineering (Fall '23), Thermodynamics (Spring '24).

Rashtrasant Tukadoji Maharaj Nagpur University **May 2017**
Bachelor of Engineering (BE) in Mechanical Engineering | CGPA 9.14/10 | Department Rank #4/78 *Nagpur, India*

- Bachelor's Thesis: *Design & Development of Inline Pin Straightening Station.* Advisor: Prof. P.B. Shiwalkar.
- Interned for Government of India's RGSTC-TIFAC MSME at Rama Pins Pvt. Ltd.
- Designed and fabricated an All Terrain Vehicle(ATV) for Mahindra BAJA SAEINDIA 2016 student design competition.
  - Developed a *Catalytic Converter based on Non-Noble Metals* & presented findings in a technical poster.

Professional Coursework

The University of Texas at Austin & Great Learning **October 2022**
Post Graduate Program in Artificial Intelligence and Machine Learning (AIML) | GPA 4.21/5 | Rank #3 *Online*

- Course Modules - Applied Statistics, Supervised & Unsupervised Learning, Featurization, Model Selection & Tuning, Recommendation Systems, Deep Learning, Computer Vision, Natural Language Processing.
- Capstone Project: Computer Vision - Classification & Localization on Stanford Cars Dataset.

Indian Institute of Technology, Madras **October 2021**
Electric Vehicles and Renewable Energy | Aggregate 94% *Online*

Research Publications

- Dekate, Rohan, et al. "*Model Based Design, Simulation and Experimental Validation of SCR Efficiency Model*," SAE International Journal of Advances and Current Practices in Mobility 4.2021-26-0209 (2021): 870-875.
- Dekate, Rohan, et al. "*Calibration and Optimization of OBD Strategies for Selective Catalytic Reduction Systems for BSVI Application.*," No. 2021-26-0191. SAE Technical Paper, 2021.

Research Projects & Presentations

- Presented research poster titled *Multi-level Deep Operator Learning with Applications to Distributional Shift, Uncertainty Quantification, and Multi-fidelity Learning* at the Office of Interdisciplinary Graduate Programs (OIGP) Spring Symposium, May 2024.
- Presented research poster titled *Multi-fidelity Learning with Stacked Deep Operator Networks and Conformalized Uncertainty Quantification* at the Computational Interdisciplinary Graduate Programs (CIGP) Symposium, April 2024.
- Presented research titled *On the Measurement of Cylindrical Forms by Bent Shaft Survey Map* at All India Seminar on Quality Progress, 2017.
- Published a book titled *Birds of Rajbhavan*, a field guide on birds and their seasonal occurrences spotted in Governor of Maharashtra's Nagpur residence, December 2015.
- Authored an analytical report on *Vehicle Pooling: Environment Conservation or Economic Necessity* for the college newsletter REFLECTION, Vol. MMXIV, April-May-June 2014.

Work Experience

Cummins **May 2023 – Aug. 2023**

Electronic Controls Software Engineer Intern *Columbus, Indiana*

- Conducted battery charging regression tests on new software to verify AC, DC, Pantograph and Induction Charging.
- Completed 2 Design Change Requests (DCRs) to rectify the behavior of Operator Interfaces and SoC Diagnostics.

Stellantis **Nov. 2021 — July 2022**

Senior Engineer *Chennai, India*

- Resolved 30 automatic hybrid transmission controls issues and released 5 feature design changes to improve reliability.
- Communicated design recommendations driven by test data to vendor partners.
- Created detailed project plans to track software release timelines and verify software features for 2 model years.
- Managed validation issues to satisfy requirements by technical coordination with suppliers and stakeholders.
- Prepared Design Verification Plan and Report for validating software changes.

Mahindra & Mahindra Ltd. **Aug. 2017 — Aug. 2021**

Senior Engineer *Chennai, India*

- Engineered Selective Catalytic Reduction(SCR) and On-Board Diagnostics(OBD) to meet emission norms.
- Optimized SCR calibration for above 85 % NOx conversion efficiency and AdBlue consumption within 2L/1000 km.
- Designed NOx prediction model with ± 10 % tolerance, using MATLAB & Simulink to substitute NOx sensor.
- Saved $250 per vehicle by substituting NOx sensor with model and reduced cost by over $1 million per vehicle model.
- Analyzed data to build a PowerBI dashboard for real-time monitoring of KPIs for Mahindra's fleet of 100+ test vehicles.
- Conducted engine and vehicle level testing for 2 engines and 3 vehicle models in test cells and nationwide expeditions.
- Won 4 Spot Awards for exceptional work in project delivery, troubleshooting issues, and initiating novel methods.

Rama Pins Pvt. Ltd. **May 2016 — April 2017**

Intern *Nagpur, India*

- Eliminated cylindricity defects above 500 microns arising from induction hardening of cylindrical steel (EN8D) bars.
- Fabricated a frugal cylindricity measurement setup and quantified defects via statistical measurements & CAE analysis.

Hum Aspen Wellness Pvt. Ltd. **Feb. 2017 — May 2017**

Intern *Nagpur, India*

- Designed a wearable health & wellness device based on principles of biomimicry using SolidWorks.
- Developed prototype for client through clay modelling and 3D printing.

Navratna Industries **April 2017 — May 2017**

Intern *Nagpur, Maharashtra, India*

- Designed SolidWorks sheet metal CAD models from engineering drawings.

Honors & Awards

- Recipient of the Harnek and Malkit Gill Graduate Mechanical Engineering Scholarship, November 2023.
- Awarded Professional Grant of $562.5 from Purdue Graduate Student Government for Summer Internship, August 2023.
- Selected as an Industrial Research Intern for Rama Pins Pvt. Ltd. under the aegis of the Department of Science & Technology, Government of India's RGSTC-TIFAC-MSME Internship Scheme, 2016-2017.
- Awarded Earthian 2014 Winner, Wipro's Sustainability Program, with prize money of INR 1,50,000/-.
    - Led the research and authored reports on *Carbon Footprint*, *Circular Economy*, *Tragedy of the Commons*.

Courses, Workshops & Conferences Attended

- Completed Online Course on "Climate Change: Learning for Action" by Terra.do, Pandas Cohort, May 2021.
- Attended webinar by MathWorks on "Virtual Calibration and Testing of Vehicle Powertrain using Simulation based Approach", September 2020.
- Attended 6-day Short Term Training Program (STTP) on "Finite Element Modelling: Research and Industrial Applications" (FEMRIA) through Ansys by VNIT Nagpur, June 2017.
- Attended "Agenda for Survival", a summer certificate course - conducted by Centre for Science and Environment, New Delhi, June 1-30, 2015.
    - Designed & Created the *FOOTPRINTS* website for participants to publish blogs.
    - Footprints magazine correspondent & photographer.

Leadership & Extracurricular Activities

Purdue Official Mechanical Engineering Graduate Association (OMEGA) **June 2023 – April 2024**
Industry Chair *West Lafayette, Indiana*

- Organized a Reverse Career Fair in collaboration with Sandia National Laboratories, November 2023.
- Organized Factory Visit to Subaru of Indiana Automotive Inc., December 2023 and April 2024.

Purdue Graduate Student Government **May 2023 – April 2024**
Vice Chair of Professional Grants & Grant Reviewer *West Lafayette, Indiana*

- Screened applications, created reviewer surveys and budgets to award grants of up to $750.
- Conducted a workshop for graduate students on *Writing a Successful Professional Grant Application.*

Mahindra BAJA SAEINDIA **May 2018 – Feb. 2020**
Alumni Coordinator, Editor *Chandigarh/Pithampur, India*

- Compiled & Evaluated scores of 200+ participating teams and created content for BAJACME magazine.

REEF (Shri Ramdeobaba college Engineers for Environment Forum) **Sep. 2013 – June 2017**
Principal Secretary, Green Ambassador *Nagpur, India*

- Led the planning & execution of events such as Global Tiger Day, Bird-watching Trips, How Green is Your Campus?
- Awarded "Exceptional Achievement in Leadership and Research" in 2016.
- Created & Edited blog - *REEFLog* on WordPress and authored REEF's Annual Reports in *2013-14*, *2014-15*, *2015-16*.

Technical Skills

Coding/Engineering Tools: Python, PyTorch, MATLAB, Simulink, ETAS INCA & MDA, Concerto, Uniplot.
CAD/CAE Packages: SolidWorks, Creo, Autodesk Inventor, AutoCAD, CATIA, Ansys.
Microsoft Office Suite: Word, Excel, PowerPoint, PowerBI.