

SKILLS MATRIX WITH APPLICATION AREAS

IN THE FIELD OF

COMPUTERS, COGNITION AND COMMUNICATION IN CONTROL (Co4)



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AUTONOMOUS VEHICLES

AUTONOMOUS VEHICLES (on ground)			JOB TITLE				
			Autonomous and ADAS Control Systems Engineer	Embedded Control Systems Engineer	Autonomous Driving SW Engineer	Autonomous Driving Systems Integration and Test Engineers	Autonomous Driving Research Engineer
Tech. Comp.	EMBEDDED COMPUTERS	✓ Basic computer knowledge	B	C	C/D	C	C/D
		✓ Embedded systems	B/C	D	C/D	B/C	B/C
		✓ Hardware programming	C	C/D	C	B	C
	COGNITION AND MACHINE LEARNING	✓ Machine learning	B/C	A	C	B	C/D
		✓ Human-machine interaction	C/D	A	A/B	B/C	B/C
	COMMUNICATION	✓ Communication Technologies	A	B/C	B/C	B/C	A
		✓ Industrial Communications	A	B	B/C	A	A
	AUTOMATIC CONTROL	✓ Modelling	B/C	A/B	B	A	B/C
		✓ Control design	C/D	B/C	B/C	B/C	C/D
		✓ Diagnosis and observer	C/D	B/C	A/B	A/B	B/C
	AUTOMATION SYSTEMS	✓ Automation System Analysis & Design	A	A	A	A	A
		✓ Supervision and Monitoring	A	A	A	A	A
		✓ Digital Transformation Technologies	A	A	A	A	A

INDUSTRIAL ROBOTICS

INDUSTRIAL ROBOTICS			JOB TITLE				
			Robotics Control Systems Engineer	Robotics Automation Engineer	Robotics SW Engineer	Robotics Application Engineer	Robotics Test and Validation Engineer
Tech. Comp.	EMBEDDED COMPUTERS	✓ Basic computer knowledge	C	B	C/D	B	B
		✓ Embedded systems	D	B/C	D	B	B/C
		✓ Hardware programming	C/D	B	B/C	A	B
	COGNITION AND MACHINE LEARNING	✓ Machine learning	B	A	A	B	B
		✓ Human-machine interaction	A/B	C/D	A	B/C	A/B
	COMMUNICATION	✓ Communication Technologies	A/B	B/C	B/C	A/B	B
		✓ Industrial Communications	B/C	B/C	B/C	A/B	B
	AUTOMATIC CONTROL	✓ Modelling	B/C	A/B	A	A	A
		✓ Control design	C/D	B/C	A/B	A/B	B
		✓ Diagnosis and observer	C/D	B/C	A/B	B	B
	AUTOMATION SYSTEMS	✓ Automation System Analysis & Design	A/B	C	A/B	B	B
		✓ Supervision and Monitoring	A	C	A	C	C
✓ Digital Transformation Technologies		B	C	B	B	B	

INDUSTRY 4.0

INDUSTRY 4.0			JOB TITLE					
			Industrial Control Systems Engineer	Industrial Automation Engineer	Industrial Application Engineer	Equipment Systems Engineer	Industrial Systems Architect	Industrial Automation Systems Research Engineer
Tech. Comp.	EMBEDDED COMPUTERS	✓ Basic computer knowledge	C/D	C	C/D	B/C	B	C/D
		✓ Embedded systems	C	B/C	C	B	C/D	B/C
		✓ Hardware programming	B	A/B	A/B	A	A	B/C
	COGNITION AND MACHINE LEARNING	✓ Machine learning	A	A/B	A/B	A	B/C	B/C
		✓ Human-machine interaction	B/C	C/D	B	B	B/C	B/C
	COMMUNICATION	✓ Communication Technologies	B	C	B	A/B	C	D/E
		✓ Industrial Communications	B/C	C	B	A/B	C	D/E
	AUTOMATIC CONTROL	✓ Modelling	A/B	A/B	A	A	A	A/B
		✓ Control design	B/C	A/B	A/B	A	A	B
		✓ Diagnosis and observer	B/C	A	A	A	A	A/B
	AUTOMATION SYSTEMS	✓ Automation System Analysis & Design	C	C/D	C/D	B	B	D/E
		✓ Supervision and Monitoring	B/C	C	C	B	C	D/E
✓ Digital Transformation Technologies		C	C/D	C	B	C/D	D/E	

AERIAL VEHICLES

AERIAL VEHICLES (unmanned & manned)			JOB TITLE					
			Flight Control Systems Engineer	Flight Embedded SW Engineer	Flight Systems Test and Validation Engineer	Flight Systems Engineer	Flight Control Research Engineer	
Tech. Comp.	EMBEDDED COMPUTERS	✓ Basic computer knowledge	C/D	C/D	B/C	B/C	B	
		✓ Embedded systems	B/C	C/D	B	C/D	B/C	
		✓ Hardware programming	C	C/D	A	A/B	A/B	
	COGNITION AND MACHINE LEARNING	✓ Machine learning	A	A	A/B	B	B/C	
		✓ Human-machine interaction	A	A	A/B	B/C	C	
	COMMUNICATION	✓ Communication Technologies	A/B	A/B	A/B	A/B	A/C	
		✓ Industrial Communications	A	A/B	A/B	A/B	A/C	
	AUTOMATIC CONTROL	✓ Modelling	B/C	A	A	A/B	B/C	
		✓ Control design	C/D	A/B	B	A/B	C/D	
		✓ Diagnosis and observer	B/C	A/B	A/B	A/B	C/D	
	AUTOMATION SYSTEMS	✓ Automation System Analysis & Design	A	A	A	A	A	
		✓ Supervision and Monitoring	A	A	A	A	A	
✓ Digital Transformation Technologies		A	A	A	A	A		

MOBILE ROBOTICS

MOBILE ROBOTICS			JOB TITLE					
			Mobile Robots Control Systems Engineer	Mobile Robots Embedded SW Engineer	Mobile Robots Test and Validation Engineer	Mobile Robots Systems Architect	Mobile Robots Control Systems Research Engineer	
Tech. Comp.	EMBEDDED COMPUTERS	✓ Basic computer knowledge	C/D	C/D	B	B/C	B/C	
		✓ Embedded systems	B/C	C/D	B/C	C/D	B/C	
		✓ Hardware programming	C	C/D	A/B	A/B	A/B	
	COGNITION AND MACHINE LEARNING	✓ Machine learning	A	A	A/B	B	B/C	
		✓ Human-machine interaction	A	A/B	A/B	A/B	B/C	
	COMMUNICATION	✓ Communication Technologies	B	B/C	B/C	C	A	
		✓ Industrial Communications	A/B	B/C	B/C	C	A	
	AUTOMATIC CONTROL	✓ Modelling	A/B	A	A	B	B/C	
		✓ Control design	C/D	B/C	B/C	B/C	C/D	
		✓ Diagnosis and observer	B/C	B	A/B	A/B	C/D	
	AUTOMATION SYSTEMS	✓ Automation System Analysis & Design	C	A	B	B	C/D	
		✓ Supervision and Monitoring	B/C	A	C	C	C	
✓ Digital Transformation Technologies		C	A	B	C/D	C		

VEHICLE POWERTRAIN AND DYNAMICS

VEHICLE POWERTRAIN AND DYNAMICS			JOB TITLE					
			Vehicle Powertrain Control Systems Engineer	Vehicle Powertrain Embedded Systems Engineer	Vehicle Powertrain Test and Validation Engineer	Vehicle Powertrain Systems Architect	Vehicle Powertrain Research Engineer	
Tech. Comp.	EMBEDDED COMPUTERS	✓ Basic computer knowledge	C	C/D	B	B/C	B/C	
		✓ Embedded systems	B/C	C/D	B/C	C/D	B/C	
		✓ Hardware programming	C	C/D	A/B	A/B	A/B	
	COGNITION AND MACHINE LEARNING	✓ Machine learning	B/C	A	A	B/C	C/D	
		✓ Human-machine interaction	A	A	A/B	A/B	B	
	COMMUNICATION	✓ Communication Technologies	B	B/C	B/C	C	A	
		✓ Industrial Communications	A/B	B/C	B/C	C	A	
	AUTOMATIC CONTROL	✓ Modelling	A/B	A	A	B	B/C	
		✓ Control design	C/D	B/C	B/C	B/C	C/D	
		✓ Diagnosis and observer	B/C	B	A/B	A/B	C/D	
AUTOMATION SYSTEMS	✓ Automation System Analysis & Design	A	A	A/B	B	A/B/C		
	✓ Supervision and Monitoring	B	A	B/C	B/C	B/C		
	✓ Digital Transformation Technologies	A	A	B	B/C	B/C		