

Darshan Thakkar

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Summary

Data Analyst with experience in developing end-to-end projects from data generation to reporting using Python, SQL, and Tableau. Being first employee at my previous company gave me the invaluable experience on business operations and customer needs, allowing me to approach problems with a holistic mindset.

Skills

Programming: Python, SQL, \LaTeX

Data Analysis / Visualization: Tableau, MS Excel, NumPy, Matplotlib

Web: HTML, Selenium, Data Layer, Google Analytics 4, Google Tag Manager

Database / Warehouse: MySQL, Db2, Snowflake

Project management / VCS: Jira, GitHub

Numerical / Analysis: Time-series, Regression, Classification

OS: MacOS, Raspbian, Windows

Experience

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

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.
- 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.
- **Website maintenance** using WIX platform, drafted marketing content for newsletters, blogs, etc.
- 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.
- 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
- Created 3D models and printed parts with defects introduced deliberately for **data generation, labelling, training and validation** of anomaly detection models.
- 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

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

2020

Master of Science, Mechanical Engineering

University of Mumbai

2016

Bachelor of Engineering, Mechanical Engineering