europass

Sachal Hussain

Date of birth: 05/08/1992 | **Nationality:** Pakistani | **Gender:** Male |

(+39) 3475740750 | sachal.hussain@yahoo.com |

https://www.linkedin.com/in/sachal-hussain/ | Skype: sachal.hussain92 |

Campus di Cesena - Università di Bologna - Alma Mater Studiorum, Via Cesare Pavese, 50,, 47521 , Cesena, Italy

WORK EXPERIENCE

04/03/2019 – 30/08/2019

RESEARCH INTERNEE – IMAGE GUIDED THERAPY LAB, CHU HOSPITAL

- Identified & defined landmarks on brain imaging data set.
- Implemented elastic & rigid registration on brain images.
- 3D printed scaled brain model using available laboratory 3D printer.
- Submitted scientific report & presented outcomes at academic meetings.

Clermont Ferrand, France

01/06/2014 – 31/08/2018

3D PRINTER ENGINEER – N.H WORKSHOP.

- Designed 1000+ mechanical and jewelry designs for 3D printing.
- Printed 1000+ designs on Projet1200 and Omaker SLA 3d printer.
- Prepared medical scans into printable 3D files.
- Experienced in editing and repairing STL files in Netfabb & Meshmixer.
- Expert in maintaining & operating SLA/DLP 3D printers & post-processing of 3D printed parts.

Faisalabad, Pakistan

EDUCATION AND TRAINING

01/12/2021 – CURRENT – Via Cesare Pavese, 50, Cesena , Italy

PHD IN BIOMEDICAL ENGINEERING – Università di Bologna - Alma Mater Studiorum

Core subjects: Image processing, Systems biology, Cardiac modelling.
Master Thesis Title: A framework to quantify 3D left atrium wall motion throughout the cardiac cycle in atrial fibrillation.

01/09/2018 – 25/09/2019 – Saint Etienne, France

MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING & DESIGN – Ecole des Mines de Saint-Etienne

Core subjects: Image processing I-II, Intro to Cell biology & Synthetic biology, Bioinformatics.
Master Thesis Title: Treatment of brain mapping images for the 3D printing of brain phantom model.
Abstract: Deep brain stimulation (DBS) involves the placement of neuro-simulator, which sends electrical impulses to brain specifically deep brain regions. To provide sophisticated brain phantom for direct physical intervention, outer structure of brain was registered with high resolution deep brain regions & 3D printed as a physical model.

01/09/2009 – 18/07/2013 – Faisalabad, Pakistan

BACHELOR OF SCIENCE IN MECHATRONICS AND CONTROL ENGINEERING – University of Engineering And Technology

Core subjects: Engineering mechanics, Mechanics of materials, Modelling & simulation, Robotics, Mechatronics system design.
BS Thesis Title: Pneumatic robotic arm interfaced with a conveyor belt controlled through PLC.
Abstract: A prototype of automatic pick & drop packaging line was designed using pneumatic actuators for robotic arm, interfaced with conveyor belt driven by electric motors. This whole process was made automatic using sensors & PLC.

LANGUAGE SKILLS

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PROJECTS

Projects

1- TREATMENT OF BRAIN MAPPING IMAGES FOR THE 3D PRINTING OF BRAIN MODEL:
In this project, I integrated two brain image data sets of two different persons coming from different MRI machines having different magnetic power in order to develop a 3D model of human brain. This model was 3d printed to serve as an educational model and for testing medical device

2- SILICONE AORTA PHANTOMS OBTAINED FROM A 3D PRINTED MOULD TECHNIQUE:
In this project, I did segmentation of human aorta then prepared 3D mold of aorta using CAD software and STL manipulator software. After that I printed the mold of human aorta using Desktop 3D printer and used that mold for RTV silicon casting which gave me aorta model in soft material (silicon).

3- GENERATED AN ALGORITHM FOR OPTICAL FLOW ESTIMATION USING PYTHON PROGRAMMING:
In this project, I generated an algorithm to compute an approximation of 2D motion field from time varying image intensity using least squares estimation method. In this algorithm, we input two images, captured at different time intervals and our algorithm gives the direction of moving objects.

JOB-RELATED SKILLS

Job-related skills

- Experienced in Mechanical designing on RhinoCAD 5.0, MATRIX 6.0.
- Proficient in using image processing software(Invesalious, Amira, Slicer3D) to prepare anatomical models for 3D printing from DICOM data.
- Experienced in Netfabb basic & Meshmixer for analyzing & repairing 3D files.
- Basic proficiency in ANSYS simulation using FEA.
- Competent in mechanical testing (Tensile, compression, bending, fatigue).

MASSIVE ONLINE OPEN COURSES (MOOCS)

Massive Online Open Courses (MOOCs)

- **"Bio-printing: 3d printing human body parts"** offered by University of Wollongong.

- Converted medical imaging data into printable 3D file for 3D printing.

- **"How to use 3d printer"** offered by Microsoft.

- Learnt how to set up and operate 3D printer.

- **"3D for Medicine & Orthopedic surgery"** offered by Udemy.

- Learnt about planning virtual surgeries and 3D printing.

CERTIFICATION

Certification

- Short course on **MS Office: MS Word, MS Excel, MS PowerPoint**.
- Training course on **CNC Machining center**.
- Slicer3D: Image analysis & processing software.

Sachal Hussain

Dated: 10/27/2023