AKASH VENKATESHWARAN

MECHANICAL ENGINEER

VELLORE INSTITUTE OF TECHNOLOGY - CHENNAI, INDIA

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EDUCATION

DEGREE	YEAR	INSTITUTION/BOARD	CGPA/PERCENTAGE
B.Tech - Mechanical Engineering	2018-Present	VIT - Chennai, India	9.58
Class XII CBSE	2018	BVM Global - Coimbatore, India	91%
Class X CBSE	2016	BVM Global - Coimbatore, India	9.4

RESEARCH INTERNSHIP

INSTITUTION	YEAR	CONTRIBUTION
India Connect@NTU Nanyang Technological University Singapore	August-Present 2021	**FEM Investigation of Split Hopkinson Pressure Bar** - Performed dynamic analysis of specimens in Split Hopkinson Pressure Bar - Modelled using ANSYS/LS-DYNA to investigate the effects of different parameters on the results
Mitacs Globalink Research Internship York University Toronto, Canada	June-August 2021	**Numerical Investigation of Turbulent Structures & Air Entrainment in Positive Surge Waves** - Assisted in Large Eddy Simulation of 3D surge waves using OpenFOAM - Experienced parallel computing in a supercomputer facility (ComputeCanada) - Developed weighted algorithm to transform transient waves into steady waves and image-processing technique to capture the water surface - Automated the post-processing of data using programming tools such as MATLAB and Python
Research Internship Program National Cheng Kung University Taiwan	September-March 2020-21	**Machine Learning for the estimation of cancer cell invasion** - Developed a deep learning algorithm to classify the type of cancer by investigating the cell topology - Performed image processing using ImageJ before feeding the data - Generated individual cell images by segmentation of a cluster of cells using MATLAB & Weka
Research Internship Program Yuan-Ze University Taiwan	April -June 2020	**Machine Learning for Fluid Mechanics** - Experienced and studied various machine learning techniques and their applications - Constructed testing and training data of flow around a cylinder using ANSYS - Executed my first neural network model that predicts pressure distribution with a promising accuracy

INPLANT TRAINING

COMPANY	YEAR	CONTRIBUTION
Hi-Tech Industries Chennai, India	June - July 2020	- Monitored general manufacturing techniques - Gained industrial exposure and experience
Guindy Machine Tools LTD Chennai, India	May 2019	- Examined the quality and measurements of industrial chucks - Experienced various stages involved in the manufacturing of jaw chucks

HONORS & AWARDS

- **Meritorious Award 2019:** Fourth Rank in Mechanical Department at VIT Chennai
- **Meritorious Award 2020:** Eighth Rank in Mechanical Department at VIT Chennai
- **Mitacs Globalink Graduate Fellowship:** Financial support of $15,000 for master's or PhD programs in Canada

ACHIEVEMENTS AND CERTIFICATIONS

- Acquired CSWA certification
- Runner up of Chennai International Youth Fest 2019
- Winner of Electrofocus 2020 at MIT, Chennai
- Top 5 in Law Follower event at ATMOS 2019, BITS Pilani
- Winners of Line Follower at EMFISIS 2020, KCG College Of Technology
- Won "Dribble through the world" campaign - Pair of Etihad Airways Guest ticket and Etihad Stadium Hospitality ticket in Manchester, UK - 2019
- Granted 10+ Coursera certificates and EDX courses

ACADEMIC SERVICES

- **National Service Scheme**
  Student Member
  2021-2019
  - Member of NSS which is government-led community service activities & programs
  - Participated in Beach Cleaning Campaign of Marina Beach - Blood Donation Camps - School Development Scheme - Tree Plantation
  - Made compilation videos for NSS social media
- **Vibrance - Cultural Event**
  Student Organiser
  2019
  - Organized and administrated events
  - Raised funding for the food stalls
  - Scheduled and contacted vendors
- **ATOM Robotics Club**
  Programming Lead
  2019-2020
  - Assisted in developing mini-bots such as Line Follower, Maze Runner, Robo-soccer etc
  - Won various robotics competitions at state and national level
  - Monitored and guided juniors
  - Supplemented financial support
  - Team website : https://atomrobotics.github.io/index.html
- **ISHRAE**
  - Active Member of Indian Society of Heating Refrigeration and Air-Conditioning Engineers by attending conferences/workshops

COURSE PROJECTS

- **Archimedes Spiral Wind-Turbine**
  - Designed a wind turbine prototype and simulated laser sintering process used in additive manufacturing
  Project for a course titled "Rapid Manufacturing Technique "
- **Autonomous Medical Drone**
  - Generative Design and Simulation of Drone Delivery of Medicine using ROS - Project for a course titled " Technical Answers to Real World Problems "
- **Composite Planetary Gear System**
  - Designed and developed of Epicyclic system for electric vehicle applications Project for a course titled " Design of Transmission Systems "

PRESENTATION

- **SESBT-21**
  Vellore Institute of Technology
  24 July 2021
  - Presented a paper titled "Stress analysis of a Regenerative Flow Compressor and Pump based in Fluid-Structural Coupling"
- **SESBT-21**
  Vellore Institute of Technology
  23 July 2021
  - Presented a paper titled "Development of Flame Shield for use in Domestic Gas Stoves"
- **ICIME-20**
  Guru Nanak Institutions
  26 February 2021
  - Presented a paper titled "Numerical Analysis of Buckling in Rectangular Plates with Different Cut-outs"

PUBLICATIONS

- **TO BE SUBMITTED**

1. Zhouran Li, Akash Vekateshwaran, Shooka Karimpour. **Numerical Investigation of Turbulent Structures and Air Entrainment in Positive Surge Waves**. *Journal of Applied Water Engineering and Research*
2. Akash Vekateshwaran, Mahendhar Kumar, Sai Santosh, M.B. Shyam Kumar, R.Sivakumar, and Aniket Chetan Joshi. **Numerical Study of the effect of geometry on the behaviour of Internally heated Melt pool with Eutectic Salt**. *Annals of Nuclear Energy*

- **UNDER REVIEW**

3. Akash Vekateshwaran, Mahendhar Kumar, Sai Santosh, M.B. Shyam Kumar, and R.Sivakumar. **Numerical Evaluation of geometric variations in Internally heated melt pool.** *Material Today - Elsevier*
4. Mahendhar Kumar, Akash Vekateshwaran, Sai Santosh, Manavella Sreekanth, Davidson Jabaseelan, and R.Sivakumar. **Stress analysis of a Regenerative Flow Compressor and Pump based in Fluid-Structural Coupling**. *Material Today - Elsevier*
5. Naveen Srinivasan, Akash Venkateshwaran, Akash Menon S, Chamala Vaishnavi, Srajaysikhar D and Janardhan Reddy K. **Development of a Flame Shield for use in Domestic Gas Stoves.** *IOP - EES*
6. Mahendhar Kumar, Akash Vekateshwaran, Chamala Vaishnavi, and Bhaskara Rao. **Numerical Analysis of Buckling in Rectangular Plates with Different Cut-outs**. *In proceedings of International Conference on Innovation in Mechanical Engineering (ICIME 20).*

AREA OF RESEARCH

- CFD / FEA
- Energy Systems
- Thermofluids
- FSI
- Aerodynamics
- Machine Learning

SKILLS/SOFTWARES

Design Tools	Ansys OpenFOAM SolidWorks Fusion360
Programming Tools	C Python C++ Java Tensorflow OpenCV MATLAB YOLO
Other Tools	ParaView Weka Fiji ImageJ
Basic Softwares	Microsoft Word PowerPoint Excel LaTeX Overleaf

REFERENCES

Dr. Shooka Karimpour
Assistant Professor, Department of Civil Engineering,
Lassonde School of Engineering, York University
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