Michael Augustine Arockiyadoss

Ph.D. Researcher in Optical Fiber Sensing & Machine Learning

Internet of Things | Fiber Communication | Computer Hardware Enthusiast

CONTACT

Email: pushpamichaeldoss@gmail.com
LinkedIn: www.linkedin.com/in/meetmrmichael
GitHub: github.com/Michael-Augustine
Phone: +886-0916449939
Taipei, Taiwan

CORE SKILLS

- Fiber Bragg Grating (FBG) Sensors
- Machine Learning
- Optical Fiber Sensing
- Free Space Optics
- Optical Network Design
- IoT Systems

PROGRAMMING

- Python
- C++/C
- Java
- PHP
- HTML/CSS
- JavaScript
- MySQL

CLOUD & TOOLS

- Amazon Web Services
- Microsoft Azure
- Ionic Framework
- Bootstrap

NETWORKING

- CCNA/CCNP
- MCSA/MCSE
- Computer Networking
- Wireless Networks
- Hardware & Networking

PROFESSIONAL SUMMARY

Ph.D. student in Electro-Optical Engineering with expertise in Optical Fiber Sensing, Machine Learning, and IoT systems. Specializing in innovative solutions for fiber communication and intelligent sensing at National Taipei University of Technology. Proven track record in blending machine learning with fiber optic technology for real-world applications, with publications in IEEE Sensors Journal and hands-on experience in cloud platforms.

EXPERIENCE

AI Intern

IdeasLab Formosa Co., Ltd.,

September 2025 - Present | Taipei, Taiwan

- Working on sensor fusion and signal analysis with mmWave radar, force plates and multi-modal data for sports-tech applications
- Handling hardware including mmWave radar modules, optical camera systems, microcontrollers and calibration setups for full pipeline development
- Building React and Three.js visualizations that display AI outputs such as pose skeletons, 3D swing scenes and force-plate metrics
- Supporting the AI team in developing computer vision models for pose estimation, 3D reconstruction and object tracking, and integrating them into Python APIs for real-time use

PhD Research Assistant

National Taipei University of Technology - Optoelectronic Signal Processing Lab

September 2022 - Present | Taipei, Taiwan

- Conducting advanced research on Fiber Bragg Grating (FBG) sensors for temperature and strain detection
- Developing innovative machine learning technologies to enhance fiber sensor systems
- Specializing in Fiber Optic Sensors, Optical Network Design, and Free Space Optics
- Published multiple peer-reviewed papers in IEEE Sensors Journal and Electronics

Laboratory Assistant

St. Joseph's College - Jerome D'Souza Center for ICT

June 2017 - March 2022 | Tiruchirappalli, India

- Maintained Internet facilities across campus under Earn While Learn Scheme
- Supported campus digital transformation initiatives and website management
- Contributed to ICT and e-learning tool implementation in educational environment
- Enhanced institutional technological capabilities and infrastructure

EDUCATION

Doctor of Philosophy (Ph.D.) - Electro-Optical Engineering

National Taipei University of Technology, Taipei, Taiwan

September 2022 - January 2026 (Exp.) | GPA: 4.0/4.0

Focus: Fiber Bragg Grating (FBG) sensors, Machine Learning, Fiber Optic Networks

Master of Science - Computer Science

St. Joseph's College (Autonomous), Tiruchirappalli, India

June 2020 - March 2022 | CGPA: 8.4/10

Specialization: Wireless Networking, Microsoft Azure, Amazon Web Services

Bachelor of Computer Applications

St. Joseph's College (Autonomous), Tiruchirappalli, India

June 2017 - March 2020

Focus: Computer Hardware, Networking, Programming Fundamentals

KEY CERTIFICATIONS

EF SET English Certificate C1 Advanced
EF SET
March 2025

Understanding Data Science
DataCamp
April 2023

Cloud Infrastructure and Services
ICT Academy of Tamil Nadu
December 2019

Cloud Services and Servers
SYSTECH
August 2019

Introduction to Cloud Computing
Udemy
September 2018

Computer Networks & Networking
Udemy
August 2018

Windows Server 2012R2
Udemy
March 2020

Diploma in Computer Applications
TCEDS
January 2014

LANGUAGES

English
Professional Proficiency

Tamil
Native Proficiency

KEY PUBLICATIONS

Spectral Demodulation of Mixed-Linewidth FBG Sensor Networks Using Cloud-Based Deep Learning for Land Monitoring

Sensors, September 2025

Cloud-based deep learning framework for spectral demodulation in mixed-linewidth FBG sensor networks for land monitoring, resolving overlapping spectra in uniform and mixed-linewidth arrays under bidirectional drift.
Developed a Transformer-based model with dual-linewidth reflection–transmission fusion, enabling high-density, self-healing FBG sensing and robust demodulation under severe spectral overlap conditions.

Integration of FBGs reflection and transmission spectra for sensing capacity enhancement with Transformer CNN demodulation

IEEE Sensors Journal, May 2025

Novel FBG sensor system employing both reflective and transmission wavelengths with Free Space Optics integration. Developed Transformer CNN with positional encoding, achieving 2.24× faster training and 1.43× faster inference compared to traditional models.

YOLO-v7 Improved with Adan Optimizer: Realizing Orphaned Fiber Bragg Grating to Sense Superimposed Personalized Dynamic Strain

IEEE Sensors Journal, October 2024

Innovative motor condition monitoring approach using single FBG sensor with enhanced YOLO-v7 and Adan optimization for detecting abnormal vibrations in multiple running motors.

Self-Healing Fiber Bragg Grating Sensor System Using Free-Space Optics Link and Machine Learning

Electronics, March 2024

Integration of FSO with FBG sensors in self-healing architectures using hybrid autoencoder-CNN approach for enhanced temperature sensing reliability.

Enhancing Smart City Safety and Utilizing AI Expert Systems for Violence Detection

Future Internet, January 2024

AI-powered violence detection system combining YOLO v7 and LSTM networks, achieving 89.5% MAP for violent attack detection and 88.33% accuracy for action classification.

NOTABLE PROJECTS

Truth Social DApp

April 2023

Blockchain-powered social media application for identifying and preventing fraudulent content using machine learning and smart contracts. Technologies: Gnosis Chain, IPFS, Flask, Machine Learning.

SJC Parent ERP System

June 2020 - March 2022

Comprehensive mobile application connecting parents with student college activities including attendance tracking, exam results, fee management, and real-time notifications. Technologies: Ionic Framework, MySQL, HTML, CSS.

PROFESSIONAL RECOGNITION

- **Resource Person** - Faculty Development Programme on "Convergence of Software Systems, AI, and Data Analytics" at Holy Cross College, December 2024
- **Session Topic:** "Integrating Machine Learning with Optical Fiber Sensing and Communication Technologies"
- **Research Impact:** Multiple publications in high-impact IEEE journals with innovative approaches to fiber optic sensing