

## MOTIVATION FORM FOR ROBOTICS ENGINEERING

### General Instructions (please read carefully)

To show your motivation for the M.Sc. in Robotics Engineering, please fill out this motivation form.

There are 2 parts that you must fill out. Failing to use this mandatory form properly will lead in obtaining a low grade on the motivation criterion.

Use font size 11 or 12.

### PART I - You and your motivations

Instructions:

This part helps us understand who you are as a person and maybe as a future JEMARO student. You do not need to address anyone with an introductory phrase such as “To whom it may concern” or “Dear...”

Simply answer each question one by one like in a regular form. There is no need to use connecting words between the answers to each question. The size of these boxes should not be changed.

**1) Personal introduction (300-500 characters, spaces not included).**

Aftab Kareem, with a B.Sc. in Electrical Engineering and practical experience in robotics and machine learning, aspires to pursue an M.Sc. in Robotics. Motivated by a passion for innovative design and intelligent systems, my goal is to leverage this advanced degree to address critical global challenges, particularly in sustainable development and healthcare, through cutting-edge robotic solutions.

**2) State in short why you want to apply for the M.Sc. in Robotics Engineering at the University of Genova (300-500 characters, spaces not included).**

Driven by a strong foundation in Electrical Engineering and hands-on experience ranging from line-following robots to deploying deep learning in security systems, I'm drawn to the University of Genova's M.Sc. in Robotics Engineering. My aspiration is to integrate robotics with healthcare and environmental technology, leveraging the university's innovative research environment and strong industrial connections to make a significant global impact through advanced robotic solutions.

**3) Develop your strongest qualifications, past experiences and qualities that will help you to succeed (500-1000 characters, spaces not included).**

Holding a Bachelor's degree in Electrical Engineering and bolstered by substantial hands-on robotics and machine learning projects, my academic and practical journey has ingrained a solid foundation in essential robotics competencies such as circuit design, control systems, programming, and intelligent system development. Notably, my involvement in designing a line-following robot and developing an airline baggage scanning system using deep learning exemplifies my capability in sensor integration, algorithmic innovation, and system efficiency enhancement. These ventures have not only refined my technical acumen but have also cultivated my abilities in analytical thinking, collaborative problem-solving, and effective communication. My dedication to lifelong learning, coupled with a proactive approach to embracing technological advancements, positions me well to excel in the rigorous academic and research environment of a Master's in Robotics Engineering program. My ambition is to contribute novel solutions to the field, particularly in developing robotics applications that address healthcare challenges and environmental conservation, leveraging my diverse skill set and passion for innovation.

**4) Develop what will be your professional project after getting your master's degree (300-500 characters, spaces not included).**

Following my Master's in Robotics Engineering, my professional project will focus on harnessing the power of AI-driven robotics to revolutionize the healthcare industry by developing advanced assistive technologies. Simultaneously, I intend to expand my efforts into environmental monitoring, employing robotic innovations to provide critical data for combating climate change and preserving natural ecosystems. This dual-focus approach aims not only to improve individual quality of life through healthcare advancements but also to address and mitigate global ecological challenges.

## PART II - Your background

### Instructions:

This part comes as an additional tool to your transcripts. It is meant to help us understand your academic background and how it relates to Robotics Engineering.

Fill out the tables 1 & 2 following the indications given.

**Table 1 – Recall of your studies**

<b>Undergraduate degree title (if you also obtained a master, mention it too)</b>	B.Sc Electrical Engineering
<b>Mention minor/major or specialization if any</b>	

**Table 2 – Links between your curriculum and Robotics Engineering**

Example on how to fill out the table (the matrix to fill out is on the next 2 pages, in red):

THEME	Key concept	Not covered	Beginner	Intermediate	Advanced	Most relevant course(s) where the concept was covered (list 3 courses max.)
<b>Artificial Intelligence</b>	Knowledge representation	X				N/A
	Machine learning				X	ML201 Supervised learning ML302 Deep learning ML405 Advanced Machine learning
	Symbolic AI		X			SAI101 Introduction to symbolic AI

THEME	Key concept	Not covered	Beginner	Intermediate	Advanced	Most relevant course(s) where the concepts were covered (List 3 courses max.)
Artificial Intelligence	Knowledge representation		✓			Coursera Course
	Machine learning			✓		EE-439 Introduction to Machine Learning Coursera Course
	Symbolic AI			✓		EE-499a & 499bL Project (Phase-I & II)
Computer Engineering	Digital and embedded systems				✓	EE-272 & 272L Digital Systems EE-384 & 384L Digital Signal Processing EE-300L Embedded System Laboratory
	Object-oriented programming			✓		EE-170 & 170L Programming Fundamentals
	Operating systems		✓			EE-273 & 273L Microprocessor Systems
Control Engineering	Controllers			✓		EE-340 & 340L Control Systems
	Laplace transform			✓		MA-228 Differential Equations
	Linear systems			✓		MA-234 Linear Algebra
	Non-linear systems			✓		MA-234 Linear Algebra
	Stability			✓		EE-340 & 340L Control Systems
Mechanics	Mechanical design methods		✓			ME-110 & 110L Applied Thermodynamics
	Theory of mechanism and machines (Kinematic and dynamic modelling)		✓			ME-110 & 110L Applied Thermodynamics



THEME	Key concept	Not covered	Beginner	Intermediate	Advanced	Most relevant course(s) where the concept was covered (List 3 courses max.)
Mathematics	2D/3D geometry	✓				
	Differential calculus				✓	MA-228 Differential Equations MA-123 Calculus
	Linear and matrix algebra		✓			MA-234 Linear Algebra
	Logics			✓		EE-272 & 272L Digital Systems
	Numerical methods			✓		MA-346 Numerical Methods
Programming	C/C++			✓		EE-170 & 170L Programming Fundamentals
	MATLAB			✓		EE-213L Analog and Digital Electronic Circuits EE-340L Control Systems
	Python			✓		EE-141 & 141L Introduction to Computing Online course Python for Everybody.
Robotics	Industrial robotics	✓				
	Manipulators modelling	✓				
	Mobile robots	✓				
	Robotic control	✓				
	Robotic software programming	✓				