Steve N'Guyen, PhD

Rhoban Team - LaBRI Université de Bordeaux
351, cours de la Libération
33405 Talence cedex, France

(+33)6 64 09 26 75
steve.nguyen@labri.fr
http://www.s-nguyen.net

Current situation: Postdoc researcher in Robotics and Computational Neuroscience.
Scientific interest: Modeling and robotics implementation of sensorimotor loops
and action selection including human locomotion and saccadic eye movements.

Education

2006-2010	**PhD in Computer Science ("very honorable")**
	Institution: Université Pierre et Marie Curie (UPMC), Paris 6, France.
	Supervisors: Dr. Jean-Arcady Meyer and Patrick Pirim.
	Title: Development of the vibrissal system of the robot rat Psikharpax and contribution to the integration of its visual, auditive and tactile abilities.
2005-2006	**MSc in Computer Science (with honors)**
	Institution: Université Pierre et Marie Curie (UPMC), Paris 6, France.
	Supervisors: Dr. Jean-Arcady Meyer and Patrick Pirim.
	Title: Study and development of an artificial whiskers system.
2001-2006	**Engineer diploma**
	Institution: École Centrale d'Électronique (ECE), Paris, France.
	Specialty: Embedded systems (Computer Science and Electronics).

Research

2014-2017	**PostDoc researcher and R&D engineer**
	Institution: Rhoban team - LaBRI Univ. Bordeaux, CNRS, France.
	Supervisors: Dr. Olivier Ly
	Subject: Motor learning for biped locomotion. Participation to the robotic soccer world competition RoboCup 2015 and 2016 in Humanoids kid-size league with the team Rhoban: respectively 3rd and 1st position.
01-11 2014	**PostDoc researcher and R&D engineer**
	Institution: FLOWERS team - INRIA Bordeaux Sud-Ouest, France (ERC grant funding).
	Supervisors: Dr. Pierre-Yves Oudeyer
	Subject: The Poppy Project (http://www.poppy-project.org). Biped locomotion and development of an open-source humanoid robot.
2010-2014	**PostDoc researcher**
	Institution: LPPA - Collège de France CNRS, Paris, France (European and ANR funding).
	Supervisors: Prof. Alain Berthoz, Dr. Jacques Droulez
	Subject: Study and modeling of biped locomotion using Bayesian approach and robotics implementation (for Aldebaran ROMEO walk). Neural modeling of Superior Colliculus and Basal Ganglia interaction with reinforcement learning (in collaboration with Dr. Benoît Girard).
	Projects: RoboSoM (European project ICT-2009.2.1) ROMEO and ROMEO2 (french government projects).
2006-2010	**PhD student and engineer**
	Institution: ISIR, CNRS UMR7222 UPMC & Brain Vision Systems company (CIFRE funding).
	Supervisors: Dr. Jean-Arcady Meyer and Patrick Pirim.
	Title: Development of the vibrissal system of the robot rat Psikharpax and contribution to the integration of its visual, auditive and tactile abilities.
	Projects: ICEA (European project IST 027819), BIOTACT (European project ICT-2007.8.3) INTERACT (french government project).

Teaching

2014-2015	*Institution:*	Université Bordeaux 1.
	Level:	L3 (License) Robotics.
	Subject:	Robotics (Lab work: 16h+22h)
2007-2009	*Institution:*	Polytech Paris-UPMC Engineering School, Université Pierre et Marie Curie.
	Level:	L3 (License) Robotics.
	Subject:	C/C++ programming (Lab work: 48h, Project supervision: 72h)
2007	*Institution:*	Université Sorbonne Paris 1.
	Level:	L3 (License) Applied Computer Science for Company Management (MIAGE).
	Subject:	UNIX systems and programming (Lecture: 18h, Lab work: 18h)

Technical skills

Robotics:	ROS, NaoQi, Player/Stage, Webots
	Experience on humanoids (Nao, Poppy, SABIAN, SigmaBan) and wheeled robots (E-puck, Pioneer).
	Custom implementation (Psikharpax and Bioloid/Dynamixel based humanoids).
A.I.:	Reinforcement learning, Neural Networks, Planning, Genetic Algorithms, Self Organizing Maps, Probabilistic Modeling, Computer Vision.
Programming:	C/C++, Python
	Basic knowledge in various languages (Java, Asm, Pascal, Octave, Lisp, Matlab).
Electronics:	CAD (KiCAD), microcontroller, FPGA (VHDL), PCB design.
Mechanics:	CAD (AutoDesk, FreeCAD, OpenSCAD, LibreCAD), 3D printing, laser cutting, CNC.
Languages:	French (native), English.

Public dissemination

2017	• Bordeaux Geek Festival (1 day of public demonstration).
2015	• Bordeaux Geek Festival (2 days of public demonstration).
	• Japan Expo Paris (3 days of public demonstration).
2014	• Cité des Sciences Paris. 2 days of public workshop.
	• MakerFaire Paris. 2 days demonstration of the Poppy open-source humanoid robot (Paris).
	• Innorobo. 3 days demonstration of the Poppy open-source humanoid robot (Lyon).
2010	• National science festival. 2 days demonstration of the Psikharpax robot (UPMC).
	• Arte TV channel show "Global-Mag" on bio-inspired systems. Psikharpax demonstration.
	• Wide-audience "Robots and humans" event at the Cité des Sciences (Paris). Demonstrations of various abilities of Psikharpax.
2009	• National science festival. 2 days demonstration of the Psikharpax robot (UPMC).
	• Documentary film for CNRS about Psikharpax (demonstration and interview).
	• Wide-audience "Futur en Seine" exhibition (Paris). Demonstration of BVS vision system.
	• European Research and Innovation Fair (Paris). Demonstration of BVS vision system and Psikharpax.
2008	• Wide-audience "Ville européenne des sciences" exhibition (Grand Palais, Paris). 3 days demonstration of the Psikarpax robot (≈ 43000 visitors).
	• National science festival. 3 days demonstration of the Psikharpax robot (UPMC).
2007	• National science festival. 2 days demonstration of the Psikharpax robot (UPMC).

Publications

Journals

2015   C. Thurat, **S. N'Guyen**, and B. Girard. Biomimetic race model of the loop between the superior colliculus and the basal ganglia: Subcortical selection of saccade targets. *Neural Networks*, 67:54–73, 2015

C. N. Authié, P. M. Hilt, **S. N'Guyen**, A. Berthoz, and D. Bennequin. Differences in gaze anticipation for locomotion with and without vision. *Frontiers in Human Neuroscience*, 9(312), 2015

2014   **S. N'Guyen**, C. Thurat, and B. Girard. Saccade learning with concurrent cortical and subcortical basal ganglia loops. *Frontiers in Computational Neuroscience*, 2014

2013   **S. N'Guyen**, C. Moulin-Frier, and J. Droulez. Decision making under uncertainty: a quasimetric approach. *PLoS One*, 8(12):e83411, 2013

2012   K. Caluwaerts, M. Staffa, **S. N'Guyen**, C. Grand, L. Dollé, A. Favre-Félix, B. Girard, and M. Khamassi. A biologically inspired meta-control navigation system for the psikharpax rat robot. *Bioinspiration & Biomimetics*, 7(2):1–29, 2012

Peer-reviewed conferences

2016   G. Passault, Q. Rouxel, R. Fabre, **S. N'Guyen**, and O. Ly. Optimizing morphology and locomotion on a corpus of parametric legged robots. In *Biomimetic and Biohybrid Systems: 5th International Conference, Living Machines 2016, Edinburgh, Scotland, July 18-22, 2016, Proceedings*, 2016

R. Fabre, Q. Rouxel, G. Passault, **S. N'Guyen**, and O. Ly. Dynaban, an open-source alternative firmware for dynamixel servo-motors. In *Symposium RoboCup 2016: Robot World Cup XX*, 2016

Q. Rouxel, G. Passault, L. Hofer, **S. N'Guyen**, and O. Ly. Learning the odometry on a small humanoid robot. In *IEEE International Conference on Robotics and Automation (ICRA 2016)*, (accepted)

2014   M. Lapeyre, **S. N'Guyen**, A. Le Falher, and P.-Y. Oudeyer. Rapid morphological exploration with the poppy humanoid platform. In *Humanoids 2014*, 2014

2012   K. Caluwaerts, A. Favre-Félix, M. Staffa, **S. N'Guyen**, C. Grand, B. Girard, and M. Khamassi. Neuro-inspired navigation strategies shifting for robots: Integration of a multiple landmark taxon strategy. *Biomimetic and Biohybrid Systems*, pages 62–73, 2012

2011   **S. N'Guyen**, J. Droulez, and A. Berthoz. A probabilitic model of equilibrium perception. In *14th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR2011)*, pages 831–838, 2011

S. N'Guyen, P. Pirim, and J.A. Meyer. Texture discrimination with artificial whiskers in the robot-rat psikharpax. *Biomedical Engineering Systems and Technologies: Third International Joint Conference, BIOSTEC 2010, Valencia, Spain, January 20-23, 2010, Revised Selected Papers*, 127:252, 2011

2010   **S. N'Guyen**, P. Pirim, J.A. Meyer, and B. Girard. An integrated neuromimetic model of the saccadic eye movements for the psikharpax robot. In *From Animals to Animats 11, SAB2010*, pages 114–125. Springer Berlin/Heidelberg, 2010

M. Bernard, **S. N'Guyen**, P. Pirim, A. Guillot, J.A. Meyer, and B. Gas. A supramodal vibrissa tactile and auditory model for texture recognition. In *From Animals to Animats 11, SAB2010*, pages 188–198. Springer Berlin/Heidelberg, 2010

S. N'Guyen, P. Pirim, and J.A. Meyer. Tactile texture discrimination in the robot rat psikharpax. In *Proc. Int. Conf. Bio-Inspired Systems and Signal Processing,(Valencia, Spain)*, 2010

M. Bernard, **S. N'Guyen**, P. Pirim, B. Gas, and J.A. Meyer. Phonotaxis behavior in the artificial rat psikharpax. In *International Symposium on Robotics and Intelligent Sensors, IRIS2010. Nagoya, Japon.*, pages 118–122, 2010

2009   **S. N'Guyen**, P. Pirim, and JA Meyer. Elastomer-based tactile sensor array for the artificial rat psikharpax. In *ISEF2009*, 2009

Others (abstracts, poster, invited papers)

2016   J. Allali, L. Deguillaume, R. Fabre, L. Gondry, L. Hofer, O. Ly, **S. N'Guyen**, G. Passault, A. Pirrone, and Q. Rouxel. Rhoban football club: Robocup humanoid kid-size 2016 champion team paper. In *RoboCup 2016: Robot Soccer World Cup XX*. Springer, 2016

2015   Q. Rouxel, G. Passault, L. Hofer, **S. N'Guyen**, and Ly. O. Rhoban hardware and software open source contributions for robocup humanoids. In *The 10th Workshop on Humanoid Soccer Robots (Humanoids 2015)*, 2015

G. Passault, Q. Rouxel, L. Hofer, **S. N'Guyen**, and Ly. O. Low-cost force sensors for small size humanoid robot. In *Humanoids 2015, interactive session*, 2015

2014   M. Lapeyre, P. Rouanet, J. Grizou, **S. N'Guyen**, F. Depraetre, A. Le Falher, and P.-Y. Oudeyer. Poppy project: Open-source fabrication of 3d printed humanoid robot for science, education and art. In *Proceedings of Digital Intelligence*, 2014

M. Lapeyre, P. Rouanet, J. Grizou, **S. N'Guyen**, .L Le Falher, F. Depraetre, and P.-Y. Oudeyer. Poppy: Open source 3d printed robot for experiments in developmental robotics. In *International Conference on Development and Learning, ICDL/Epirob, Genova, Italy*, 2014

2013   C. N. Authié, P. M. Hilt, **S. N'Guyen**, A. Berthoz, and D. Bennequin. Gaze anticipation during human locomotion remains in darkness. In *International Society for Posture & Gait Research conference (ISPGR 2013). (Abstract & Talk)*, 2013

2012   **S. N'Guyen**. Saccadic behavior in artificial systems. In *NeuroComp / KEOpS'12 workshop*, Bordeaux, France, 2012. (invited talk)

C. Thurat, **S. N'Guyen**, and B. Girard. Neural accumulator model of the subcortical target selection processes for saccades. In *NeuroComp / KEOpS'12 workshop, Bordeaux, France (abstract & poster)*, pages 1–7, 2012

C. Thurat, **S. N'Guyen**, and B. Girard. Neural model of the subcortical saccadic selection in the tecto-basal loops. In *2nd Symposium on Biological Decision Making. CRICM, Paris. (Poster).*, 2012

K. Caluwaerts, M. Staffa, and M. **S. N'Guyen** and. A biologically inspired meta-control navigation system for the psikharpax rat robot. In *2nd Symposium on Biological Decision Making. CRICM, Paris. (Poster).*, 2012

2011   K. Caluwaerts, C. Grand, **S. N'Guyen**, L. Dollé, A. Guillot, and M. Khamassi. Design of a biologically inspired navigation system for the psikharpax rodent robot. In *International workshop on bio-inspired robots (CFP-2011), (Abstracts)*, 2011

C. Thurat, **S. N'Guyen**, and B. Girard. Subcortical saccadic selection processes: A model of the tecto-basal loops. In *16th European Conference on Eye Movements (ECEM 2011). (Abstract & Poster).*, page 84, 2011