Yuri G Rocha

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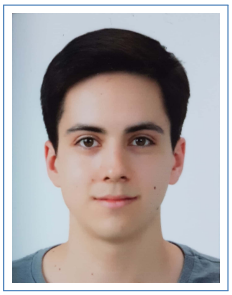

Education

2010–2016 **B.S., Control and Automation Engineering**, *University of Brasilia*.
Dissertation: Métodos de Comunicação Visual e Controle Cooperativo entre robôs Humanóides (Methods for visual communication and cooperative control between humanoid robots)

Advisor: Dr. Mariana Costa Bernardes

2014–2015 **Exchange B.S., Computer Engineering**, *Sungkyunkwan University*.

Professional Experience

Vocational

2016–2017 **Developer**, *Moringa Digital*, Brasilia, Brazil.
Function:
- Development of a web service in NodeJS to automate the integration between the database of the company and client databases;
- Backend development of several websites

Acquired Knowledge:
- Javascript;
- NodeJS;
- MySQL;
- ASP;
- HTML;

Jul. 2015 **Intern**, *Hyundai Motor Company*, Namyang, South Korea.
Function:
- Analyzing the car assembly line and proposing a new automating process.

Acquired Knowledge:
- Car assembly process;
- Methods of research and development of new products;

2014–2015 **Intern**, *Advanced Institutes of Convergence Technology*, Suwon, South Korea.
Function:
- Programing a NAO humanoid robot to do autonomous robotic floor tiling of mosaics.

Acquired Knowledge:
- TCP/IP network in C++;
- NAO module programming;
- Advanced C++;
- Motion Capture Systems;

Miscelaneous

2015–2016 **Team Leader**, *UnBeatables – Humanoid Robot Soccer*, Brasilia, Brazil.

- Team leader for the UnBeatables team, that participated in the Robocup competition in the context of the Standard Platform League - DropIn;
- The main responsabilities were to coordinate the activities of the team, develop code for participation in competitions (Robocup and LARC) and admistrative tasks;
- The code development was in C++ and Python. The main tasks that were performed were develop the code architecture with different threads running in paralel, TCP communication and integration of a new humanoid motion algorithm;

2014 **Team Member**, *UnBeatables – Humanoid Robot Soccer*, Brasilia, Brazil.

- Participated in the Robocup competition in the context of the Standard Platform League - DropIn;
- developed the robot behavior in python and in ROS for robot soccer competition;

Research Experience

2014–2016 **Laboratory of Robotics and Automation**, *Undergraduate Student Researcher*, University of Brasilia.

- Mathematical definition for bi-manual manipulation by using the dual quaternion algebra on the NAO robot, mainly using the dual cooperative task-space;
- Implementation of control strategies on NAO platform and on Simulated environment V-Rep. In this context we also studied strategies for singulaty avoidance and joint limit avoidance. The project was done using the ROS framework.
- Development of algorithms for robot vision, implemented on NAO with OpenCV.

Social Engineering Activities

2015–2016 **Team Leader**, *UnBeatables – Humanoid Robot Soccer: Social Activities*, Brasilia, Brazil.

- The UnBeatables Team also engages in social activities. Since 2015 we go to schools, children hospitals and science fairs where we showcase our robot and try to inspire kids to follow STEM careers in their future.;
- In the process the team also tries to bring to the children fun activities with the NAO robot;

2013–2014 **Voluntary Teacher**, *Electron Project*, Brasilia, Brazil.

- Giving lessons at Electronics Laboratory for high school students attending public schools of Federal District, encouraging them to learn about and apply for Engineering Programs at University;

Publications

Peer-Reviewed Conferences

C. M. Farias*, Y. G. Rocha*, L. F. C. Figueredo and M. C. Bernardes. Design of singularity-robust and task-priority primitive controllers for cooperative manipulation using dual quaternion representation. In *2017 IEEE 1st Conference on Control Technology and Applications*, 2017. *Both authors have contributed equally

C. M. Farias, F. M. Dalosto, Y. G. Rocha, and M. C. Bernardes. Estudo de Viabilidade do Framework ROS para futebol de Robôs com a Plataforma NAO. In *2016 I BRAHUR: Brazilian Humanoid Robot Workshop*, 2016.

Grants and Awards

Unbeatables Team

First Place – Standard Platform League Drop-in.

Oct. 2016 *Latin American Robotics Competition (LARC), Recife, Brazil*

Oct. 2015 *Latin American Robotics Competition (LARC), Uberlândia, Brazil*

Most Valuable Player – Standard Platform League Drop-In Only.

Jun. 2016 *Robocup 2016, Leipzig, Germany*

Jul. 2014 *Robocup 2014, João Pessoa, Brazil*

Languages

Portuguese	Native	
English	Fluent	*TOEFL IBT Score: 114/120*
Korean	Intermediate	*TOPIK 5*

July 16, 2018