

PUSHKAR KODIGEHALLI UMESH

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SUMMARY

MSc student in Electronic Communications and Computer Engineering at the University of Nottingham, with a practical experience in embedded systems, VLSI, FPGA/VHDL design and microcontroller programming. Built hardware prototypes using Arduino and RFID during undergraduate study; implemented VHDL designs in Vivado and applied digital signal processing techniques as part of graduate coursework. Analysed data and applied machine learning models to identify trends and make predictions during my internship. Motivated to apply technical knowledge and hands-on skills to innovative engineering and technology initiatives.

EDUCATION

MSc Electronic Communication and Computer Engineering *University of Nottingham, 2025 – 2026*

Relevant modules:

- HDL for Programmable Devices — VHDL design and simulation in Vivado
- Advanced Computational Engineering — databases and big data
- Artificial Intelligence and Intelligent Systems — neural networks, machine learning
- Scalable Cross-Platform Software Design — systems-level programming

BSc Physics, Mathematics and Electronic *CHRIST (Deemed to be University), India, 2021 – 2024*

Relevant modules:

- Embedded Systems and IoT Fundamentals — microcontrollers, sensor integration
- Digital Signal and System Architecture — DSP theory and implementation
- Verilog and FPGA-Based Design — hardware description and synthesis
- Communication Electronics — RF principles, signal propagation, Networking

Supporting study in Real Analysis, Discrete Mathematics, and Differential Calculus strengthened quantitative and logical reasoning. Practical laboratory work in Waves and Optics, Renewable Energy, and Particle Physics grounded theory in real-world application.

PROJECTS

MSc Dissertation: AI-Based GNSS Interference Detection *University of Nottingham, 2026*
Supervised by Dr. Minglei You

- Collecting raw GNSS signal data from a hardware receiver to build a labelled dataset of interference scenarios (jamming, spoofing, clean signal).
- Engineering signal-domain features (e.g. C/N0, AGC voltage, spectral characteristics) for machine learning classification.
- Trained and evaluated classifiers (Random Forest, SVM, neural network) for binary interference detection, with multi-class classification and accuracy improvement as extended objectives.

Matrix Processing Core in VHDL *University of Nottingham – HDL Coursework, 2026*

- Designed and implemented a synthesizable matrix processing core in VHDL on an AMD (Xilinx) FPGA, performing multi-stage matrix multiplication using dual MAC (Multiply–Accumulate) units.
- Developed a modular architecture with multiple dual-port block RAM buffers for input, intermediate, and output data handling, ensuring efficient memory access and data flow.
- Created a comprehensive VHDL testbench using file I/O to load input matrices, validate outputs against a MATLAB reference model, and automate verification.

Personal Website *github.com/pushkarx17,*

2025

Created a static personal website at pushkarku.com to showcase projects, skills, and a CV.

- Deployed a multi-page portfolio website showcasing projects and a CV using HTML and CSS.
- Hosted via GitHub Pages with a custom domain.

RFID Gate System & Mini Elevator System *CHRIST University – Final year project,*

2024

Created an automated gate system with Arduino and RFID to check tags and open/close the gate. Along a mini elevator model featuring buttons, switches, and LEDs to select floors and display status.

WORK EXPERIENCE

GeoAI Intern *Geospatial Ventures Limited (GVL), Nottingham, UK*

June 2026

- Developed Python pipelines to process and analyse GNSS, RINEX, NMEA, and sensor datas.
- Performed data cleaning, statistical analysis, and geospatial visualisation using QGIS and SNAP.
- Developed machine learning models for soil moisture and station uptime prediction.

Data Engineer, *Micro Placement, University of Nottingham x Practera,*

June 2026

- Audited and reconciled two heterogeneous spreadsheet-based data systems, profiling 300+ records across 40+ fields to quantify data quality, field adoption, and schema drift.
- Developed a framework to compare legacy and current inventory systems, classifying 40+ data fields as Keep, Remove, Reintroduce, or Modify to support consolidation into a simplified data model.

Freelance Technical Support Engineer *Infosys, Leeds, UK*

March 2026

- Assisted in the on-site installation and configuration of a Cisco Board Pro 52 G2 enterprise videoconferencing system in a corporate environment.
 - Gained hands-on exposure to enterprise-grade AV and networking infrastructure, including cable management, device configuration, and system testing.
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SKILLS

- **Hardware and Embedded:** C, C++, Python, Verilog, Embedded Systems, Networking (CCNA fundamentals), IoT, Microcontrollers, FPGA, VHDL, RFID, FPGA.
 - **Signal Processing:** MATLAB, Digital Signal Processing, Communication Systems.
 - **EDA & Dev Tools:** Vivado (Xilinx), VS Code, Git, GitHub
 - **Networking:** CCNA Fundamentals, TCP/IP, Basic Network Configuration
 - **Other Technical:** Python, MySQL, HTML/CSS, Linux (basic)
 - **Soft skills:** Problem-solving, Attention to detail, Team collaboration, Communication, and Time management.
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TRAINING & CERTIFICATIONS

- AWS Fundamentals – Magic Bus India Foundation (Nov 2024 – Feb 2025)
 - IT Fundamental and Job Skilling Programme – Magic Bus India Foundation (Feb 2025)
 - Final Cut Pro Essential Training – LinkedIn Learning May 2025.
 - Information Technology Fundamentals – IBM SkillsBuild (Feb 2025)
 - Cybersecurity Fundamentals – IBM SkillsBuild (Feb 2025)
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References

- References available on request.