Vishal Vishwakarma

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DOB: 1-July-1993

Education

- **Technical University of Denmark** — Kongens Lyngby, Denmark
  PhD in Mechanical Engineering — Sep. 2019 – Aug. 2022
  - Thesis: Micromechanics of Ductile Fracture
  - The research aims to understand the mechanisms that lead to ductile fracture in metallic alloys and incorporate them into numerical modelling tools like the Finite Element Method. The project involves the development of in-house FE code written in Fortran and ABAQUS user subroutines.
- **Indian Institute of Technology Madras** — Chennai, India
  MS (By Research) in Aerospace Structures; GPA: 8.8/10 — Aug. 2016 – Jun. 2019
  - Thesis: Micromechanical Modelling and Simulations of Ductile Failure
  - Key Courses: Finite Element Analysis, Computational Plasticity, Fracture Mechanics, Composite Structures, Elasticity, Aerospace Structures, Continuum Mechanics.
- **Uttar Pradesh Technical University** — Lucknow, India
  Bachelor of Technology (Honours) in Civil Engineering; GPA: 78.2% — Aug. 2012 – Jul. 2016

Experience

- **Technical University of Denmark** — Kongens Lyngby, Denmark
  Role: Academic Support Teacher — Sep. 2019 – Aug. 2022
  - Worked with Specialpædagogisk støtte - SPS unit at DTU in assisting students suffering from psychological impairment in overcoming their academic challenges. Aided students with efficient planning of academic workload.

  Role: Teaching Assistant
  - 4 Courses: Machine Elements, Introduction to Finite Element Analysis, Fracture Mechanics & Advanced Mechanics of Materials.
- **Super Highway Labs Pvt. Ltd.** — Gurgaon, India
  Internship – "Entrepreneurs in College" — Aug. 2015 – Sep. 2015
  - Driven by entrepreneurial insights, I had worked for a start-up named "Shuttl" that delivers a safe, reliable and environmentally sustainable mobility for urban India. Worked with the core team in influencing the direction of the company. Assisted in launching the new routes in Noida - Greater Noida region, building and managing high performing teams from different colleges.
- **Public Works Department** — Varanasi, India
  Summer Internship — Jun. 2015 – Aug. 2015
  - Examined the design, construction, and maintenance of flexible pavement. Studied materials used in the construction of pavement and procedure in road construction. Estimated the ingredients quantity required for road construction.

Projects

- **2018 SpaceX Hyperloop Pod Competition**
  Role: Structural analysis — Oct. 2017 – Feb. 2018
  - Worked with Avishkar Hyperloop of IIT Madras for designing a new hyperloop pod model. The project was aimed to design and build a subscale prototype transport vehicle to demonstrate the technical feasibility of various aspects of the Hyperloop. The structural analysis of pod components was carried out in Finite Element packages like ABAQUS and Hypermesh at several stages of iteration to come up with an optimized design.

- **The Great Creative Challenge by Tarkett France**
  Agorize Competition, France Jul 2016
  - Developed a methodology by which the transition between the surroundings and the floor-related elements revolutionizes the user experience. The main aim was to imagine transitions between spaces and surfaces so that the floor offers an innovative user experience.
- **The City of Tomorrow Challenge organized by Michelin and Air Liquide**
  Agorize Competition, France May 2015
  - Developed an innovative idea to use Titanium Oxide in white cement to make our buildings and cities a part of sustainable development.

Programming Skills

- **Programming:** Finite Element Programming, Fortran, Python, Matlab, High performance computing
- **Software:** ABAQUS, ANSYS, Hypermesh, Autocad
- **Typography:** LaTeX, Microsoft Office Suite
- **Operating Systems:** Linux & Windows

Awards & Certificates

- **Ranked 1st** in The Great Creative Challenge organized by **Tarkett France**. An international competition held at Paris with more than 1000 participants. Bagged **€3000** gift pack which included a creative immersion at Tarkett's, trips and gift cards.
- Bagged Studyka's **Serial Challenger** title for submitting several project ideas in various challenges and qualifying them in the 1st round.
- Selected among **top 25 teams** across the world for the City of Tomorrow Challenge, organized by Descartes Développement, Michelin and Air Liquide.
- Secured 578 score in the Graduate Aptitude Test in Engineering (GATE) 2016. Recipient of **GATE Scholarship** (INR 150,000 per year for pursuing master's degree at IIT Madras)
- Secured **1st prize** in "Science and Art Exhibition Competition" held at the inter-school level in the year 2011 during class–XII.
- Secured **2nd prize** in "Science and Art Exhibition Competition" in the year 2009 during Class–X.
- Secured runner up position in football inter-school tournament in the year 2011.

Journal & Conference

- V. Vishwakarma, SM. Keralavarma, Micromechanical modeling and simulation of the loading path dependence of ductile failure by void growth to coalescence, **International Journal of Solids and Structures (2019)**
- V. Vishwakarma, KL. Nielsen, Gradient strengthening effects in mode I tearing of ductile plate at the engineering scale, **Engineering Fracture Mechanics (2022)**
- V. Vishwakarma, S. M. Keralavarma, (2018, Jul.), Micromechanical Modeling and Simulation of Ductile Failure under Combined Tension and Shear. Paper presented at the **13th World Congress in Computational Mechanics (WCCM), New York, USA.**
- V. Vishwakarma, K. L. Nielsen, (2021, Aug.), Numerical Investigation of Size Effect In Ductile Plate Tearing. Paper presented at the **25th International Congress of Theoretical and Applied Mechanics (ICTAM 2020+1), Milano, Italy.**

- V. Vishwakarma, K. L. Nielsen, (2021, Sep.), On the size-effects in porous metals containing primary and secondary populations of voids. Paper presented at the **16th International Conference on Computational Plasticity (COMPLAS 2021), Barcelona, Spain.**

- V. Vishwakarma, K. L. Nielsen, (2022, Mar.), Unraveling void size effects in ductile plate tearing at the engineering scale. Paper presented at the **18th Danish Center for Applied Mathematics and Mechanics (DCAMM 2022) Symposium, Sønderborg, Denmark.**

Workshops

- Global Initiative of Academic Networks (GIAN) course on Mechanics on Fracture by **Prof. K Ravichandar** from **University of Texas at Austin, USA**

- GIAN course on Nonlinear Fracture Mechanics and Applications Structural Integrity Assessment by **Prof. Ashok Saxena** from **University of Arkansas, USA**

- edX course on **"User Innovation: A Path to Entrepreneurship"**, offered by MITx, an online learning initiative of The **Massachusetts Institute of Technology, USA**

Extra-curricular

- Ran for marathons like Tierrathon'18 & Samanvay'17

- Organized an interactive session on "Digital map & its Applications" by NOKIA HERE Business at Galgotias College of Engineering & Technology on April 02, 2014