

Harvinder Singh Virk

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EDUCATION

Colorado State University, Fort Collins, CO

Master of Science in Mechanical Engineering

GPA: 3.625

Bachelor of Science in Biomedical Engineering (Dual Degree)

GPA: 3.655

Bachelor of Science in Mechanical Engineering

SKILLS

Technical Planning

Lean Six Sigma – Black Belt

Thermal Analysis

SolidWorks

(CSSC)

Statistical Analysis

MATLAB, LabVIEW

FEA, and ANSYS

3D Printing

GD&T ANSI Y14.5

Scanning Electron Microscopy

X-Ray Diffraction

EXPERIENCE

3D Systems | Littleton, CO

3D BioCAD TECH Winter'23 | DICOM, Design X

Oct 2023 – Jan 2024

- Generated three-dimensional renderings of patient data and integrated diverse datasets to support virtual surgical planning of orthognathic surgery.
- Conducted quality control assessments with GD&T and proper documentation for medical equipment.
- Maintained high attention to detail and performed root cause analysis, ensuring accuracy in all tasks and documentation.
- Quality assurance with ISO 9001 and ISO 13485 quality management standards.

Graduate Research Assistant | Fabrication, SEM, XPS, XRD, Material Science, Coating

Aug 2021 – Aug 2022

- R&D and Biomedical Engineering:** Researched and developed hemocompatible nanostructured surfaces for blood-contacting devices, focusing on erythrocyte, platelet, and protein interactions (tissue engineering).
- Fabrication and Design:** Created superhydrophobic nanostructures using anodization and silane modification, applying DFMEA to enhance design robustness.
- Mechanical Testing:** Conducted oxygen plasma treatments and used SEM, XPS, and XRD to analyze and validate surface properties.
- Quality Control:** Achieved a 99.9% reduction in erythrocyte adhesion, advancing safer medical devices in compliance with regulatory standards.

PROJECTS

Electro-Mechanical Vehicle | C++, 3D Printing, Machining, Arduino

Aug 2019 – Dec 2019

- Developed and manufactured an automated vehicle, achieving 95% object retrieval accuracy.
- Implemented mechanical designs and 3D printed prototypes using SolidWorks.
- Applied ANSI Y14.5 GD&T to enhance dimensional control by 30%.

Manufacturing Process – Clock | GD&T, Lathe, CNC

June 2018 – July 2018

- Conceptualized and manufactured a clock prototype with high precision.
- Utilized advanced machining techniques to ensure accuracy and consistency in production.

MEMBERSHIPS AND AWARDS

Dean's List: Engineering College
(Fall 2020)

Reisher Foundation Scholarship
(Aug 2017 – Dec 2020)

Outstanding Junior Researcher
(Spring 2019)

PUBLICATION

- Virk, H.S., Popat, K.C. Erythrocyte interaction with titanium nanostructured surfaces. In vitro models 1, 347–363 (2022).