

Potluri Vachan Deep

Male

DOB: 24-01-1997

<https://vachan-potluri.github.io/>

Ph.D. research scholar
Mechanical Engineering Department
Indian Institute of Technology Bombay

Examination	University	Institute	Year	CPI/%
Ph.D.	IIT Bombay	IIT Bombay	2023*	9.86
B.Tech.	IIT Bombay	IIT Bombay	2018	9.72
Intermediate/+2	Andhra Pradesh Board of Intermediate Education	Excel Junior College	2014	97.3
Matriculation	Andhra Pradesh Board of Secondary Education	Vardhana School	2012	9.70

* Expected year of completion

Publications

Potluri, Vachan D., Bhalchandra P. Puranik, and Kowsik V.R. Bodi (2022). "Effect of polynomial degree on discontinuous Galerkin simulation of Euler equations". In: *International Shock Interaction Symposium*. Springer Nature.

- (2023). "High order discontinuous Galerkin simulation of hypersonic shock-boundary layer interaction using subcell limiting approach". In: *Journal of Computational Physics* 485, p. 112117. DOI: <https://doi.org/10.1016/j.jcp.2023.112117>.

Projects

- **Development of high resolution schemes for compressible flows in OpenFOAM** [Dec '16 – Apr '18]
Prof. Bhalchandra Puranik | Mechanical Engineering Department, IIT Bombay
 - **Modified an existing solver** rhoCentralFoam to use TVD-RK3 time integration scheme
 - **Developed a new solver** ausmPlusUpFoamRK3 that uses AUSM*-up flux scheme along with RK3 time integration scheme
 - **Performed a comparative study** using these two solvers by conducting simulations of several 1D and 2D test cases to draw useful conclusions
- **Unified 2D Finite Element** [Mar '18 – Apr '18]
Prof. Parag Tandiya | Mechanical Engineering Department, IIT Bombay
 - **Implemented a subroutine** in FORTRAN77 library FEAP for a new combined Plane Stress, Plain Strain and Axi-symmetric linear elasto-static element, and validated the subroutine using several simple test cases
- **Stair climbing wheel chair** [Jun '17 – Dec '17]
Prof. Shantanu Tripathi | Mechanical Engineering Department, IIT Bombay
 - **Proposed a mechanism** for a passive wheel chair capable of climbing stairs using the force provided by a companion
 - **Built a full scale basic functioning prototype within 2 months** constraining to the allotted budget and resources
 - **Tested the prototype** on 2 different stair geometries and demonstrated its effectiveness to Mechanical Engineering Department faculty, staff, and other students

Internships

- **GE90 HPC airfoil durability analysis** [May '17 – Jul '18]
Mr. Nageswara Ganji, Mr. Devesh Ojha | John F. Welch Technology Center, General Electric
 - **Modified** the mesh of existing GE90-115B high pressure compressor stage-9 rotor blade, to model
 1. Three types of damaged blades by making notches at different locations on the leading edge
 2. A defectively manufactured blade by changing thickness of leading edge according to manufacturing tolerance
 - **Generated Campbell Diagrams** by simulating the vibration response and recalculated fatigue factor of safety at critical locations of undamaged, damaged and defected blades for 3 different materials

Scholastic Achievements

- **Stood 2nd in Department** out of more than 150 students in B.Tech. [May '18]
- **Scored 829 in Graduate Aptitude Test in Engineering (GATE) 2018** [Mar '18]
- **Secured All India Rank 129 in JEE Advanced 2014** in general category [May '14]
- **Awarded Kishore Vigyanik Protshahan Yogana (KVPY) fellowship** by Indian Institute of Science (IISc), Bangalore [Dec '13]
- **Secured position among top 1% students** of former Andhra Pradesh who participated in National Standard Examination in Physics (NSEP) [Dec '13]