DHRUV APTE

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EDUCATION

Master of Science - Aerospace Engineering **Aug ′19 - May ′21 (expected)**
Virginia Polytechnic Institute and State University (VirginiaTech), Blacksburg, VA

Bachelor of Engineering - Mechanical Engineering **Aug ′15 - May ′19**
G H Patel College of Engineering and Technology, Gujarat Technological University, Ahmedabad
CPI- 7.55/10
Bachelor's Thesis Project-I: Defining an algorithm for determining Paris Law constants to evaluate crack sizes in aircraft fuselage panels using Extended Kalman Filters.
Bachelor's Thesis Project- II: CFD Analysis of Packed Bed Solar Air Heater

PUBLICATIONS

[a] **Dhruv Apte**, Mohit Dhoriya, Nitinchandra Patel Estimation Algorithm to Define Paris Law Constants using Extended Kalman Filter (EKF) for Crack Length Evolution in Aircraft Fuselage Panels "In: *International Journal for Research in Applied Science and Engineering Technology (IJRASET), Volume 7, Issue V* **Key Topics**: Extended Kalman Filter (EKF), crack length evolution

[b] **Dhruv Apte**, Mohit Dhoriya, Nitinchandra Patel Theoretical Approach to Determine Flaw Size in Aircraft Fuselage Panels using Extended Kalman Filters "In: *International Journal for Research in Applied Science and Engineering Technology (IJRASET), Volume 7, Issue III* **Key Topics**: Metal fatigue, Paris Law, aircraft fuselage panel, crack propagation

ACADEMIC PROJECTS

Implementation of a hybrid LES approach to study velocity flow in packed bed Dec ′18- Apr ′19
Research Guide: Asst. Prof. Sukritindra Soni *ME Dept. GCET*

- We tried to define a hybrid novel approach to study packed bed velocity flow.
- Studied heat transfer in a double pass packed bed solar air heater.
- Analysis also includes packed material on both glass covers; a previously unexplored approach.

Analysing the behavior of blood in a cavopulmonary connection in context with the Fontan surgical procedure using Computational Fluid Dynamics Dec ′17- Feb ′18
Research Guide: Asst.Prof. Sukritindra Soni *ME Dept. GCET*

- The intention of this project was to determine closest offset distance of ideal flow ratio of blood for cavopulmonary connection.
- We created 3-D simulations of different meshes of the pulmonary connection for velocity and pressure distributions.
- The study justified the ideal flow ratio for pulmonary connection as 0.81 and found offset of 2.2 centimeters.
- The paper is currently being reviewed for publication.

Analysis of cross-section of a connecting rod of an internal combustion engine using MATLAB GitHub project page **Apr ′17 - May ′17**
Academic Project under Asst. Prof. Nitinchandra Patel *ME Dept. GCET*

- We used Rankine formula to investigate several cross-sectional areas with varied dimensions and factor of safety (considered 6) for least critical load.
- The study verified claims that I-sectional area has least critical load and a new stable I-section ratio (5t:7t) was discovered which was not mentioned previously in any Machine Design textbook.

INTERNSHIPS

Indian Oil Corporation Limited **May '18- Jun '18**
Intern, Gas Turbine Unit,Co-Generation Plant (CGP-1),IOCL Gujarat Refinery *Vadodara, India*

- I proposed turbulence model analysis using Reynolds Stress Equation model.
- My team researched solutions to increase the richness of air-fuel in combustion chamber without adversely effecting turbine efficiency.

POSITIONS OF RESPONSIBILITY

ASME Student's Section **Aug '17 - Aug '18**
Core Committee Member *GCET, Gujarat*

- Created ASME Student Portal from scratch using HTML5,CSS3 and Javascript.
- Head Coordinator at Exodia-17, a technical festival celebrated every year on the occasion of Engineer's Day.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- Royal Aeronautical Society(RAeS)
- American Society of Mechanical Engineers(ASME)
- Indian Society of Technical Education(ISTE)

MOOCS AUDITED

- **CS50:Introduction to Computer Science** by **Harvard University**
- **CS109: Data Science** by **Harvard University**
- **Introduction to Aerospace Engineering: Astronautics and Human Spaceflight** by **MITx**, Massachusetts Institute of Technology
- **Aerospace Structures and Materials** by **DelftX**, Delft University
- **16.50: Introduction to Propulsion Systems** by **MIT OCW,** Massachusetts Institute of Technology
- **Foundation of Computational Fluid Dynamics** by **Indian Institute of Technology**, Madras

TECHNICAL SKILLS

Programming Languages	• Python • C • C++ • Ruby • MATLAB
Softwares	• Creo Parametric • QBlade • ANSYS Fluent
Operating Systems	• Ubuntu/Linux • Windows

CO-CURRICULAR ACHIEVEMENTS

- Proposal Akashvani selected in World Top 50 of Microsoft Imagine Cup Big Idea Challenge 2018 amongst 40000 entries.
- **Speaker** at DevFest by Google Developers Group Baroda on "Introduction to Machine Learning".
- Appointed as Google's Machine Learning Crash Course Lecturer.

• Awarded **Best Delegate** award at Model United Nations, Udaan-2017, BVM Engineering College, Vallabh Vidhyanagar.
• Selected for Grand Finale in the SSIP Industrial Hackathon-2019 organized by the Ministry of Education, Govt. of Gujarat for finding solutions for "Obtain desirable mixing of pharmaceutical liquid in glass lined reactor by changing dimensional parameter of agitator and baffle through CFD"
• Lecturer at "End-to-End Machine Learning" workshop at Maharaj Sayajirao University, Vadodara, India
• Appointed as **Google Cloud Study Jam Lecturer**
• Speaker at Open Source Summit, **IIT Kharagpur** on "How we made B.E.N.J.I. smarter"
• Go level **8 kyu** player with ELO rating of 1300.

VOLUNTEER EXPERIENCES

Kharagpur Winter of Code, GirlScript Summer of Code, NJACK Winter of Code
Dec '17, May '18 - Aug '18, Dec '17
Open Source Mentor *IIT Kharagpur, IIT Patna / India*

• Guided freshers towards contributing to open source, on multiple personal open sourced projects.

Bachpan NGO **Aug '15 - Jul '16**
Volunteer *Vallabh Vidhyanagar, India*

• Taught mathematics to a group of four children living in slums near Vallabh Vidhyanagar, India.

Last updated: Nov 15, 2018.