Kinjal Shah

kshah31@jhu.edu ♦ (908) 315 – 6945 ♦ kinjmshah.github.io

EDUCATION

Johns Hopkins University Baltimore, MD | 2021

Whiting School of Engineering, Laboratory for Computational Sensing and Robotics

Master of Science in Engineering in Robotics | GPA: 3.76

- Honors: LCSR Faculty Scholarship (2019-2021)
- Fall 2019 Courses: Computer Integrated Surgery (CIS), Robot Devices Kinematics Dynamics and Controls, Haptic Interfaces for Human-Robot Interaction, Machine Learning
- Spring 2020 Courses: Algorithms for Sensor Based Robotics, CIS II, Augmented Reality

University of Pennsylvania Philadelphia, PA | 2016

School of Engineering and Applied Science | Magna Cum Laude

Bachelor of Science in Engineering, Bioengineering

The Wharton School | Magna Cum Laude

Bachelor of Science in Economics, Operations and Information Management

- Honors: Ruhr Fellowship (2014), Dean's List (2012-13, 2015-16), Advancing Women in Engineering Research Scholar (2013)
- Courses: Brain Computer Interfaces, Bioengineering Modeling and Design, Product Design, Venture Capital, Healthcare Policy

RESEARCH PROJECTS

Augmented Reality for Rehabilitation Baltimore, MD | Jan 2020 – Present

Research Advisor: Professor Mathias Unberath

- Applying deep learning methods using PyTorch to video feed from Microsoft HoloLens for human pose-estimation
- Designing augmented reality environments for rehabilitation applications using Unity/C#

Haptic Feedback for Upper Limb Motion Guidance Baltimore, MD | Sep 2019 – Present

Research Advisor: Professor Jeremy Brown

- Developed wearable device prototype to enable motion guidance for rehabilitation through cutaneous haptic feedback
- Designed velocity tracking and haptic feedback algorithm to control two vibration motors via a Raspberry Pi based on inertial measurement unit (IMU) data in Python

"Proposing a framework for evaluating haptic feedback as a modality for velocity guidance." *Kinjal Shah, Shweta Ravichandar, Jeremy D Brown. Paper to be presented at the 2020 IEEE Haptics Symposium (Work-in-Progress track).*

Automated Point-of-Care Pancreatic Cancer Diagnostic Philadelphia, PA | Aug 2015 – May 2016

Research Advisor: Professor David Issadore

Awards: Bioengineering Senior Design Award, First Honorable Mention – SEAS Senior Design Competition

- Detected pancreatic cancer cell derived exosomes from human serum at concentrations modeling precancerous stages by developing an automated, microfluidics based point-of-care diagnostic device
- Created automated, cost-effective, on-chip serum processing and diagnosis protocol involving 3D printed encasing designed using SolidWorks, Arduino based microcontroller, and image processing using MATLAB

ENGINEERING PROJECTS

Fiducial Tracking and Coordinate Frame Registration for Robotic Surgery Baltimore, MD | Sep – Dec 2019

Professor Russel Taylor

- Designed point-cloud to point-cloud registration, pivot calibration, distortion correction, iterative closest point, and deformable registration algorithms and spatial data structures for computer aided surgery applications in Python

6-DOF robot manipulation using inverse kinematics, resolved rate, and gradient control methods Baltimore, MD | Dec 2019

Professor Jin Seob Kim

- Developed manipulation algorithms in MATLAB to perform pick and place with intention and writing tasks using a UR5 robot
- Automated calculations of local coordinate systems to enable the robot to perform the writing task at any orientation

WORK EXPERIENCE

Accenture Philadelphia, PA | 2016 – 2019

Life Sciences Consultant (2018-19), **Senior Analyst** (2017-18), **Analyst** (2016-17)

- Designed R&D technology strategy roadmap for transformation initiative at a global biotechnology company
- Developed data analytics approach to enable data-driven insights from historical, existing, and future data
- Managed clinical cloud implementation from strategy definition through launch involving future state design, requirements gathering, user acceptance testing, and change management
- Assessed merger and acquisition options for client facing loss of patent protection on key revenue generator

SKILLS

- Python, MATLAB, C/C++
- Git
- Machine Learning, PyTorch
- Arduino
- SolidWorks
- 3D Printing
- Unity
- ROS