

# Vedant Ballal

*Ph.D. candidate, Department of Energy and Process Engineering, NTNU*

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Innherredsveien 86A, Trondheim 7067, Norway

## Professional summary

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Specializing in techno-economic and sustainability assessments, with expertise in industrial ecology methodologies, including life cycle assessment (LCA) and material flow analysis (MFA).

## Education

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### Norwegian University of Science and Technology (NTNU)

*Doctor of Philosophy in Industrial Ecology*

*Master of Science in Industrial Ecology*

Trondheim, Norway

Sep 2022 – Present

Aug 2020 – Jun 2022

### Rashtrasant Tukadoji Maharaj Nagpur University (RTMNU)

*Bachelor of Engineering in Mechanical Engineering*

Nagpur, India

Aug 2014 – May 2018

## Work experience

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### Norwegian University of Science and Technology (NTNU)

*Ph.D. candidate*

Trondheim, Norway

Sep 2022 – Present

- Projects FME Bio4Fuels and ICARUS: Techno-economic and environmental sustainability assessment of advanced biofuels and synthetic fuel value chains for hard-to-abate transport applications
- IPBES Nexus assessment: Thematic assessment of the interlinkages among climate mitigation, biodiversity, water, food, and human health for renewable energy climate response options

### Trøndelag fylkeskommune

*Graduate summer intern*

Trondheim, Norway

Jun 2021 – Aug 2021

- Mapping of resource flows and exploring potential for industrial symbiosis in Fiborgtangen industrial park, levanger

### Clean Air Asia, India

*Consultant*

New Delhi/ Nagpur, India

Aug 2019 – Aug 2020

- Clean air for healthy play: Study on ambient air pollution and its effects at schools in Nagpur
- Feasibility study for Nagpur city air pollution control and action plan

### Accelo Innovations Pvt. Ltd

*Vehicle engineer*

Mumbai/ Ahmedabad, India

Jul 2018 – Jun 2019

- Design and development of autonomous vehicle prototype- *Driverless electric shuttle (DES-P1)*

## Publications

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- Influence of wood resource types, conversion technologies, and plant size on the climate benefits and costs of advanced biofuels for aviation, shipping and heavy-duty transport
- Climate change impacts of e-fuels for aviation in Europe under present-day conditions and future policy scenarios
- Climate change mitigation potentials of on-grid connected Power-to-X fuels and advanced biofuels for European maritime transport
- Rebound effects flatten differences in carbon footprints between car-free households, minimal drivers, and green car owners

## Projects

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- Identification and life-cycle inventories of the most promising e-fuel production options in Norway– NTNU MSc project
- Information and communication modules for green campus– ENHANCE summer school project
- *Shades of Blue*– promoting climate literacy in primary schools– Global shapers community, Nagpur Hub
- SAE INDIA BAJA 2017 and BAJA 2018– Design and development of all-terrain racing vehicles

## Academic conferences

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- **European PhD Hydrogen Conference (EPHyC) 2024** Ghent, Belgium  
Oral presentation: *From Grey to Green: The Impact of Hydrogen Source on SAF's Climate Benefits*
- **Norwegian research school on hydrogen and hydrogen-based fuels (HySchool.no) 2023** Bergen, Norway  
Oral presentation: *Climate change impacts of e-fuels for aviation in Europe*
- **European Biomass Conference & Exhibition (EUBCE) 2023** Bologna, Italy  
Poster presentation: *Climate impacts of e-fuels produced by integration of electrolysis and biomass-to-liquid (BTL) conversion for aviation in Europe*

## Training and Courses

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- Advances in environmental life cycle modelling – Radboud University
- Practitioners training for industrial symbiosis – Baltic Industrial Symbiosis, Linköping University
- Environmental and social sustainability – Centre for Sustainable Development, Nagpur
- Introduction to sustainability concepts – Indian Institute of Technology Kanpur (NPTEL)
- Environmental quality monitoring and analysis – Indian Institute of Technology Madras (NPTEL)
- Air pollution: A global threat to our health – University of Copenhagen (Coursera)
- Global environmental management – Denmark Technical University (Coursera)
- Environmental management and ethics – Denmark Technical University (Coursera)
- Dale Carnegie training for young adults – Meghe finishing school

## Co-curricular activities

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### Teaching assistance

- Student assistant for TEP4300- Climate change mitigation course, Industrial Ecology program, NTNU

### Summer School

- *Advances in environmental life cycle modelling*, Radboud summer school 2024, Radboud University, Netherlands
- *Green campus* ENHANCE summer school 2021, Warsaw University of Technology, Poland

### Volunteering service

- Financial manager, Symbiosis student organization for Industrial Ecology students, NTNU
- Project lead, *Shades of Blue*, Global shapers community Nagpur hub
- Youth clean air network (YCAN), Nagpur

### Model United Nations (MUN)

- Chaired LIT MUN 2016, 2017, 2018, and IEEE Tech MUN 2017, 2018

### Memberships

- International Society for Industrial Ecology

## Skills and Interests

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<b>Technical skills and Tools</b>	LCA– Activity browser, Brightway, <i>premise</i> Data analysis and visualization– Python, MS Excel, Adobe Illustrator 3D modelling– SolidWorks, Ansys
<b>Communication skills</b>	Intercultural communication skills developed through international and interdisciplinary work experience, education, conferences, social engagements, and volunteering service
<b>Organizational skills</b>	Experienced in organizing and coordinating scientific projects and events, with the ability to work effectively both individually and within teams
<b>Language proficiency</b>	Marathi– Native; English, Hindi– Advanced; Norwegian, German– Basic
<b>Hobbies and Interests</b>	Traveling, photography, sketching, hiking, table tennis, nature & wildlife