# Shubham Singh

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## EDUCATION

**University of Liverpool** **Jan 2021 – Jan 2022**
*MSc in Computer Science. Predicted Grade: Distinction* *Liverpool, U.K.*

**Delhi Technological University** **Aug 2014 – May 2018**
*Bachelor of Technology in Engineering Physics (Major in Electronics): First Class* *New Delhi, India*

## RELEVANT COURSEWORK

- Programming Fundamentals
- Web Programming
- Database Systems
- Applied Algorithmics
- Machine Learning
- Computational Intelligence
- Safety and Dependability
- Data Mining and Visualisation
- Research Methods

## EXPERIENCE

**Swansea University** **Swansea, U.K.**
*Research Assistant* ***Aug 2018 – Jan 2020***

- Designed an intelligent interference detection and suppression system for an industry grade GPS module. Implemented multi-threading using POSIX Threads library in C for parallel execution of signal RSSI read and SP4T microwave switch function to achieve low-latency with 85% accuracy. Developed a GUI using GTK.
- Automated CST Microwave Suite simulations and post-processing of multiple data-sets for high mesh count microwave models used in the adaptive optimisation using pycst API in Python.

*Visiting Student Researcher* ***June 2017 – Feb 2018***

- Built an interface for precision control of a piezoelectric pump to drive Liquid Metal in micro-fluidic channels used in re-configurable electronics. Designed a GUI using the Tkinter library in Python.

## PROJECTS

**GA and PSO optimised MLP** **Jul 2021**
*University of Liverpool*

- Implemented a Artificial Neural Network (ANN) in Python using Backpropgation with various activation functions to simulate problems like XOR. Used Genetic Algorithm and Particle Swarm Optimiser to train the ANN.

**Autonomous Underwater Vehicles** **Dec 2016 – Feb 2017**
*Delhi Technological University*

- Developed an acoustic signal processing unit as a part of the navigation system of an indigenous miniature underwater explorer. Implemented a band-pass filter written in C on an high-sensitivity data acquisition module for 3-D localization of an underwater sound source.

**Unmanned Aerial Systems** **Jul 2015 – Jul 2016**
*Delhi Technological University*

- Integrated ROS on the UAV on-board computer and created an interface for critical processes such as the Flight Control System, Electric Propulsion System, Image Processing, Obstacle Detection and Avoidance System.
- Setup a local SFTP server on the UAV's on-board computer to achieve interoperability with a target remote server on the ground over a WLAN.
- Implemented an object size estimation feature in MTALAB using the attributes such as Geotags, Inertial Measurement Unit data and Altitude from the UAV.

## SKILLS

**Languages**: Python, JavaScript, C/C++, PHP, HTML, CSS

**Technologies & Frameworks**: Linux, Git, Django, NodeJS, React, Docker, MySQL

## HONORS & AWARDS

- MBDA 2-star European Innovation Award 2019 - Swansea University's Communication Systems Research Group bagged the prize in the 'Early Innovative Concept' category.
- WICED Build Hackathon 2015, organized by Broadcom limited - Winning prototype for project TravelSense represented Society of Robotics, Delhi Technological University.