Savali Sandip Deshmukh

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Education

- **Vellore Institute of Technology, Andhra Pradesh (VIT-AP)** — Amaravati, India
  Bachelor of Engineering - Computer Science and Engineering; ***GPA: 9.10/10.0*** — *Jul 2019 – Jul 2023*

Research Interests

- Machine Learning for Predictive Analytics
- Big Data Analytics
- Causal Interpretability for Deep Learning
- Computer Vision for Augmented Reality

Projects

- **Automated Intrusion Detection for Industrial Control System** — Amaravati, India
  Undergraduate Research Assistant, VIT-AP — *Aug 2021 – Jun 2022*
  - Developed a deep learning model that performs a two-step classification, namely binary and multi-class classification, to detect attacks against the supervisory control and data acquisition network on a gas pipeline
  - The model was evaluated on F1 score, precision and confusion matrix
- **Enhanced assembly-line object recognition using computer vision** — Hyderabad, India
  Undergraduate Research Assistant, BITS Pilani — *Sep 2021 – May 2022*
  - Created an automated system that can detect the correct location and type of the object in the assembly
  - Used shadow removal, grayscale conversion for Pre-processing; image thresholding, segmentation by region growing for image segmentation and contour detection while Post-processing
- **Investigated flow patterns in heat exchangers using an image analysis-based system** — Hyderabad, India
  Undergraduate Research Assistant, BITS Pilani — *Sep 2021 – Jan 2022*
  - Analyzed flow patterns in heat exchangers using Sobel image processing for edge detection and parameter quantification
  - Worked with convolution kernels for the Sobel operator in a horizontal and vertical direction as the evaluation matrix using cv2, NumPy and Matplotlib Python libraries
- **Analyzing State-Wise COVID 19 data to eliminate health disparities** — Amaravati, India
  Undergraduate Research Assistant, VIT-AP — *Aug 2021 – Jan 2022*
  - Proposed a machine learning-based model that will analyze the COVID19 effect on rural areas of India
  - Analyzed death rates across the rural areas of the country using supervised machine learning linear, non-linear, and poly-linear regression models to find the best-suited method

Publications

- Provisional Patent: **System and Method for Controlling Flow Pattern in a Corrugated Tube Heat Exchanger** Indian Patent (Filed), Inventors: **Savali Deshmukh** et al., Application No: 202211001450, Date: January 11, 2022
- **Savali Deshmukh** and Pramod Kumar Jha, **"Performance and Application of Digital Forensic Tools: A Comparative Study"** , 6th International Conference on Advanced Computing and Intelligent Engineering (ICACIE 2021)
- **Savali Deshmukh**, Sibi Chakkaravarthy S, et al., **"A Hybrid Intrusion Detection System using an ensemble of ML models to detect insider attacks in SCADA networks"**(Submitted to J. Netw. Comput. Appl., JNCA-D-22-01349)

Experience

- **Acqueon Technologies** — Chennai, India
  Undergraduate Summer Intern — *Jun 2022 - Aug 2022*
  - Developed a machine learning model utilising time series analysis to predict the average amount of calls each sales representative can make during each time interval, thus resolving the call centre queue problem
  - Used clustering, normalization, discretization, and dummy encoding methods for pre-processing the labelled dataset
- **Centre for Advanced Systems, DRDO** — Hyderabad, India
  Undergraduate Summer Intern — *Jun 2021 - Aug 2021*
  - Reviewed ways in which digital exploits can be identified, averted and data losses recovered
  - Analyzed and compared ten open-source digital forensics tools, namely Autopsy, Wireshark, Metaspoilt and more
- **8 Views** — Hyderabad, India
  Undergraduate Summer Intern — *Apr 2020 - Jun 2020*
  - Led a team to collect information and built a database for reviewing schools as an academic writer
  - Published review articles that have increased their website engagement

Relevant Courses

Machine Learning, Deep Learning, Data Analytics, Probability and Statistics, Database Management Systems, Data Structures and Algorithms, Object Oriented Programming, Operating Systems

Technical Proficiency

- **Languages:** Python, Java, R, Visual Basic
- **Data Management & Analytics:** MySQL
- **Computer Vision:** Image Recognition, Object Detection
- **Web Development:** HTML, CSS, JavaScript

Volunteering

- **WIE Student Chapter** - Women in Engineering - **Role:** President — Mar 2022 – Present
- **ACM** - Association for Computing Machinery - **Role:** Admin Team — Oct 2021 – Present