curriculum vitae

PERSONAL INFORMATION

Surname	Sestini
Name	Luca
Address	Via Salvo D'Acquisto 17/A, Monte San Savino (AR), 52048
Telephone	3341321052
Fax	
E-mail	luca.sestini@mail.polimi.it
Skype	

Nationality	Italian

Date of birth	17/12/1995

Education and training
Biomedical Engineering (Politecnico di Milano)

• Date (from – to)	September 2015 – October 2019
• Name and type of organisation providing education and training	Politecnico di Milano
Duration of the program of study	3 + 2 years
• Principal subjects/occupational skills covered	First 3 years general topics of Engineering were covered (Mathematical Analysis 1,2, Physics, Chemistry, Computer-science introduction etc.), plus some Biomedical topics (Biology, Physiology, Biomaterials, Bio-Electromagnetism). During master (last 2 years) specialization in signal-analysis, with Matlab, biomedical images analysis and segmentation, movement virtualization, medical-robotics, machine learning approaches and neural networks with Python and Tensor Flow.
• Title of qualification awarded	Bachelor in 2017 Master's Degree in 2019
Final mark obtained	Bachelor: 110 summa cum laude Master's Degree: 110 summa cum laude

graduation thesis

Title	Surgical Path Planner for steerable catheters with Reinforcement Learning approach

Language	English
Supervisor	Prof. De Momi Elena. PhD Segato Alice
Thesis Summary	Inside the context of minimally-invasive neurosurgery, the introduction of steerable-needles has brought many advantages, especially in all those situations where targets located deep inside should be reached (e.g. glioblastoma treatment or deep-brain stimulation). However steerable needles have also introduced new challenges, especially in path planning, where automatic procedures are needed to optimize the planned trajectory according to parameters as insertion length, obstacle clearance and kinematic limits of the catheter.
	In this context, machine learning (and in particular reinforcement learning) offers an alternative to the conventional planners, resulting a more flexible and scalable approach, able to integrate more information to obtain the optimal result and to perform also in real-time.
	The aim of the thesis is to implement different reinforcement learning approaches, starting from a 2D environment, and extending them to a real 3D scenario. Validation is carried out by comparing the performances of the planner with solutions currently available in literature.

publications and articles submitted

Author(s) and title	
Language	
Publication place	
Date of publication	

certifications

GRE	
GMAT	
Certifications of language knowledge	iBT TOEFL. 16/12/2017. 108/120

Work experience, stages, studies abroad

• Date (from – to)	Exchange semester in Sydney: January 2018-July 2018
• Name and address of firm/university	University of Technology Sydney. 15 Broadway, Ultimo NSW 2007, Australia
• Type of business or sector	Biomedical Engineering
• Type of employment	Student
• Main activities and responsibilities	

Personal skills and competences
Acquired in the course of life and career but not necessarily evidenced by formal certificates and diplomas.

Mother tongue	**Italian**

Other language(s)

	English
• reading	excellent
• writing	excellent
• speaking	excellent

Social skills and competences	During the semester in Sydney I have had the possibility to study and live in an extremely multicultural environment. Living with international students, travelling with them, doing group works, with everyone bringing its own different experience, has been a great challenge and has totally enriched me.
Living and working with other people, in multicultural environments, in positions where communication is important and situations where teamwork is essential (e.g. Culture and sports), etc.	Additionally I have played sport since I was 6 years old, getting to a professional level between 16 and 19 years old, experience which has taught me the importance of dialogue in order to be successful as a team.

Organisational skills and competences	I have always appreciated to have the role of the coordinator in every situation, from the most trivial, as housework, to the more serious ones, as the leader in a university group work.
E.g. coordination and management of people, projects and budgets; at work, in voluntary work (e.g. culture and sports) and at home, etc.	My first role as a coordinator was being the captain of the football team where I used to play during my teenage years. The last experience I had was in Sydney, where I was chosen as the leader for a group work involving international people. It was a challenging and stimulating experience, which taught me even more the importance for a leader to give the right example and to be able to talk with the group all together and with the single members, in order to get the best from everyone, without making anyone feel under pressure.

Technical skills and competences	Matlab: extensive use during the last 5 years
With computers, specific kinds of equipment, machinery, etc.	Programming languages: extensive use of Python, basic experience with C++ ROS: good level Tensor Flow and Keras for machine learning AutoCAD: basic experience R for statistical analysis OpenSim for motion virtualization

Artistic skills and competences	I have been playing the sax for 5 years, but sadly, I gave up 5 years ago.
Music, writing, drawing etc.	I have always loved writing, but right now, the only things I produce are stream of consciousness in the Note app of my iPhone.. Let's say I am a kind of James Joyce of the new millennium.

Other skills and competences	
Competences not mentioned above.	

Additional information	

annexes		