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Present Address

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Permanent Address

Vimal Mandiram
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Objective

I look forward to solving engineering design problems involving diverse skill sets.

Education

Ph.D in Product Design and Engineering, Indian Institute of Science, 2017-present

MSc. Engg. in Product Design and Engineering, Indian Institute of Science, 2013-2016

- **CGPA: 6/8**

B.Tech in Mechanical Engineering, TKM College of Engineering, May 2012

- **CGPA: 8.28/10**

Projects

Biomechanics *(Research)*

A study on the osteoporotic behavior of human vertebra using FEM (2012)

- Geometric Modelling of lumbar from CT-scan data using **Amira 3D** and **Rhinoceros**.
- FEA of normal and osteoporotic lumbar under compression loading using **Abaqus FEA.**
- **Reference: M.Vineeth et.al, A study on the osteoporotic behavior of human vertebra using FEM,** *3rd International Conference on Science and Innovative Engineering***, May 2013**

Computer Aided Engineering *(Course Project)*

Geometric modelling of knee implant from 3D point cloud data using **SolidWorks** (2013)

Tele-operation *(Research)*

Remote pulse palpation: Data acquisition, Signal Processing, TCP/IP communication, Rendering using Haptic device (2014)

- Human pulse data is acquired using PPS pulse sensor.
- Raw pulse data is processed using wavelet decomposition to remove baseline wander and sent to remote location through TCP/IP communication.
- Denoised pulse signal is rendered using haptic device (Phantom Omni) at remote location.

Mechatronics *(Hands on Experience)*

- Built MOSFET motor controller for maxon dc motor (24V, 76W), used in **Haptic Array System**. (2015)
- Built a H-bridge MOSFET motor controller for linear actuator (24V, 56W), used in **Heliostat** (2016)

Haptics *(Research)*

Haptic Array System: Integration, Control system, Force rendering (2017)

- Solid modelling of novel haptic array system (HAS).
- Design modification and integration of tracking sensor.
- Rendering time and spatial varying force on HAS.

Vision Modeling in DHM *(Research)*
Simulating Natural Vision in Digital Human Models (2017-present)
- Study on space perception
- Developing algorithms for visually guided reach tasks
- Simulating vision behaviour in shop-floor activity task.

Sensors and Devices

Sensors: 2014-2016
- PPS pulse sensor used to acquire human pulse signal.
- Tekscan Grip sensor used to measure the grip sensor.
- Cyber Gloves used to measure the joint angles of human hand.
- Polhemus Liberty Tracker used for locating the 3D location of human hand.

Haptic Devices: Phantom Omni 2014

Virtual Reality: HTC Vive 2019-present

Computer Skills

Languages:	C/C++ (3 years)
Scripts:	Matlab (2 years), Arduino programming (1 year), Matlab GUI (6 months)
APIs:	OpenGL (2 years), CUDA (6 months)
CAD Software:	SolidWorks, Rhinoceros, Amira
FEM Software:	Abaqus
Others:	Adobe Illustrator CS6, Adobe After Effects CS6, Adobe Premiere Pro CS6

Beyond Curriculum

Pencil sketching:	Portrait sketching
Photography:	Portrait, Nature
Badminton	Intermediate player
Cinematography and Editing	SIMA Footbaal Teaser 2014, Godzilla (short film) - Mudra 2015

Personal snippet

Father's name:	B Muralidharan
Mother's name:	Rethi A
Date of Birth:	15/01/1990
Language spoken	English, Tamil, Malayalam