Darshan Thakkar

Calgary, AB • 403-616-5551 • darshanthakkar30@outlook.com • darshanthakkar.com • GitHub

Summary

An engineering-rooted data analyst, unravelling insights by blending code with the science of data. Experienced in developing end-to-end projects from data generation to final reporting.

Skills

Programming: Python, SQL, LaTeX
Data Analysis / Visualization: Tableau, MS Excel, NumPy, Pandas, Matplotlib
Web: HTML, Selenium, Data Layer, Google Analytics 4, Google Tag Manager
Database / Warehouse: PostgreSQL, MySQL, GCP
Project management / VCS: Jira, Confluence, GitHub
Numerical / Analysis: Time-series, Regression, Classification
OS: MacOS, Raspbian, Windows

Experience

Technical Consultant   2023 - present
Addiguru, Calgary

- I worked full-time with Addiguru in the US until December 2022, and relocated to Canada earlier this year. Currently, under contract performing similar tasks in a more limited capacity.
- **Analyzed survey results** conducted to identify use of real-time monitoring technology using MS Excel and prepared reports to communicate findings at industry conference RAPID-TCT Chicago.
- Lead **technical writing** for provisional patent applications, proposals for Small Business Innovation Research (SBIR) funding, newsletters, etc.

Applications Engineer (Data generation and analysis)   2020 - 2022
Addiguru, Knoxville

- **Cleaning and diagnostic analysis of machine data** collected during 3D printing process using **MS Excel** to identify anomalous trends that correlate with issues in printed parts.
- Developed **visualizations & reports of time-series analysis** on different data types such as csv, webm, ravi, etc. to provide insights on defect evolution and quantification.
- **Data generation, storage, cleaning, and analysis** for development of anomaly detection models by deliberately printing parts with desired defects.
- **Developed reports** for numerous DoD funded projects using MS Office products to **communicate analytical findings to non-technical stakeholders** in a clear manner.
- Ideated and programmed a **computer vision logic to detect nozzle clogging** in extrusion based 3D printing which has been integrated in the software and submitted for provisional patent.
- Detailed **functional testing of software** and reporting of glitches to developers before final release ensuring bugs are caught in house before the product is delivered to the customer.
- Lead proof of concepts work to improve anomaly detection using a combination of computer vision methods such as **edge detection, object tracking, image augmentation, etc.**
- Lead technical support for Addiguru software and assisted end users in installation & calibration of sensors on 3D printers by drafting detailed user guides / SOPs
- Literature review of current state in real-time monitoring solutions to lead internal research as well as assist in writing proposals for SBIR/STTR funding.

Graduate Research Assistant (Data Analysis)   2018 - 2019
Michigan State University, East Lansing

- **Visually analyzed** path of material deposition tool-head by plotting **line charts** of time-series data to uncover insights about motion during actual printing.
- Reduced porosity in 3D printed samples from 6.8% to virtually 0% by incorporating smoother turns based on learnings from **time-series data and visualizations**.
- Various other tasks like sample preparation, sample analysis, inventory management, equipment calibration and maintenance, etc.

3D Printing Specialist   2016 - 2017
Printomake 3D Solutions, Mumbai

- Managed CAD file repairs using Flashprint and Fusion 360, production planning, and post-processing.
- Advanced sales by conducting workshops across industrial and educational institutions.
- Various other tasks like 3D design, job scheduling, 3D printer repair and maintenance for customers, taking leadership responsibility during managerial absence, etc.

Projects

1. Developed personal website using open source Bootstrap framework with implementation of **GA4 via Tag Manager** for tracking various events using custom tags and **data layer**. Link to website
2. **Web scraped tech job postings on Indeed using Python Selenium**, cleaned and analyzed data to identify top cities and companies in Canada hiring. Link to Tableau project
3. Analyzed optical images to determine the effect of extrusion speed on die-swelling effect in 3D Printing using **OpenCV**. Link to Python notebook

Publication

1. **In-situ monitoring** of laser-powder-bed-fusion using IR and NIR emissions **to detect thermal anomalies**, Solid Freeform Fabrication Symposium 2022: M Roach, B Fowler, D Thakkar, C Babbitt, S Khurana, B Jared
2. **In-situ monitoring** of laser powder bed fusion using optical camera **for detection of process anomalies**, American Society for Precision Engineering, 2022: D Thakkar, C Babbitt, S Khurana, M Roach, D Goodspeed, B Jared
3. Investigating microstructure and defect evolution in laser deposited single-walled Ti6Al4V structures with sharp and non-sharp features, Journal of Manufacturing Processes, 2020: Thakkar D, Sahasrabudhe H

Education

Michigan State University
Master of Science, Mechanical Engineering

University of Mumbai
Bachelor of Engineering, Mechanical Engineering