Syed Salman Rahman

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EDUCATION

M.S. in Electrical Engineering, New York University, NY, United States Sep '21–D e c '22
Thesis Title: Monitoring Rheumatoid Arthritis using Infrared Thermography
Relevant Courses: Interactive Medical Robotics, Internet Architecture & Protocols, Real-Time Embedded Systems, Programming for Solving City Challenges, Probability and Stochastic Processes, Computer Systems Architecture.

B.Eng. in Electrical-Mechatronics, Universiti Teknologi Malaysia, Malaysia Sep '16–June '20
Thesis Title: Microfluidic Based Dielectrophoretic Cell Sorter for Cancer Detection
Supervisor (Thesis): Assoc. Prof. Md. Ridzuan Ahmad
Lab Experiences: Instrumentation and Sensors, Embedded Systems, Digital Logic, Mechatronics and Robotics.

RESEARCH INTEREST

- Sensors, Lab-on-chip sensors, MEMS, wearable sensors, medical devices, health monitoring, IoT.

RESEARCH AND PROFESSIONAL EXPERIENCE

Field Application Engineer Intern, STMicroelectronics, Schaumburg, IL. June '22-Dec '22

- Contributed to characterizing TMOS occupancy sensing technology for MEMS Application Team
- Developed hardware and software of test equipment to enable automated testing routines for MEMS sensors
- Aided in development of standardized testing procedure to fulfill customer application requirements
- Aid in development of sensor data analysis / visualization
- Develop routine to assist testing of sensor devices utilizing advanced lab equipment

Research Assistant, Impact Innovation Lab (Prof. Matthew Campisi), New York University Jan '22-Dec '22

- Contributed to the integration of firmware with hardware and software solutions by analyzing design concepts and troubleshooting and clinical research for ARMA, a biomedical device to monitor Rheumatoid Arthritis using Infrared Thermography
- Conducted quantitative and qualitative comparison study of users' thermographic hand images based on FLIR Lepton 3.5 and FLIR T630

Course Assistant, CS 2204, Department of ECE, Tandon School of Engineering, NYU Sept '21 – Jan '22

- Conducting Lab classes for Digital Logic and State Machine Design focusing on the synthesis of components using Verilog and demonstration on hardware using NEXYS 4 DDR FPGA board from Xilinx.
- Assisting students during the open lab hours and office hours and grading assignments and quizzes.

Research and Development Intern, INNATES PLT, Johor Bahru, Malaysia. June '19–Sep '19

- Worked on a project named "Photovoltaic Energy Monitoring Systems (PVEMS)" for
- the client PETRONAS Global.
- Design and implement circuit for CTH sensor, Analog-Digital Converter (ADC), microcontroller, communication gateway and programming backend server and database.

Research Assistant, Dr. Pei Ling Nov '17– May '18

- Sustainable and Smart Broiler House Farming in Malaysia, Universiti Teknologi Malaysia, Johor Bahru, Malaysia
- Worked under supervision of Assoc. Prof. Leow Pei Ling on the projects "Sustainable Farming with Green Technology" and "Sustainable Temperature Control for Broiler House in Malaysia".
- Performed experimental setup, data collection, data analysis, technical writing

PUBLICATIONS

- **Syed Salman Rahman**, Mohd. Ridzuan, "Microfluidic Based Dielectrophoresis Cell Sorter for real-time cancer detection", 3rd International Conference On Green Engineering & Technology 2021 (IConGETech2021).

- Lau K.X., Leow P.L., Jamian J.J.,Arsat, R., Abdeltawab A.A.A., **Rahman S.S.,**Khalid N.H., A.Mohamed A. "Temperature Distribution Study for Malaysia Broiler House", 2nd International Conference on Smart Sensors and Application, ICSSA, 2018.

- Lau K.X., Leow P.L., Jamian J.J.,Arsat, R., Abdeltawab A.A.A., **Rahman S.S**., Khalid N.H., A.Mohamed A. "Harvesting electrical energy from rooftop ventilator". International Journal of Integrated Engineering., Vol.10, No.4, pp. 68-72, 2018.

POSTER PRESENTATIONS

- IoT based smart energy monitoring for home appliances using Machine Learning. Grand Challenges Malaysia, 2019.
- Fiber optics – Future of Fiber optics, Theoretical difference of multi-mode and single mode fiber, Principle of Communication Knowledge Transfer Program by IEEE Malaysia & VTS Joint Chapter, 2018.
- Digital Irrigation and monitoring system using tailored sensors and dashboard. IUT 5th National ICT Fest, 2013.

PROJECTS

- Designed and developed a wearable health tracker using a ST 3-axis gyroscope MEMS sensor to distance walked and activity recognition.
- Studied, Processed, and analyzed data from DSNY to answer where and what type of Recycling Stations should be deployed in NYC.
- Designed a Smart gloves using wearable sensors to monitor vital signs of Rheumatoid Arthritis patients.
- Studied and analyzed temperature distribution of different light/heat sources for optimum chick growth at broiler house.
- Created a LBPH based face recognition system for classroom attendance.
- Developed Centralized Control system as a capstone project to monitor and control different sensors used for increasing sustainability of School of Electrical Engineering, UTM.
- Designed and developed a 4-way traffic light system using ATMega32.

TECHNICAL SKILLS

- Programming Languages: C/C++, Python, MATLAB, Assembly (RISC-V), Verilog.
- Design, Modeling, Simulation: Simulink, COMSOL, NI LabView, Proteus, Modelsim, Tinkercad/SolidWorks.
- MCU/Dev boards: Arduino, RaspberryPi, STM32, Xillinx FPGA
- Test Equipment: DMM, Logic Analyzer, Oscilloscope, Power Supply, Black body, Peltier Module, Thermographic camera, Power Amplifier (PA), Signal Generator, Spectrum Analyzer (SA)
- Other tools and frameworks: mbed, STMCubeIDE, UNICO-GUI, SerialPlot, git, AWS IoT.

HONORS AND AWARDS

- Merit-based scholarship, Tandon School of Engineering, NYU (2021)
- Winner, Tandon Made Challenge. Track: AI for Good (2021)
- Chosen as a Tandon Summer Scholar among 1000 participants (2021)
- Dean's List Award, School of Electrical Engineering, Universiti Teknologi Malaysia (2018-2020)
- 3rd place, National Grand Challenges Competition, Malaysia (2019)
- 2nd place, Capstone Project Showcasing, School of Electrical Eng., UTM. (2019)
- Champion, Project Showcasing (Mechanical), 7th National School Science Fair, Bangladesh (2015)
- Daily Star Awards for outstanding results in O&A levels (2014)
- 75% Merit-based scholarship, Oxford International School, Dhaka, Bangladesh (2013)

LEADERSHIP

- Crew member – Activity, TEDxUTM 2018. (Sep'17-Apr'18)
- Academic Director, GoldenKey International Honour Society, UTM chapter, Malaysia. (Feb'17-Mar'18)
- President, ICT club, Oxford International School, Bangladesh. (Aug'13-Mar'15)
- Vice President, Rovers Scout Group, Oxford International School, Bangladesh. (Nov'13-Nov'14)
- Head of Social Services Team, Chokro, Bangladesh. (Dec'12-Jan'14)

REFERENCES

- Matthew Campisi, PhD
  Industry Associate Professor, Electrical and Computer Engineer,
  Tandon School of Engineering, New York University.
  mcampisi@nyu.edu

- Min Kyun Kim
  Application Engineer, STMicroelectronics Inc., Schaumburg, IL
  minkyun.kim@st.com

- Md. Ridzuan Ahmed, PhD
  Associate Professor, School of Electrical Engineering,
  Universiti Teknologi, Malaysia, Johor Bahru, Malaysia.
  mdridzuan@utm.my

- Leow Pei Ling, PhD
  Associate Professor, School of Electrical Engineering,
  Universiti Teknologi, Malaysia, Johor Bahru, Malaysia.
  leowpl@utm.my

- Rozeha B. Rashid, PhD
  Senior Lecturer and Head of Telecommunication Software & System (TeSS) Research Group,
  School of Electrical Engineering, Universiti Teknologi, Malaysia, Johor Bahru, Malaysia.
  rozeha@utm.my