

# ARUL PRAKASH SAMATHUVAMANI

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## EDUCATION

### UNIVERSITY OF LEEDS

#### MASTER OF SCIENCE (Eng) – COMMUNICATIONS AND SIGNAL PROCESSING

Embedded Systems, FPGA for System on Chip, Digital Signal Processing, Optical Communication, Programming, Data Communication and System Security

### MADRAS INSTITUTE OF TECHNOLOGY – ANNA UNIVERSITY

#### BACHELORS IN ENGINEERING - ELECTRONICS AND COMMUNICATION ENGINEERING

Object Oriented Programming, Digital Electronics, Embedded and Real Time Systems, Digital Communication, Microprocessors, Computer Architecture and Organization, Soft Computing, Parallel Processing, VLSI, Digital Signal Processing.

## WORK EXPERIENCE

### UNIVERSITY OF LEEDS – SCHOOL REPRESENTATIVE ( PGT ) - JANUARY 2021 – PRESENT

- Working closely with Staff, Senate and wider University to represent interests of students of School of Electronics and Electrical Engineering and their taking care of their welfare during their time at the university.
- Elected as Course Representative for MSc. Communications and Signal Processing.

### LECOMMENTATOR.COM - SELF EMPLOYED – EDITOR FOR TECH AND FULL STACK DEVELOPER – OCTOBER 2019 - PRESENT

- Design and Development of Lecommentator.com using WordPress, optimizing performance by means of compression, caching and CDN, Setting up Office 365 account for all authors, SEO Analysis and Optimization.

### ANNA UNIVERSITY - TED CLUB OF MIT – FOUNDER AND CHAIRMAN – JUNE 2017 - MAY 2018

- Elected to lead a team of more than 50 students. Initiated various activities to increase university-industry collaboration on research and innovation. Managed finances and supervised the delegation of responsibilities.
- Organized a talk show - “Innovate,” to create an environment where innovative thinking is inspired and nurtured among students. Secured sponsorship, marketed, effectively planned and organized event with attendance of more than 500 students.
- Introduced tools to ensure efficient communication within team and making sure deadlines are met.

### ANNA UNIVERSITY – ELECTRONICS ENGINEERS ASSOCIATION – WEB DEVELOPER – JUNE 2016- MAY 2018

- Designed and developed the Symposium information and workshop payment website handling traffic of more than 1000 people daily.

## TECHNICAL SKILLS

**Programming Languages:** C, C++, Python, Numpy, Pandas, WordPress.

**Embedded:** ARM, Embedded C, Verilog HDL, Altera Quartus, Raspberry, Arduino.

**Cloud Tools:** AWS, Azure, Firebase, Microsoft Office 365, G Suite, Zoho Suite.

**IDE:** Android Studio, STM Cube IDE, MATLAB, Opti System, Windows, Linux.

## ACADEMIC PROJECTS

### MULTILEVEL MODULATION FORMAT CONVERSION USING DELAY LINE FILTER ( DLF )

- Design of Delay Line Filter (DLF) using OptiSystem and MATLAB to perform Modulation Format Conversion of 50 Gbps BPSK signal to QPSK and then to 16 QAM.
- All optical modulation format conversion decreases power use, complexity and cost of the system.

### ALL OPTICAL MODULATION FORMAT CONVERSION AND DISPERSION COMPENSATION USING ALL PASS FILTER ( APF )

- Design of SCISSOR based All Pass Filter using OptiBPM and MATLAB to convert 50 Gbps BPSK signal to QPSK and then to 16 QAM.
- 10% increase in BER when compared to other dispersion compensation techniques.

### AUTOMATIC EXTERNAL DEFIBRILLATOR

- Design and Development of an Automatic External Defibrillator that is 80% more cost-effective than existing defibrillators in the market.
- Design of Signal Processing system using Nucleo STM32 ARM Cortex board and AD8232 Heart Rate Monitor. Prototyping and testing were done using Arduino Mega.

### USER ACTIONS AS AUTHENTICATION MECHANISM TO IMPROVE SMARTPHONE SECURITY

- Developing an authentication mechanism using an SVM classifier model based on behavioral cues of the user.
- 96 % accuracy in authentication was obtained using this method and can replace existing biometric authentication.
- Prototyping was done using Raspberry Pi.

## ACADEMIC ACHIEVEMENTS

- Presented and secured funding from the Center for Technology Development and Transfer – Anna University | Research Support Scheme for the completing project – Automatic External Defibrillator.
- Secured Travel Grant from the National University of Singapore to present a paper on “User Actions as Authentication Mechanism to Improve Smartphone Security” at Deep Learning Security Research Forum, NUS Singapore.
- CERTIFICATE OF MERIT from Central Board of Secondary Education for Exceptional Performance in AISSE Examinations scoring perfect score in all 5 subjects offered by the board.
- Scholarship from NLC India Ltd. For UG education based on performance in 10+2 Board Examinations.
- Among top teams 3 teams for the assigned state in COVID National Bio Informatics – Anna University Hackathon.

## PUBLICATIONS

- [S.Arul Prakash et al. “Design of All Pass Filter based All Optical Modulation Format Conversion and Dispersion Compensation.” Tierärztliche Praxis. Vol 40.2020 ISSN: 0303-6286](#)
- [S.Arul Prakash et al. "Multilevel Modulation Format Conversion using Delay-Line Filter." 2018 IEEE World Symposium on Communication Engineering \(WSCE\). IEEE, 2019.](#)
- [S.Arul Prakash “User Actions as Authentication Mechanism to Improve Smartphone Security” 2017 Deep Learning Cybersecurity Research Forum. National University of Singapore.](#)

## REFERENCES

Dr. Prakash P – Associate Professor, Department of Electronics Engineering, Anna University. Email: prakashp79@gmail.com