

SEJAL HIRJI GOTHI

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EDUCATION

Northeastern University, Boston, MA

May 2023 (Anticipated)

Master of Science in Bioengineering | Medical Device and Imaging | GPA: 3.85/4

Relevant Coursework: CAD and Manufacturing, Design of Biomed Instrumentation; Bioinformatics Programming in Python; Design, Manufacture, and Evaluation of Medical Devices; FDA Regulation; Digital Image Processing; Human Anatomy and Physiology

Dwarkadas J Sanghvi College of Engineering; Mumbai University, India

May 2019

Bachelor of Engineering in Biomedical Engineering | GPA: 3.78/4

INDUSTRY EXPERIENCE

Software Engineer - CitiusTech Healthcare Technology Private Limited, India

Jul 2019 - Jul 2021

- Maintained and upgraded a legacy full stack on-premises pharmaceutical management application used in US hospitals
- Created, Estimated and Delivered over 150 User Stories and Participated actively in all Scrum meetings
- Introduced extensive unit test coverage for new functionalities added which reduced customer complaints by 20 percent
- Improved performance of Azure data processor, reducing processing time by more than 10 times using intensive code refactoring
- On-boarded team members: knowledge transfer to QA, developers and client, code standards, code reviews, pair-programming and managed a team of 4 trainee software engineers
- Collaborated with multi-cultural and cross functional teams from US and UK (Technology Stack: C#, Delphi, SSMS, Azure, Git)

WORK EXPERIENCE

College of Engineering - Northeastern University, Boston, MA

Graduate Teaching Assistant for BIOE 5810: Design of Biomed Instrumentation

Jan 2021 - Present

- Guiding students for a graduate level project-based course, to help them with hardware circuit that computes heart rate variability using MATLAB and Simulink software, PPG sensor interfacing, biomedical signal processing, verification & validation

Graduate Research Assistant - Heather Clark Lab

Sep 2021 - Present

- Performing acetylcholine esterase enzyme purification from cell culture medium using wet lab techniques
- Maintaining the cells that produce acetylcholine esterase

Teaching Assistant for BIOE 3210: Bioelectricity

Sep 2021 - Dec 2021

- Instructed undergraduate students with lab work including electrical circuits and LTSpice simulation and grading lab reports

ACADEMIC PROJECTS

Predicting Heart Disease using Machine Learning

- Pre-processed patient heart dataset and used logistic regression model in Python script, to determine if patient's heart is healthy or not

Photoplethysmography Signal Detector

- Developed a cost-effective Arduino based system to detect PPG signal using signal processing, which is used to detect heart diseases

Brennen Transdermal Patch

- Designed biocompatible transdermal patch to treat burns which provides faster and less painful wound healing properties depending on results from literature review from existing journals
- Modeled and fabricated prototype aluminum mold using CAD model, SolidWorks
- Fabricated a patch composed of silicone elastomer (PDMS) using Degasser, Plasma Asher, Goniometer
- Formulated a drug layer inside the patch that diffuses in a controlled amount to prevent sepsis formation

Ultrasonic range finder

- Programmed a microcontroller and designed a circuit that indicates object detection using ultrasonic sensor using Keil and Proteus

PUBLICATION

- Fabrication and In Vitro Testing of Bio-synthetic Patch for Burn Wounds

ACHIEVEMENTS

- Research Grant defended for 'Brennen Transdermal Patch' at University of Mumbai, India
- Winner of Indian Nano Hackathon - Indian Institute of Technology Bombay
- Awarded First prize for Paper Presentation at National level Sushruta Innovation Awards-2018
- Letter of appreciation received for the outstanding work done for understanding client requirements and delivering them on time

SKILLS & INTERESTS

- **Technical:** C#; Python; SQL; Delphi; C; C++; Linux; Machine Learning - NumPy; Pandas; Scikit-Learn; Ubuntu; Terminal
- **Software:** SolidWorks; MATLAB; Simulink; Arduino; AutoCAD; TASM; LTSpice; Microsoft Office; GitHub; VS Code
- **Others:** Agile Methodologies, Software Development Lifecycle (SDLC), Software Testing Lifecycle (SDLC), Azure basics, Lab skills, Wet Lab skills, Debugging, HIPAA, Medicare, Medicaid; DICOM, PACS, EMR, PHI data
- **Interests:** Garba dancing, Cooking Gujarati cuisine