

Future-Proof Your IT Career: Transition into Industrial Automation, OT Cybersecurity and Engineering Systems

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Thursday 27 August, 2026



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We are dedicated to ensuring that you receive a world-class education and gain skills that you can immediately implement in the workforce.



World-Class Australia Accredited Education

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EIT is one of the only institutes in the world specializing in Engineering. We deliver professional certificates, diplomas, advanced diplomas, undergraduate and graduate certificates, graduate diplomas, bachelor's and master's degrees, and a Doctorate of Engineering.



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Our lecturers are highly experienced engineers and subject specialists with applied knowledge. The technologies employed by EIT, both online and on-campus, enable us to source our lecturers from a large, global pool of expertise.



Industry Oriented Programs

Our programs are designed by industry experts, ensuring you graduate with cutting-edge skills that are valued by employers. Our program content remains current with rapidly changing technology and industry developments.



Unique Delivery Model

We deliver our programs via a unique delivery methodology that makes use of live and interactive webinars, an international pool of expert lecturers, dedicated learning support officers, and state-of-the-art such as hands-on workshops, remote laboratories, and simulation software.

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Presenters

Indumathi V, EIT's Dean of Engineering

Indumathi V is an experienced Chartered Professional Engineer with over 20 years of expertise in electrical and electronics engineering, engineering education, and leadership. Her early career saw her working as a failure analysis engineer in the semiconductor manufacturing industry in Singapore.

Indumathi then moved to Perth, Western Australia, where she established a successful career in both higher education and vocational education and training. Over the years, she has worked as a lecturer and educator in various engineering fields, earning her recognition as the North Metropolitan Trainer of the Year in 2017. She was also a finalist for the WA Trainer of the Year.

Indumathi holds a Bachelor of Electrical and Electronics Engineering from the University of Western Australia, a Graduate Diploma of Adult and Vocational Education from Charles Sturt University, and a Master of Business Administration from the University of Canberra.

As a Fellow of Engineers Australia and Fellow of the Australian Institute of Management, Indumathi is a highly respected advocate for women and girls in STEM programs. She actively volunteers as a mentor, and her passion for education has led her to pursue a Ph.D. research project focused on empowering students and lecturers through data analytics via electroencephalography (EEG) sensors.



Presenters

Dr. Mostafa Jamshidian, Senior EIT Lecturer

Dr. Mostafa Jamshidian is a Senior Lecturer at the Engineering Institute of Technology, with more than 10 years of academic teaching experience and many years of industry-focused research and development experience. He has a strong background in engineering education, computational mechanics, data-driven engineering, digital manufacturing, and healthcare engineering.

He holds a PhD in Mechanical Engineering from the National University of Singapore, a Master of Education in Tertiary Teaching from The University of Western Australia, and Fellowship of the Higher Education Academy (FHEA). Dr. Mostafa has research experience at the Singapore Agency for Science, Technology and Research (A*STAR), where he contributed to applied projects with major international industry partners including Boeing, Johnson & Johnson, TE Connectivity, and Asahi Glass.

His work has addressed real-world engineering challenges across advanced materials, manufacturing, computational simulation, and industrial processes. His recent healthcare-related work has involved collaboration with major hospitals in Perth and Europe on projects in computations for medicine, AI in healthcare, and patient-specific biomechanics. His teaching and professional practice are strongly informed by industry engagement, applied research, and the translation of advanced engineering methods into practical solutions.



Agenda

1	Welcome & Introductions
2	Why Technology Careers Are Changing
3	The Rise of Industrial Digital Transformation
4	Why IT Skills Are More Valuable Than Ever
5	Career Opportunities in Engineering & Automation
6	Where Your Current Skills Fit
7	Study Pathways & Recognition of Prior Learning (RPL)
8	Questions & Next Steps



Technology Careers Are Evolving

The Future of Technology Careers.

The next generation of technology professionals won't just work in IT.
They'll help build the systems that power our industries.

"With the fourth industrial revolution, IT and OT integration is changing the way we do business."

— Deloitte, Managing the Successful Convergence of Information and Operational Technology

The Technology Workforce Is Being Reshaped



Why industrial automation is changing

- Industrial systems now generate continuous operational data
- ML can support prediction, inspection, and optimization
- Digital twins connect physical and virtual operations
- Edge AI brings intelligence closer to machines
- Smart automation still depends on engineering fundamentals

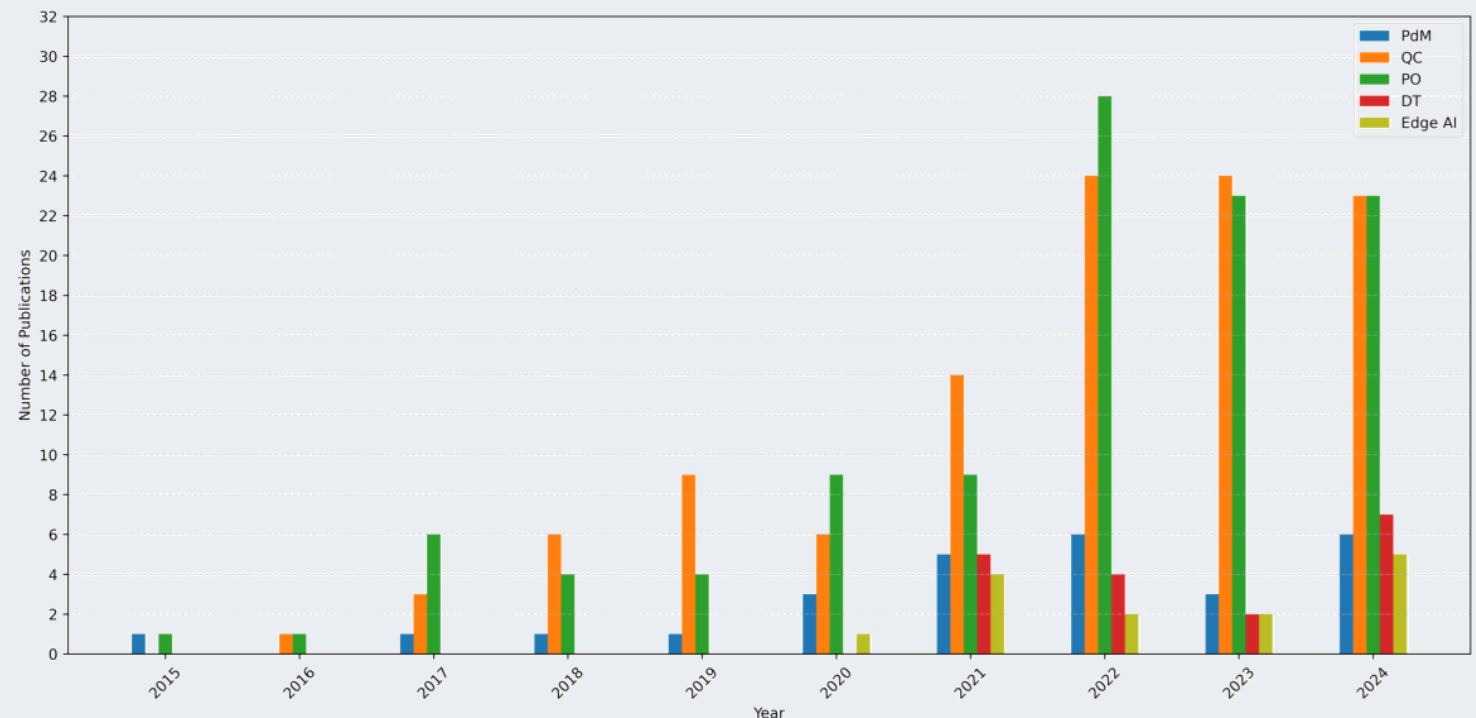


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Three Global Trends Shaping Technology Careers



Digital Technologies Are Moving Into Every Industry

Traditional IT

Software • Cloud • Networks Cybersecurity • AI • Data



Digital Transformation

Industry 4.0 Operational Technology (OT) Industrial AI



Modern Industrial Environments

Manufacturing • Mining • Utilities Renewable Energy • Oil & Gas Water • Transport • Smart Infrastructure

What makes a factory "smart"?

- Connected assets provide real-time visibility
- Data models translate signals into useful information
- Analytics support monitoring, prediction, and optimization
- Human expertise remains part of decision-making
- Cybersecurity and safety must be designed in

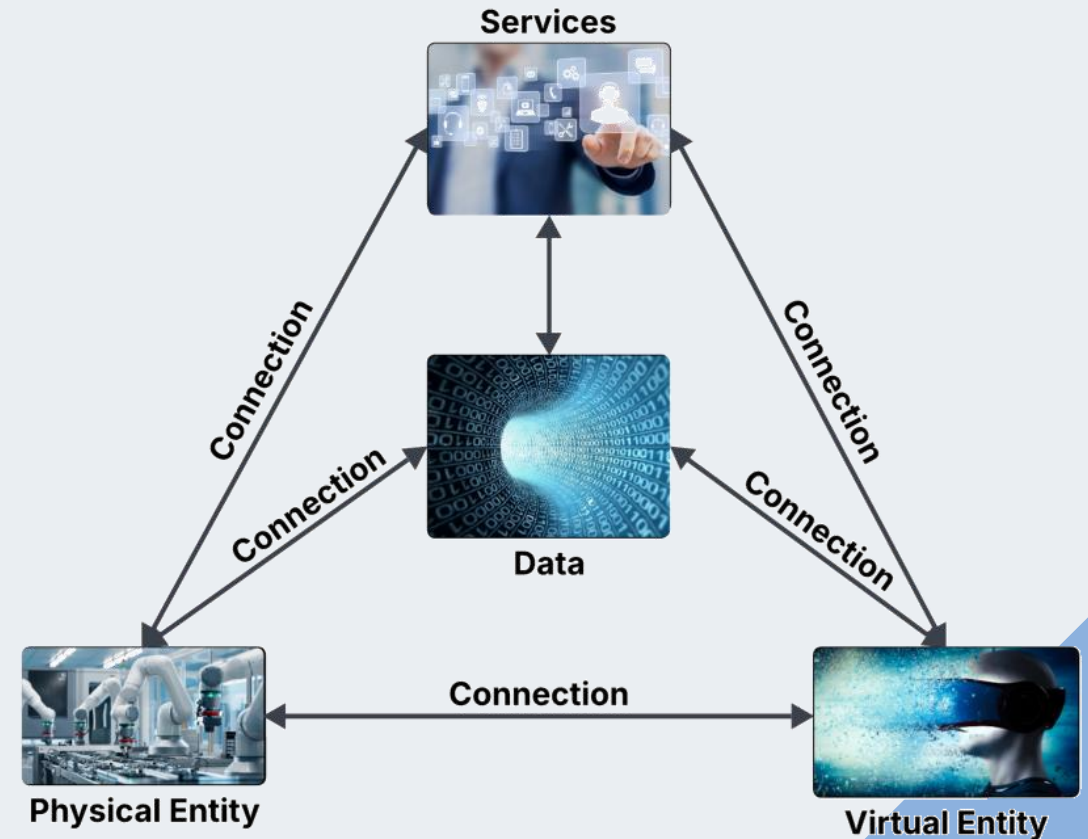


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Sources: [R1], [R2], [R4]. Figure: reproduced from [R1], Fig. 4.

Why This Matters For Your Career

As these industries become increasingly connected, organisations are looking for professionals who understand both IT and engineering.

- ✓ Software Development
- ✓ Networking
- ✓ Cybersecurity
- ✓ Cloud



Are becoming valuable skills in:

Automation
Manufacturing
Utilities
Mining
Energy
Transport

Jobs of the Future

- Automation Engineer
- Industrial IoT Engineer
- Industrial AI Engineer
- SCADA Engineer
- Control Systems Engineer
- Industrial Data Engineer
- OT Cybersecurity Specialist
- Digital Transformation Engineer
- Smart Manufacturing Engineer
- Industrial Network Engineer
- Industrial Systems Engineer

These roles are emerging across manufacturing, mining, utilities, renewable energy, transport and critical infrastructure.

Real Projects You'll Work On

Imagine working on...

⚙️ Smart factories

🤖 Robotics

⚡ Renewable energy

🚆 Rail networks

🏭 Mining automation

💧 Water treatment

🔋 Battery Energy Storage Systems

🏙️ Smart cities



Digital twins: connecting physical and virtual systems

- A digital twin represents a physical asset or process
- Data exchange links the physical and virtual domains
- Models can support monitoring and simulation
- Bidirectional feedback enables decision support
- AI can make twins predictive and adaptive

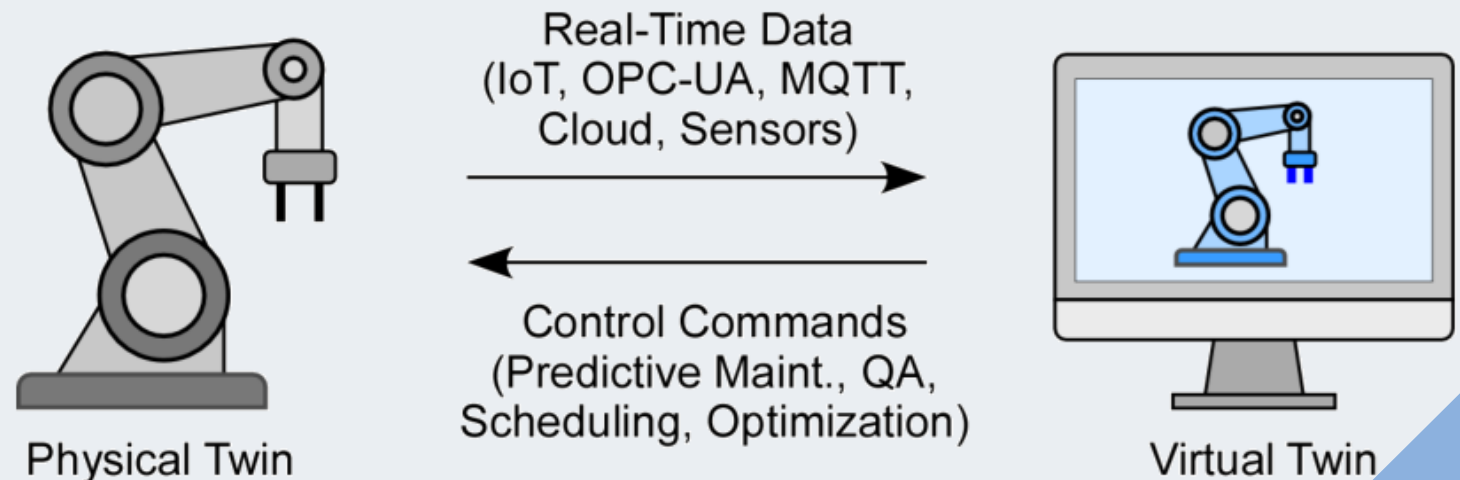
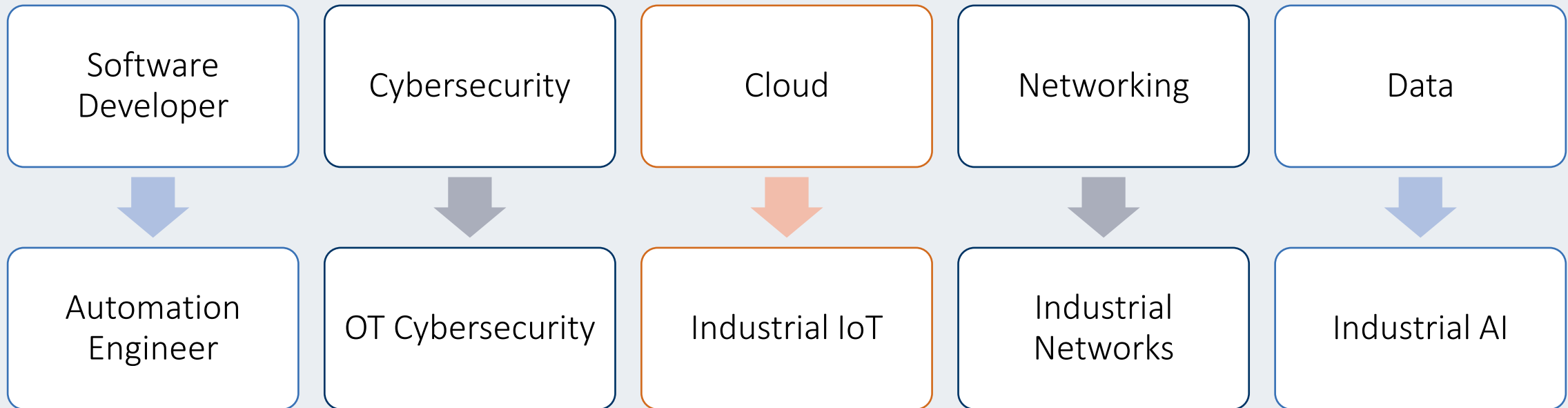


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Where Is Employer Demand Moving?

Which Future Career Interests You?



Employers increasingly value professionals who can combine digital technologies with engineering systems.

Your Existing Skills Already Transfer

Your IT Experience

Software Development

Networking

Cybersecurity

Cloud Computing

DevOps

Python

Infrastructure

Databases

Engineering Application

Industrial Automation

Industrial Ethernet

OT Cybersecurity

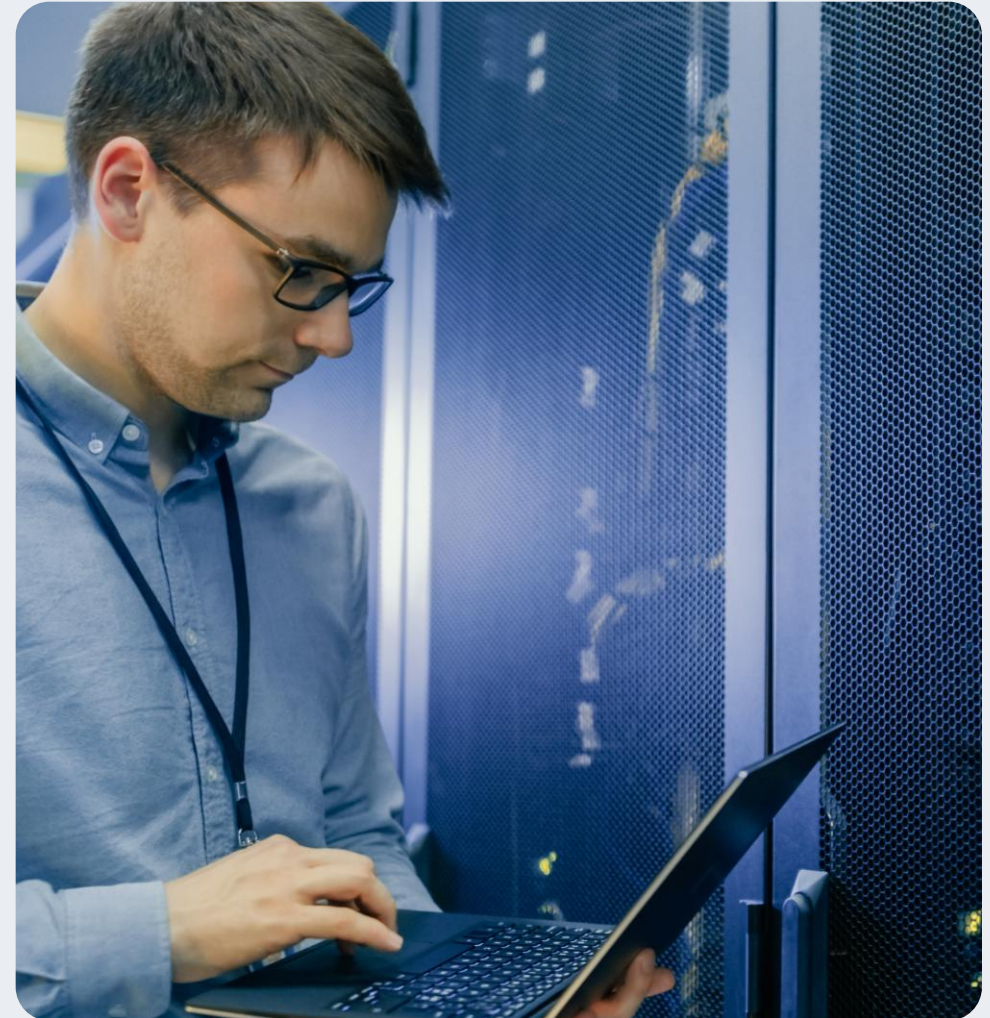
Industrial IoT

Smart Manufacturing

Automation & Data Analytics

Control Systems

Process Historians



IT vs Operational Technology (OT)

Information Technology

Business systems

Office networks

Data

Enterprise security

Servers & cloud

Operational Technology

Industrial systems

Manufacturing & infrastructure

Physical processes

Critical infrastructure security

PLCs, SCADA & control systems



The automation system starts with the control loop

- Sensors measure controlled variables from the process
- Controllers compare measurements with set-points
- Actuators manipulate valves, motors, switches, or drives
- HMI and historians support monitoring and analysis
- Automation data begins in the physical process

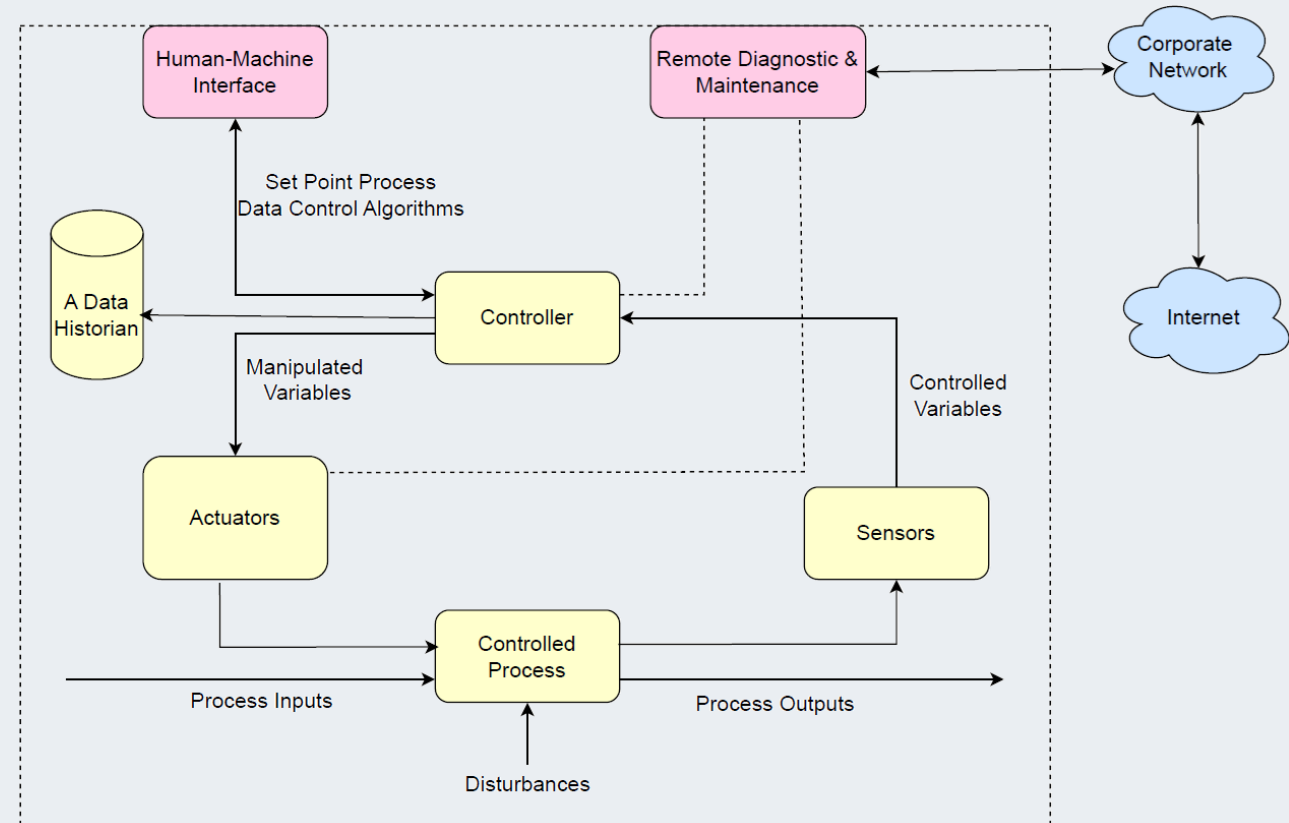


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Sources: [R4]. Figure: reproduced from [R4], Fig. 1.

PLCs: local logic and deterministic control

- PLCs monitor inputs and control outputs
- Programs implement sequences, logic, timing, and interlocks
- Modern PLCs can connect to wider industrial networks
- Connectivity enables data use but increases security exposure
- AI should complement, not bypass, reliable control logic

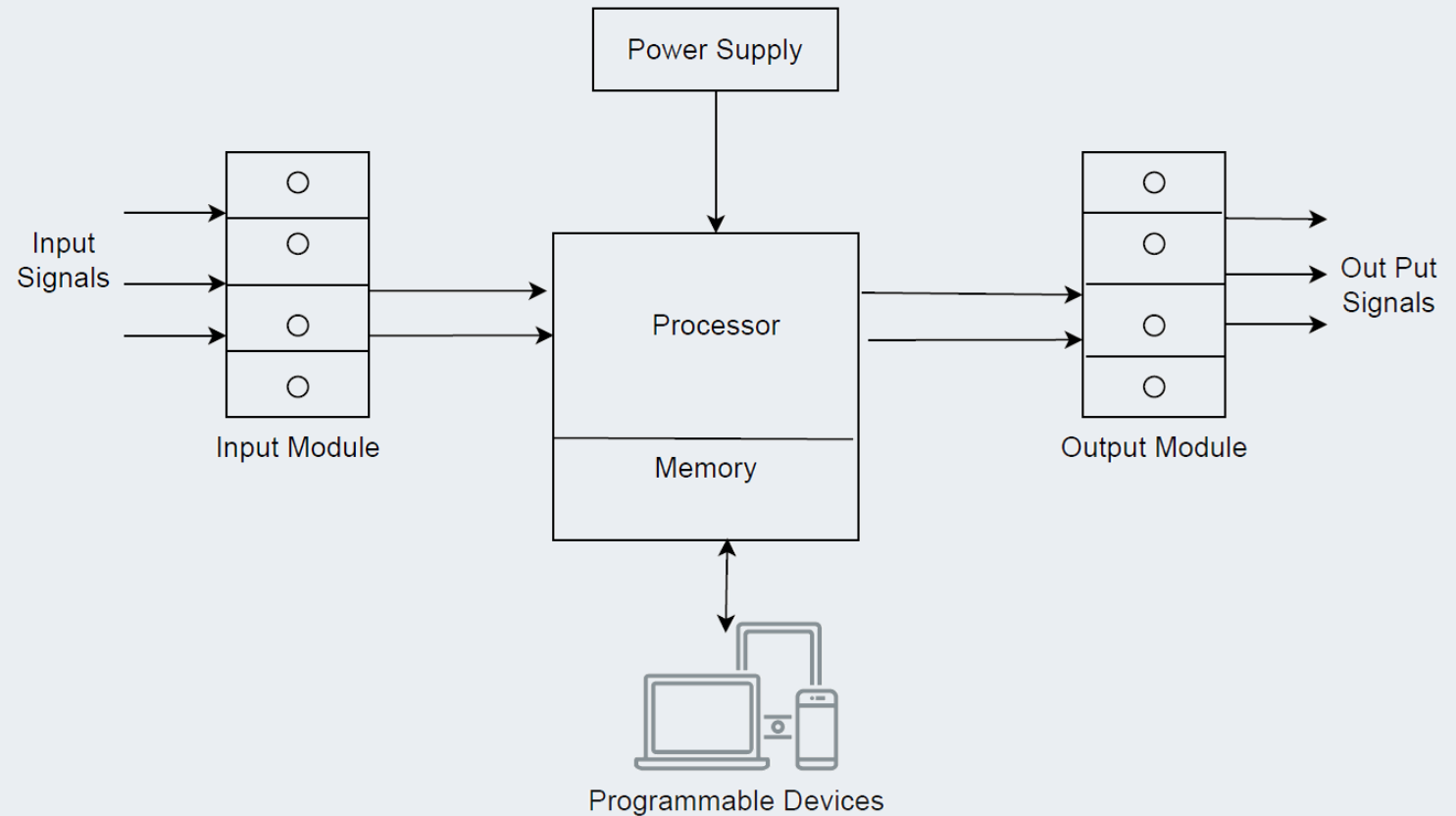
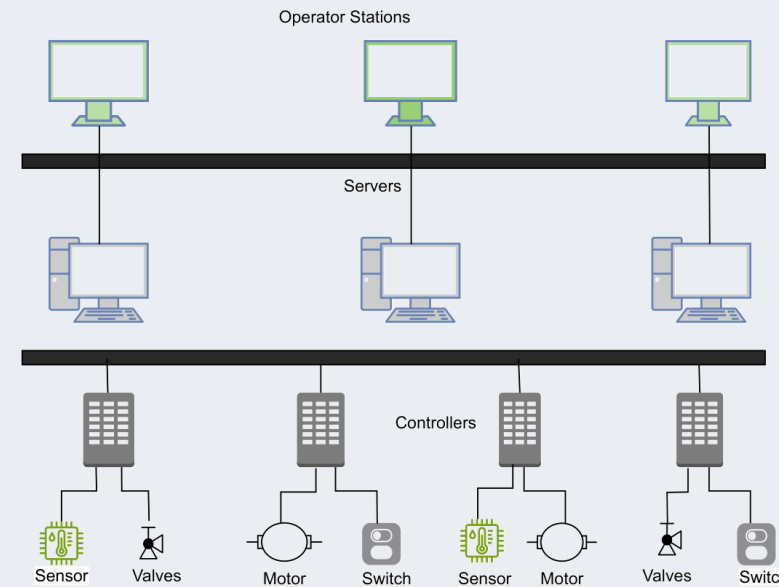
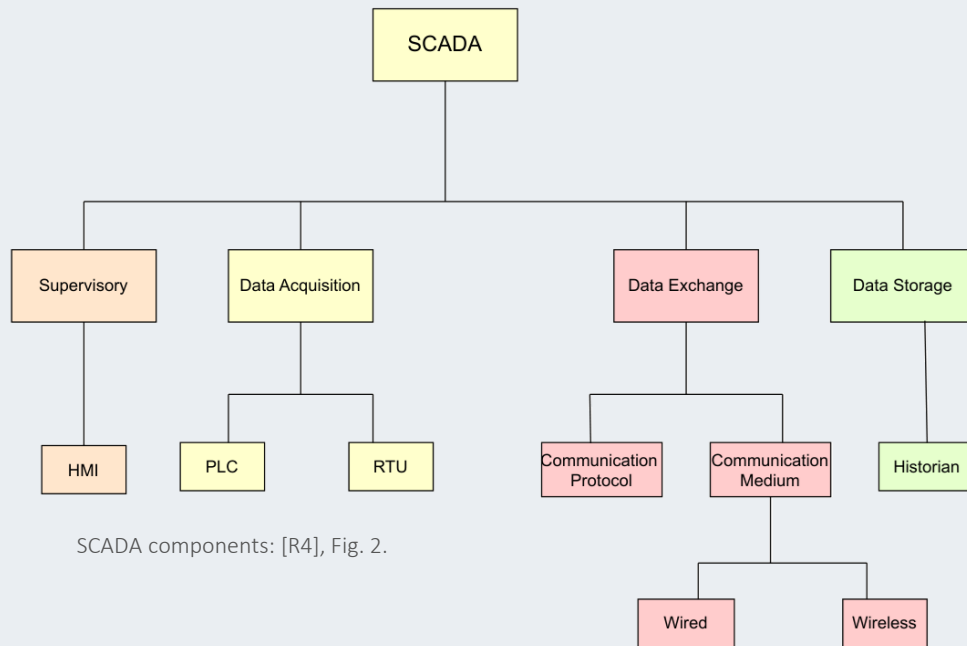


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Sources: [R4]. Figure: reproduced from [R4], Fig. 8.

SCADA and DCS: supervisory and distributed control

- SCADA gathers remote data for monitoring and control
- DCS coordinates many distributed process variables
- HMI help operators observe status and alarms
- Historians store process data for later analysis
- These systems provide the operational data backbone



Sources: [R4]. Figures: reproduced from [R4], Figs. 2 and 7.

Industrial communication networks: the nervous system

- Industrial data must move between devices and systems
- Protocols support monitoring, control, and interoperability
- Examples include Modbus, DNP3, MQTT, and OPC
- Legacy protocols may lack modern security features
- Data movement is both an enabler and a risk

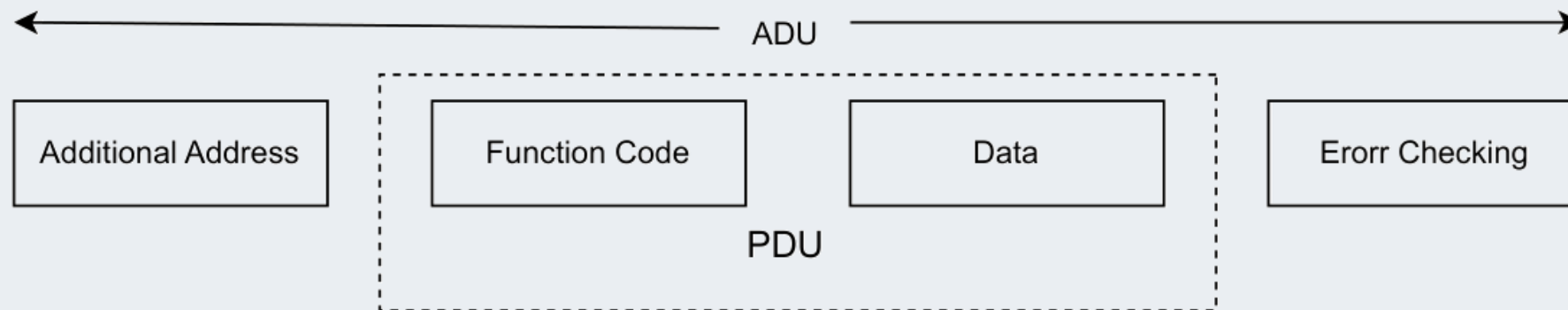
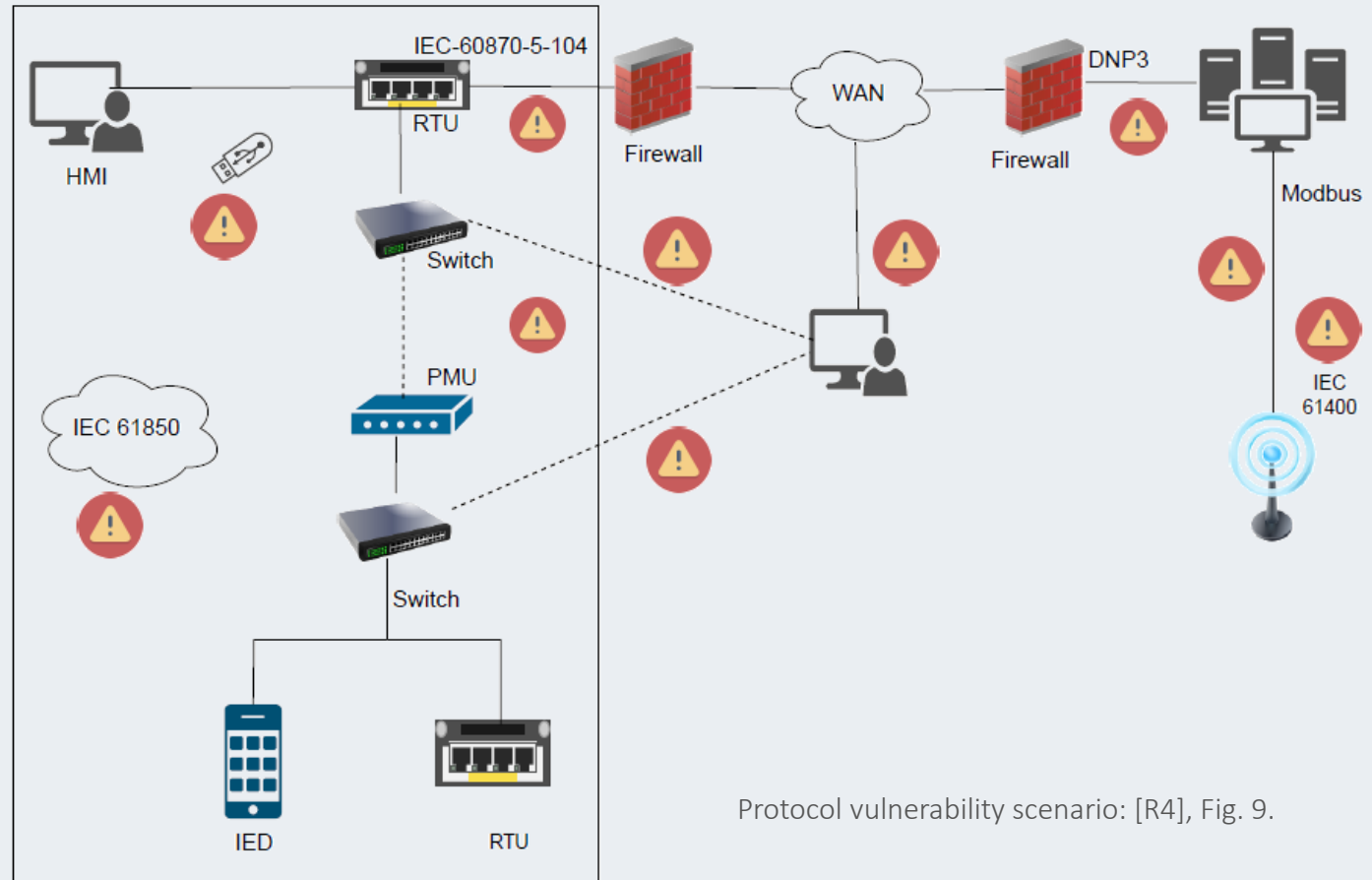


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Sources: [R4]. Figure: reproduced from [R4], Fig. 10.

Cybersecurity risks in connected industrial systems

- More connectivity can expand the attack surface
- SCADA, DCS, and PLCs are critical industrial assets
- Some protocols lack encryption or authentication
- Attacks can affect safety, availability, and operations
- Cybersecurity must be part of automation design



Sources: [R4]. Figures/table reproduced from [R4], Fig. 9 and Table 2.

Which Career Path Fits You?

Current Role

Software Developer

Network Engineer

Cybersecurity Analyst

Cloud Engineer

Infrastructure Engineer

DevOps Engineer

Data Analyst

Potential Future Role

Automation Engineer

Industrial Network Engineer

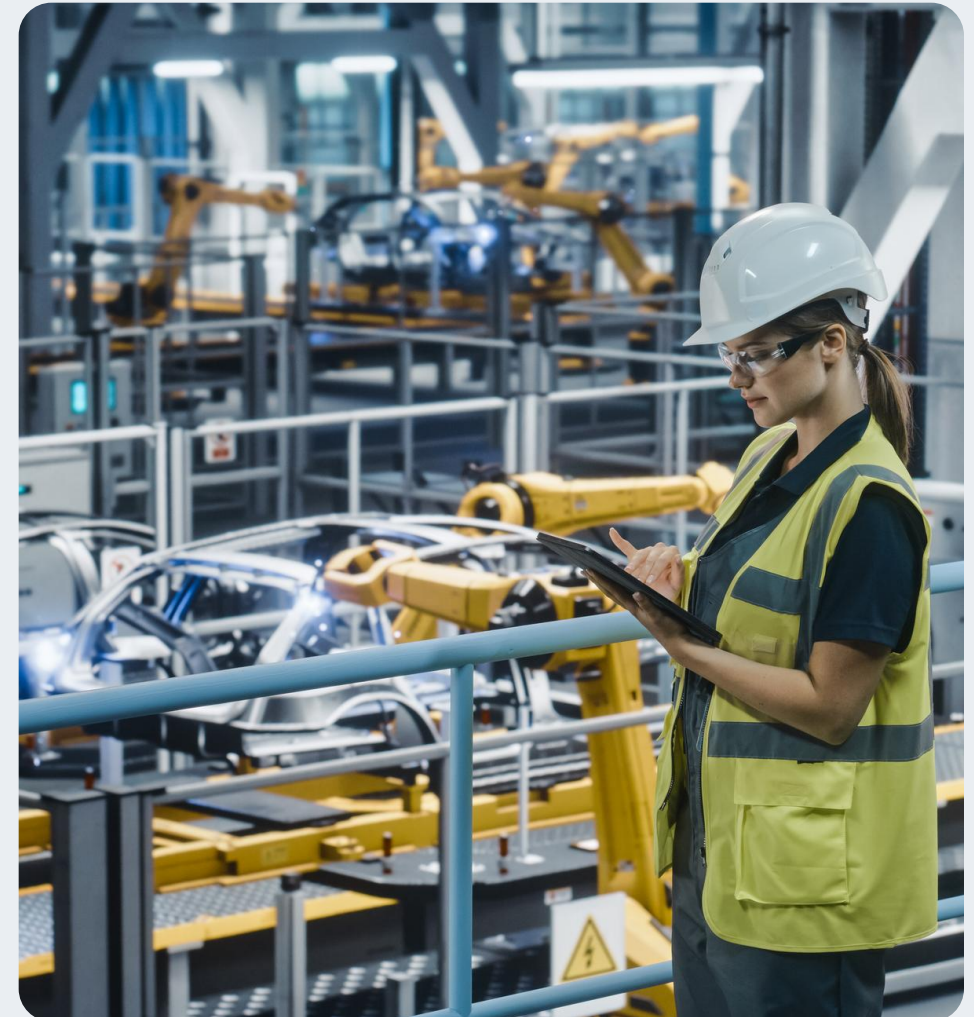
OT Cybersecurity Specialist

Industrial IoT Engineer

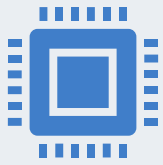
Control Systems Engineer

Smart Manufacturing Engineer

Process Optimisation Engineer



Technologies You'll Learn



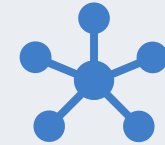
PLCs



SCADA



Industrial Ethernet



Industrial IOT



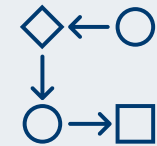
Machine Learning



Industrial Cybersecurity



Instrumentation



Process Control



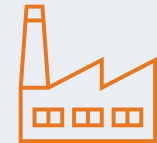
Industrial Networking



Renewable Energy



Automation



Smart Manufacturing

Where ML fits in industrial automation

- Predictive maintenance estimates faults and remaining life
- Quality control detects defects and process deviations
- Process optimization tunes parameters and schedules
- Digital twins provide simulation and decision support
- Edge AI enables faster local inference



The human role in AI-driven automation

- Human expertise defines meaningful industrial problems
- Operators provide context for abnormal events
- Engineers validate models before operational use
- Maintenance teams turn predictions into action
- Human-in-the-loop systems support trust and accountability

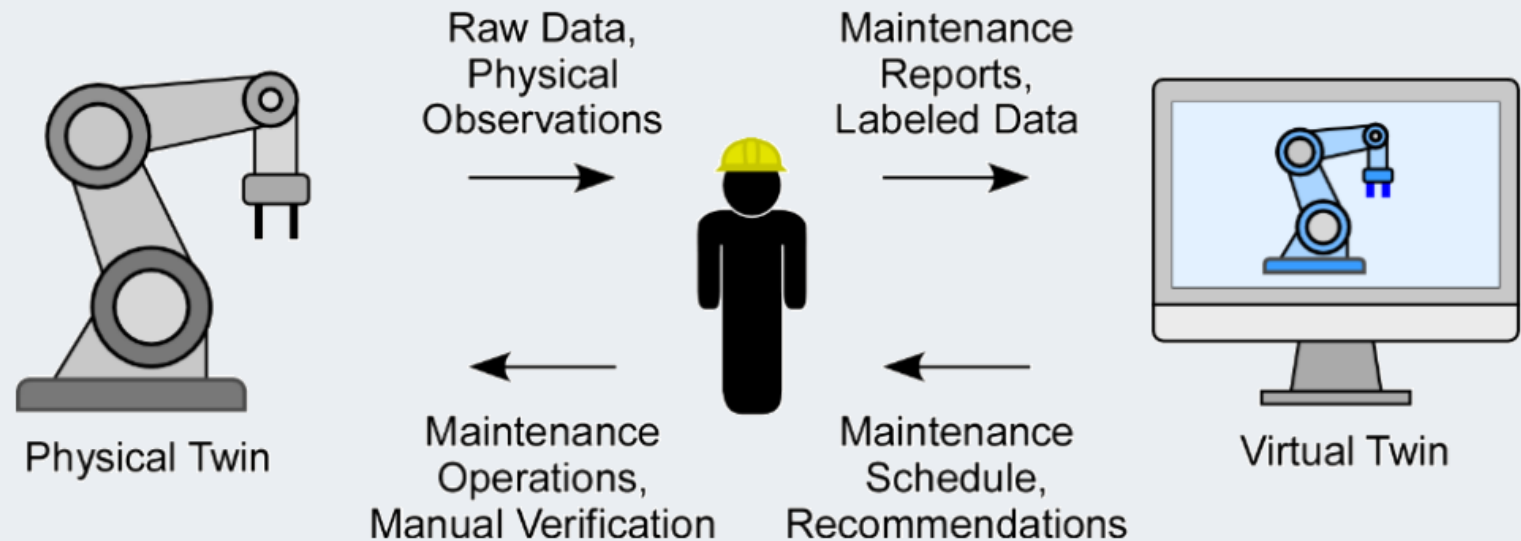


Figure: reproduced from [R2], Fig. 6.

Sources: [R1], [R2]. Figure: reproduced from [R2], Fig. 6.

You're Probably Further Ahead Than You Think

Existing qualifications

- ✓ IT Degree
- ✓ Computer Science
- ✓ Networking Certifications
- ✓ Vendor Certifications
- ✓ Industry Experience



Recognition of Prior Learning (RPL)



Potentially shorter study pathway*

**Subject to individual assessment.*

Study Pathways

Whether you're looking to upskill, specialise or earn a globally recognised engineering qualification, EIT offers flexible study pathways designed to help you transition from IT into engineering.

Already work in IT?



Build specialist engineering knowledge



Gain industry-recognised qualifications



Transition into industrial technology



Advance your engineering career

**Recognition of Prior Learning (RPL) may be available for eligible applicants.*

**Subject to assessment.*

The future: IT & Engineering

Today's most exciting technology careers combine software, networking, AI and digital expertise with industrial engineering systems.

By building on your existing IT experience, you can position yourself for opportunities in automation, operational technology, smart manufacturing, renewable energy and critical infrastructure.

Your Next Step

Choose the pathway that best matches your career goals.

- **Explore industrial engineering**
Start with a **Professional Certificate**.
- **Transition into engineering**
Consider an **Advanced Diploma** or **Bachelor's degree**.
- **Already have a degree?**
Broaden your expertise with a **Graduate Certificate** or **Master of Engineering**

Learn more about EIT's study pathways: [Study Pathways](#)

Browse upcoming course intakes and webinar dates: [Course Schedule](#)

References

- [R1] M. A. Rahman, M. F. Shahrir, K. Iqbal, and A. A. Abushaiba, “Enabling Intelligent Industrial Automation: A Review of Machine Learning Applications with Digital Twin and Edge AI Integration,” *Automation*, vol. 6, no. 3, Art. no. 37, 2025, doi: 10.3390/automation6030037.
- [R2] P. Nguyen, M. Kim, E. Nichols, and H.-S. Yoon, “AI-Driven Digital Twins for Manufacturing: A Review Across Hierarchical Manufacturing System Levels,” *Sensors*, vol. 26, no. 1, Art. no. 124, 2026, doi: 10.3390/s26010124.
- [R3] A. H. Alaoui, A. Meddaoui, and M. Hain, “AI-driven predictive maintenance for Industry 4.0: A systematic review of models, methods, and challenges,” *International Journal of Advanced Manufacturing Technology*, vol. 143, pp. 4861–4876, 2026, doi: 10.1007/s00170-026-17531-w.
- [R4] M. Nankya, R. Chataut, and R. Akl, “Securing Industrial Control Systems: Components, Cyber Threats, and Machine Learning-Driven Defense Strategies,” *Sensors*, vol. 23, no. 21, Art. no. 8840, 2023, doi: 10.3390/s23218840.

Primary evidence base: [R1]-[R4].

Thank You!

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52886WA Advanced Diploma of Industrial Automation Engineering	6 October 2026
Professional Certificate of Competency in Control Valve Sizing, Selection and Maintenance	13 October 2026
Professional Certificate of Competency in Programmable Logic Controllers (PLCs) and SCADA Systems	13 October 2026
Professional Certificate of Competency in Digital Twins and Simulation Monitoring	13 October 2026
Graduate Certificate in Industrial Automation and Machine Learning	4 January 2027
Graduate Certificate in Industrial Automation Engineering	4 January 2027
Master of Engineering – Applied Research (Industrial Automation)	4 January 2027
Master of Engineering (Industrial Automation)	4 January 2027
Bachelor of Science (Industrial Automation Engineering)	8 February 2027

Q&A

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