

Nishal Silva

ENGINEER · MUSICIAN · PHOTOGRAPHER · NINJA

62, 5th Lane, Jubilee Road, Laxapathiya, Moratuwa 10400, Sri Lanka.

☎ (+94) 770 41 41 76 | ✉ ns2max@gmail.com | 🌐 nishal-silva | 🎓 N. Silva

Profile

AN EXPERIENCED ENGINEER/ RESEARCHER. WELL VERSED, AND UP TO DATE IN THE LATEST DIGITAL TECHNOLOGIES, WITH AN EXTENSIVE KNOWLEDGE IN COMPUTER VISION, DIGITAL SIGNAL PROCESSING, MACHINE LEARNING AND MUSIC TECHNOLOGY. A WELL SPOKEN AND FRIENDLY INDIVIDUAL WITH KEEN PEOPLE AND TIME MANAGEMENT SKILLS, EXCELLENT PRESENTATION SKILLS, CREATIVE AND OUT-OF-THE-BOX THINKING.

Education

M.Sc in Telecommunication and Electronic Engineering

SHEFFIELD HALLAM UNIVERSITY

2018

B.Eng (Hons) in Electronic Engineering

SHEFFIELD HALLAM UNIVERSITY

2014

Higher Diploma in Electronic Engineering

SRI LANKA INSTITUTE OF INFORMATION TECHNOLOGY

2013

CONTINUING EDUCATION

[COURSERA.ORG](https://www.coursera.org)

Mathematics for Machine Learning: Linear Algebra, *Credential ID: J5XPNW3BJDW3*

Mathematics for Machine Learning: Multivariate Calculus, *Credential ID: UA22TXFZ6W8T*

Neural Networks and Deep Learning, *Credential ID: 8U2UDDBKQW39*

Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization, *Credential ID: PQEKDQV4DX5Z*

Structuring Machine Learning Projects, *Credential ID: U8GZL7M8RR4Y*

Research Interests

COMPUTER VISION | MACHINE LEARNING | ARTIFICIAL INTELLIGENCE | DIGITAL SIGNAL PROCESSING
MATHEMATICAL MODELLING | ALGORITHM DESIGN | INTERNET OF THINGS | INDUSTRIAL AUTOMATION
MUSIC TECHNOLOGY | MUSIC INFORMATION RETRIEVAL | INTERNET OF MUSICAL THINGS

Skills

Programming Languages	Python C C++ C# JavaScript Assembly VHDL
Programming Libraries	TensorFlow Keras OpenCV Numpy Boost
Operating Systems and Platforms	Windows Linux Raspberry Pi Arduino PIC STM32 FPGA
Mathematical Processing Packages	MATLAB Octave
Computer Vision Software	ViDi Systems HALCON Cognex Vision Pro IC Imaging Control
Documentation	MS Office Suite LaTeX
Miscellaneous	Photoshop After Effects Lightroom SketchUp Cubase

Publications

Towards Real-Time Detection of Symbolic Musical Patterns: Probabilistic vs. Deterministic Methods

27TH FINNISH-RUSSIAN UNIVERSITY COOPERATION IN TELECOMMUNICATION CONFERENCE

Trento, Italy

Sep. 2020

On Musical Onset Detection via the S-Transform

52ND ASILOMAR CONFERENCE ON SIGNALS SYSTEMS AND COMPUTERS

California, USA

Oct. 2018

On Musical Onset Detection via the S-Transform

MASTERS THESIS

SLIIT

Dec. 2017

A Hand Gesture based TV remote

BACHELORS THESIS

SLIIT

Oct. 2014

Work and Research Experience

Forestpin (Pvt) Ltd

TECHNICAL CONSULTANT

Colombo 05, Sri Lanka

Aug. 2020 - present

- Back end modifications to the code-base.
- Designing and implementing new functionalities to the software.

MAS Digital Excellence

RESEARCH ENGINEER

Battaramulla, Sri Lanka

Jan. 2020 - Jul. 2020

- Developed and deployed a computer vision based device to digitize sphygmomanometer readings in several hospitals treating COVID-19 patients, as part of a project to enable remote patient vitals monitoring.
- Currently involved in a pilot project for a company wide IoT implementation, to track real-time productivity in sewing operations in multiple factories across South Asia, North America, and Africa.
- Currently involved in designing a system to optimize machine changeovers during factory layout changes by predicting the output, sewing machine allocation and next order layouts.
- Developed, and piloted a computer vision based project to observe customer behaviour in a retail environment, thereby identifying "hot-spots" for strategic product placement.
- Developed a vision based "order retrieval" system for garment labels, to minimize errors and improve productivity.

MAS Pixel

RESEARCH ENGINEER

Battaramulla, Sri Lanka

Jan. 2018 - Dec. 2019

- Was involved in a large scale IoT project to improve the productivity using analytics with sewing machine data. Designed interfacing devices to obtain meaningful data from various types of sewing machines.
- Designed a system to track repetitive patterns in sewing operations, of which the operational data was obtained using the IoT framework, which were used to track operator efficiency and to identify improvements to the operation.
- Developed and implemented an image processing based quality assurance system for a digital printing application, to optimize the printing real estate, improve efficiency and improve quality.
- Developed a computer vision based algorithm to identify corners with minimal data and effort, which enabled multiple automated measurement systems to operate efficiently.
- Designed and deployed a computer vision and machine learning based quality checking system for garment labels to improve the accuracy by reducing errors.
- Designed and deployed several software bots to automate repetitive tasks in third party software.
- Attended multiple international conferences and trade shows, as a representative of the organization, to scout for new technologies.

MAS Technology Services

TECHNICAL CONSULTANT

Colombo 02, Sri Lanka

Jan. 2015 - Dec. 2017

- Designed and implemented an augmented reality based device for garment and print prototyping through intelligent projection to the substrate.
- Designed and implemented several computer vision based programs to segment and classify images, which were used by multiple document processing bots.
- Attended multiple international conferences and trade shows, as a representative of the organization, to scout for new technologies.
- Designed a computer vision based system to detect structural defects in fabric rolls. This was used as part of an automated quality checking system aimed towards improving efficiency.
- Developed several computer vision and machine learning based systems to detect, segment and classify garments in stock photographs.
- Developed a mathematical model which was used to automate a textile digital printing system, thereby improving efficiency, and accuracy by a significant margin.
- Presented several computer vision based solutions at inter-company exhibitions, which resulted in several multi factory deployments.
- Conducted several seminars and hands on training sessions on the use of computer vision to automate tasks in the apparel industry, which paved the way for several quality and efficiency improvement projects to be set in motion.

Arthur C. Clarke Institute for Modern Technologies

COMMUNICATION ENGINEERING INTERN

Katubedda, Sri Lanka

Jan. 2013 - Aug. 2013

- Designed a section of an automated railway gate control system for Sri Lanka Railway Department.
- Worked on several radio signal communication devices.
- Attended several exhibitions as an exhibitor, on behalf of the Institute.
- Designed a prototype for an IoT enabled automated water tank.

Nielsen Lanka

MARKETING RESEARCH INTERN

Colombo 08, Sri Lanka

Sep. 2010 - Dec. 2010

- Worked as a call centre operative.
- Performed marketing research on customer credit card usage for several major banks.

INDEPENDENT RESEARCH

- Real-time pattern detection in continuous music streams.
- The usage of machine learning based pose detection methods on athletes, aimed at correcting their posture and techniques.
- Designing a mathematical model to represent musical notes in the MIDI format for real-time computational applications.
- A comparison between Probabilistic and Deterministic systems in the domain of Music and Digital Signal Processing.
- Utilization of alternate spectral representations to identify special characteristics of music.
- The use of computer vision and machine learning techniques to study customer behaviour in a retail environment.
- The use of computer vision and machine learning techniques to implement automated stock maintenance systems for large scale retail environments.

Professional Memberships

Institute of Electrical and Electronics Engineers (IEEE)

GENERAL MEMBER

member no: 92289939

Certifications

Rock and Pop Guitar - Grade 8

TRINITY COLLEGE LONDON

Jul. 2015

PIC Microcontroller programming

SCEICNE LINK TECHNOLOGY CENTRE

Sep. 2013

Extracurriculars and Volunteer Work

Scout Movement

- Currently a Phase 1 trained scout leader.
- Served as a Boy Scout and a Rover Scout and attended several National and International Camps.
- Attended the World Scout Jamboree - Essex, UK as a representative of Sri Lanka.

Rotaract Club

SLIIT

- Served as the Sergeant-at-arms and performed the duties required of the post.

United Nations Youth Association

St. Peters College, Colombo 04

- Served as the President, Editor and general member.
- Attended several Model United Nations Conferences.

Interact Club

St. Peters College, Colombo 04

- Served as an interim social services director, project editor and general member.
- Organized several projects and attended several projects/ conferences on behalf of the club.

Music

- Guitarist of the TNL Onstage 2009 winning band - "Five Minutes Apart".
- Bass guitarist of the YES FM All Starz 2008 runner-up band - "The Purple People".
- Currently working as a freelance guitar instructor, recording and session guitarist, YouTube cover guitarist, and researcher.

Photography

- An enthusiastic landscape and travel photographer.
- Owner of a travel and landscape photography blog.

Misc.

- Active member of the Church Youth Movement
- Active member and guitarist for the Church Choir.