CURRICULUM VITAE
AKSHAY KARGAONKAR

+81 08020726419 ◇ Osaka, Japan
ak2603kargaonkar@gmail.com ◇ LinkedIn

EDUCATION

Indian Institute of Technology, Indian School of Mines, Dhanbad, India **2018 - 2022**
Bachelor of Technology in Mechanical Engineering CGPA: 8.01/10.00 (degree)

Relevant Coursework- *Kinematics of Machines, Dynamics of Machinery, Advanced Solid Mechanics, Finite Element Analysis, Rapid Prototyping, Robotics (Transcripts)*

Thesis- *Diffusiophoresis of a confined Janus particle (Simulating the movement of Janus particle using Comsol Multiphysics) (Thesis)*

WORK EXPERIENCE

Research and Development Engineer **Sept 2022 - Present**
DG TAKANO Co., Ltd. (website) *Osaka, Japan*

- Developed intricate **faucet heads with autonomous switching** between highly laminar and aerated flows, enhancing water efficiency to 60% based on user input through sensor technology.
- Re-designed and developed a **self-powered pulsating flow nozzle** for kitchen faucets, bidets, and the electronic industry, optimizing cleaning processes for semiconductors.
- As a pivot, connected DG TAKANO with cross-cultural manufacturers (China's PARLOS, South Korea's BONGYONG, Vietnam's VN), **cutting production time** by 40% through vital design analysis.
- Other activities:
  - Designed and built **physical rigs** for extensive high-cycle testing, comparing real mechanical performance with virtual simulations to identify errors and ensure superior product build quality.
  - Product planning and specification, cost-effective manufacturable designs, machinability assessments, documentation of processes, Bill of Materials, 2D schematics.
- **Tools and Technologies:** Programming and operating Nakamura-Tome multi-turret lathe machines using G-code, prototyping using KEYENCE Polyjet 3D printers, Autodesk FUSION360, SolidWorks, MIRO.

Mechanical Engineer Intern **May 2021 - Jun 2022**
DG TAKANO Co., Ltd. *Remote, India*

- Collaborated on **enhancing a commercial dissolved ozone generator** by implementing the Venturi effect, resulting in a 109% increase in bubble break-up for improved ozone stability during in-situ production.
- Performed extensive **fatigue analysis** on the award-winning Bubble90 water-saving nozzle, enhancing its durability and efficiency through informed life cycle optimization.

RESEARCH EXPERIENCE

Laboratorio de Ingeniería Mecánica, UDC Spain **Oct 2020 - Apr 2021**
Project under Prof. Javier Cuadrado *Remote, India*

- Collaborated with Professor Cuadrado's team to conduct **real-time co-simulation** of multiphysics systems, fostering interdisciplinary insights and advancements in system dynamics and integration.
- Utilized MATLAB to create and simulate benchmark mechanical subsystems, employing various solving methods and **streamlining simulation time** for optimal performance evaluation.

Formula Student - Mechismu Racing, IIT ISM **2019 - 2022**
Team member under Dr. Nirmal Kumar Singh *Dhanbad, India*

- Engaged in advanced **modeling and simulation of the suspension system** for the IIT ISM Formula Student vehicle using MSC ADAMS, contributing to enhanced performance and stability of the vehicle. (link)

- Directed a thorough analysis of **driver ergonomics to mitigate injuries** stemming from steering torque, demonstrating a keen focus on performance enhancement and ensuring safety.

PUBLICATIONS

Akshay Kargaonkar, N.K. Singh, **"Multibody Dynamic Simulation of A Mountain Bike To Reduce Riding Injuries During A Jump Event**," *in IJERT Journal*, vol. 12, issue 6, 29 June, 2023. **DOI**

Akshay Kargaonkar, N.K. Singh, **"A Study on Modeling and Simulation of different Friction Models in Multibody Dynamics**," *in EJMS Journal*. (submitted) (link)

SKILLS

CAD softwares	Autodesk Fusion360, CATIA V5, SolidWorks
Simulation softwares	ANSYS Mechanical, FLUENT, ADAMS, COMSOL Multiphysics
Programming languages	C, C++, Python, MATLAB
Others	Worked with various Sensors, Micro-controllers and Development boards

ACHIEVEMENTS

- Contributed to the design and development of DG Takano's MeliorDesign Dishware, which received the prestigious **Red Dot Design Award: Product Design 2024**. (link)
- Led the team to secure a top-10 ranking in the Formula Bharat 2021 design category, showcasing strong leadership and technical expertise as the **Technical Head**.
- Achieved the **Best Paper Award** at the 2021 Young Scholars' National Research Writing Competition.
- Secured **first place** in CAD-Crafian 2020, a competitive technical design event, featuring participation from 300 technical universities.
- **IELTS Academic** overall score: **8.5**, R: 9.0, L: 9.0, W: 7.5, S: 7.5 - November, 2023.

EXTRA-CURRICULARS

- Certified as an **Open Water Diver** by the Professional Association of Diving Instructors (PADI), showcasing proficiency in scuba diving and a commitment to adventure and exploration.
- Active **volunteer at English camps** in Japan, aimed at teaching Elementary school students English.
- Enthusiastically involved in orchestrating meetups for the artist community in Osaka, alongside a personal pursuit of **digital art, and animation** that draws inspiration from Japanese animation studios.