

Machine Learning, Computer Vision and Robotics PhD Student

Summary **Managed, designed and developed** computer vision/robotics projects for industry and academia
Machine learning, robotics and programming teaching assistant
Fluent in French and English, academic German

Work Experience

2009 <i>now</i>	New York University - Developed the Eblearn C++ machine learning library: eblearn.sf.net - Teaching Assistant for a Machine Learning & Robotics classes (Arduino, 3PI, navigation)	<i>New York, NY, USA</i>
2008 <i>3 months</i>	Willow Garage Research in object recognition for personal robot vision - Developed machine learning library and applied it for real-time object recognition - Used convolutional neural networks and dimensionality reduction for large-scale classification	<i>Menlo Park, CA, USA</i>
2005 ~ 2008 <i>3 years</i>	New York University & Net-Scale Technologies Research/development in off-road autonomous robotics navigation with machine learning LAGR project (DARPA funded) description: cs.nyu.edu/~sermanet - Machine learning applied to vision, path planning, dynamics control, stereo/image processing - Designed end-to-end system, developed, optimized and tested real time navigation software	<i>New York, NY, USA</i>
2005 <i>7 months</i>	SIEMENS Corporate Research Research and Development in brain imaging in Imaging and Visualization Department - Conducted research on registration algorithms for <i>diffusion</i> (Magnetic Resonance technology) - Developed a framework in C++/.NET/OpenGL/Matlab for 3D brain imaging	<i>Princeton, NJ, USA</i>
2005 <i>2 months</i>	DIMACS Robot software development, interface for a CD burner robot for medical environment in C++	<i>Paris, France</i>
2004 <i>1 month</i>	EPITA Programming teacher's assistant (C/UNIX and Shell script)	<i>Paris, France</i>
2003 <i>3 months</i>	Cryptolog International Cryptography and Security development in Java	<i>Paris, France</i>

Education

2008 ~ now	New York University (NYU) Ph.D. in robotics, machine learning and computer vision	<i>New York, NY, USA</i>
2006 ~ 2007	New York University M.S. in Computer Science (machine learning, computer vision, A.I., robotics)	<i>New York, NY, USA</i>
2000 ~ 2005	EPITA 5 year integrated B.S./M.S. degree program in computer engineering <i>with honors</i>	<i>Paris, France</i>
2000	Scientific French High School Diploma <i>with distinction</i>	<i>Rambouillet, France</i>

Refeered Publications

IJCNN	11	Traffic Sign Recognition with Multi-Scale Convolutional Networks , P. Sermanet and Y. LeCun, Proceedings of International Joint Conference on Neural Networks [5 pages]
NIPS	10	Learning Convolutional Feature Hierachies for Visual Recognition , K. Kavukcuoglu, P. Sermanet, et al., Advances in Neural Information Processing Systems [9 pages]
ICTAI	09	EBLearn: Open-Source Energy-Based Learning in C++ , P. Sermanet, K. Kavukcuoglu, Y. LeCun, in Proc. of the International Conference on Tools with Artificial Intelligence [5 pages]
JFR	09	A Multi-Range Architecture for Collision-Free Off-Road Robot Navigation , Sermanet et al. in Journal of Field Robotics, Special Issue on LAGR [43 pages]
JFR	09	Learning Long-Range Vision for Autonomous Off-Road Driving , Hadsell, Sermanet et al in <i>Journal of Field Robotics, Special Issue on LAGR</i> [31 pages]
IROS	08	Deep Belief Net Learning in a Long-Range Vision System for Autonomous Off-Road Driving , Hadsell, Erkan, Sermanet et al., in <i>Intelligent Robots and Systems, (Nice, France)</i>
NESCAI	08	Also presented at the <i>North East Student Colloquium on Artificial Intelligence (Ithaca, NY, USA)</i>
IROS	08	Mapping and Planning under Uncertainty in Mobile Robots with Long-Range Perception , Sermanet et al., in <i>Intelligent Robots and Systems, (Nice, France)</i>

ISR	08	Learning Maneuver Dictionaries for Ground Robot Planning , Sermanet et al., in <i>39th International Symposium on Robotics</i> , (Seoul, Korea)
IAV	07	Speed-Range Dilemmas for Vision-Based Navigation in Unstructured Terrain , Sermanet et al., in <i>6th IFAC Symposium on Intelligent Autonomous Vehicles</i> (Toulouse, France)
RA	07	A Multi-Range Vision Strategy for Autonomous Offroad Navigation , Hadsell, Erkan, Sermanet et al., in <i>Robotics and Applications</i> , (Würzburg, Germany)
IROS	07	Adaptive Long Range Vision in Unstructured Terrain , Erkan, Hadsell, Sermanet et al., in <i>Intelligent Robots and Systems</i> , (San Diego, CA, USA)
RSS	07	Online Learning for Offroad Robots: Using Spatial Label Propagation to Learn Long-Range Traversability , Hadsell, Sermanet et al., in <i>Robotics Science and Systems</i> , (Atlanta, GA, USA)
NESCAI	07	Also presented at the <i>North East Student Colloquium on Artificial Intelligence</i> (Ithaca, NY, USA)

Other Publications & Presentations

Snowbird	12	Convolutional Networks Applied to House Numbers Digit Classification , P. Sermanet, S. Chintala and Y. LeCun, Snowbird Machine Learning Workshop [2 pages]
Snowbird	11	Traffic Signs and Pedestrians Vision with Multi-Scale Convolutional Networks , P. Sermanet, K. Kavukcuoglu and Y. LeCun, Snowbird Machine Learning Workshop [2 pages]
NIPS	07	Self-Supervised Learning From High Dimensional Data for Autonomous Off-Road Driving , Erkan, Hadsell, Sermanet et al., Poster at <i>NIPS Workshop: Robotic Challenges for Machine Learning</i>
CVPR	06	Driving and Learning Strategies for Offroad Robots , Hadsell, Sermanet et al., Demo poster at <i>Conference on Computer Vision and Pattern Recognition</i> , (New York, NY, USA)
Snowbird	06	On-Line Learning of Long-Range Obstacle Detection for Offroad Robots , Hadsell, Sermanet et al., <i>Snowbird Workshop on Learning</i> , (Snowbird, UT, USA)

IT Skills

Languages	C/C++/C#, Java, Lisp (Lush), Matlab, Ada, Shell script, CamL, VHDL, Delphi/Pascal, PHP, OpenGL, DirectX, ASN.1, Tiger, Flex/Bison, JUnit
Design	UML, SART, SADT
OS	Linux/Unix, Windows, VRTX
Databases	Oracle, SQL
Application	CVS, Make, Patch, GDB, Latex

Projects

2000 ~ 2004	<ul style="list-style-type: none"> - European robotics 2004 contest <ul style="list-style-type: none"> A.I., Image processing, 3D OpenGL/C++ simulator, real-time software design, behaviors engine (wall follower, ball eater, tree surrounder, emergency shooter, etc) - Robot with embedded webcam controlled through network (Java) - Tiger language compiler (C++/Flex/Bison) - FPS 3D Game network playable (Delphi/OpenGL, 3D engine, 3DSMAX...)
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References

Yann LeCun, PhD, Machine learning professor at New York University: [yann \[at\] cs.nyu.edu](mailto:yann[at]cs.nyu.edu)
 Urs Muller, PhD. CEO of Net-Scale Technologies: [urs \[at\] net-scale.com](mailto:urs[at]net-scale.com)
 Mariappan Nadar, PhD. P.M. Siemens Corporate Research: [mariappan.nadar \[at\] siemens.com](mailto:mariappan.nadar[at]siemens.com)

Interests

Kitesurfing, snowboarding, rollerskating, music composition