

JOAQUIN ZEPEDA

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EDUCATION

INRIA, Université de Rennes 1, Rennes, France PhD, Signal Processing	<i>2007-2010</i>
McGill University, Montreal, QC, Canada M.Eng. in Electrical Engineering	<i>2003-2006</i>
B.Eng. in Electrical Engineering	<i>1999-2003</i>

DISTINCTIONS

O-1 Extraordinary Ability U.S. Visa	<i>2016</i>
2nd best student paper, MMSp <i>The Iteration-Tuned Dictionary for Sparse Representations</i>	<i>2010</i>
Dean's Honor List, McGill University	<i>2006</i>
Morris Wilson Entrance Scholarship, McGill University	<i>1999</i>
Valedictorian, ranked 1 out of 90	<i>1999</i>

EXPERIENCE

Amazon <i>Applied Scientist II</i>	January 2017 - Present <i>Seattle, Washington</i>
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- Computer vision/deep learning for autonomous robots.

Technicolor <i>Computer Vision Researcher / Fellowship Network Associate Member</i>	November 2010 - January 2017 <i>Cesson-Sévigné, France</i>
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- Led the *Learning to See* exploratory project.
- Led the optimization effort successfully included in Recommendation ITU-R BT.2100-0 (television broadcasting service standard).
- Developed a multi-modal image search engine and software modules for computer vision / image processing used in various Technicolor systems.
- Recruited and supervised post-doctoral researchers, PhD candidates and interns.
- Established contact and collaborations with external academics.
- Applied for CIFRE PhD (industrial, government) funding and European project funding.
- Filed patents, contributed to MPEG standardization efforts.
- Published in international conferences and Journals, attend scientific conferences.

Université de Rennes 1 <i>Teaching assistant</i>	2008 <i>Rennes, France</i>
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- Lecturer, signal processing laboratory.

McGill University <i>Teaching/Research assistant</i>	2003-2006 <i>Quebec, Canada</i>
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- Teaching Assistant, digital telecommunications lab, digital signal processing course.
- Research assistant, comminution dynamics lab, pain genetics lab.

TECHNICAL STRENGTHS / LANGUAGES

Advanced proficiency in Python, Linux, C, C++ and Matlab, including mixed-language programming and object-oriented programming.

HTML, CSS, Django, SQL.

Native English and Spanish, written and oral. Excellent French, written and oral.

PUBLICATIONS

- [1] Himalaya Jain, Joaquin Zepeda, Patrick Pérez, and Rémi Gribonval. Learning a Complete Image Indexing Pipeline (**Submitted**). In *Computer Vision and Pattern Recognition (CVPR)*, 2018.
- [2] Rafael Sampaio de Rezende, Joaquin Zepeda, Jean Ponce, Francis Bach, and Patrick Pérez. Kernel Square-Loss Exemplar Machines For Image Retrieval . In *Computer Vision and Pattern Recognition (CVPR)*, 2017.
- [3] Himalaya Jain, Joaquin Zepeda, Patrick Pérez, and Rémi Gribonval. Supervised structured binary codes for image search . In *International Conference on Computer Vision (ICCV)*, 2017.
- [4] Xinrui Lyu, Joaquin Zepeda, and Patrick Pérez. Maximum Margin Linear Classifiers in Unions of Subspaces. In *British Machine Vision Conference (BMVC)*, 2016.
- [5] Praveen Kulkarni, Frédéric Jurie, Joaquin Zepeda, Patrick Pérez, and Louis Chevallier. SPLeaP: Soft Pooling of Learned Parts for Image Classification. In *European Conference on Computer Vision (ECCV)*, 2016.
- [6] Himalaya Jain, Patrick Pérez, Remi Gribonval, Joaquin Zepeda, and Herve Jégou. Approximate search with quantized sparse representations. In *European Conference on Computer Vision (ECCV)*, 2016.
- [7] Cagdas Bilen, Joaquin Zepeda, and Patrick Pérez. The CNN News Footage Dataset: Enabling Supervision in Image Retrieval. In *European Signal Processing Conference (EUSIPCO)*, 2016.
- [8] Cagdas Bilen, Joaquin Zepeda, and Patrick Pérez. Supervised Learning Of Low-Rank Transforms For Image Retrieval . In *IEEE International Conference on Image Processing (ICIP)*, 2016.
- [9] Joaquin Zepeda and Patrick Pérez. Exemplar SVMs as Visual Feature Encoders. In *Computer Vision and Pattern Recognition (CVPR)*, 2015.
- [10] Joaquin Zepeda, Turkan Mehmet, and Dominique Thoreau. Block Prediction Using Approximate Template Matching (**Oral**). In *European Signal Processing Conference (EUSIPCO)*, 2015.
- [11] Praveen Kulkarni, Joaquin Zepeda, Frédéric Jurie, Patrick Perez, and Louis Chevallier. Max-Margin, Single-Layer Adaptation of Transferred Image Features. In *BigVision Workshop, Computer Vision and Pattern Recognition (CVPR)*, 2015.
- [12] Praveen Kulkarni, Joaquin Zepeda, Frederic Jurie, Patrick Pérez, and Louis Chevallier. Learning the Structure of Deep Architectures via ℓ -1 Penalization. In *British Machine Vision Conference (BMVC)*, 2015.
- [13] Praveen Kulkarni, Joaquin Zepeda, Frederic Jurie, Patrick Perez, and Louis Chevallier. Hybrid Multi-Layer Deep CNN / Aggregator Feature for Image Classification. In *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2015.
- [14] Xavier Burgos, Joaquin Zepeda, François Le Clerc, and Patrick Pérez. Pose and expression-coherent face recovery in the wild (**Oral**). In *International Conference on Computer Vision (ICCV) Workshops, Robust Subspace Learning and Computer Vision*, 2015.

- [15] Cagdas Bilen, Joaquin Zepeda, and Patrick Pérez. Learning Sparsity Inducing Analysis Operators for Discriminative Similarity Metrics. In *Signal Processing with Adaptive Sparse Structured Representations (SPARS)*, 2015.
- [16] Aakanksha Rana, Joaquin Zepeda, and Patrick Perez. Feature Learning for the Image Retrieval Task. In *Asian Computer Vision and Pattern Recognition (ACCV) Workshops*, 2014.
- [17] Praveen Kulkarni, Gaurav Sharma, Joaquin Zepeda, and Louis Chevallier. Transfer Learning via Attributes for Improved On-the-fly Classification. In *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2014.
- [18] André F. de Araujo, Fernando Silveira, Haricharan Lakshman, Joaquin Zepeda, Anmol Sheth, Patrick Pérez, and Bernd Girod. The Stanford / Technicolor / Fraunhofer HHI Video Semantic Indexing System. In *TRECVID*, 2013.
- [19] Joaquin Zepeda, Christine Guillemot, and Ewa Kijak. Image compression using the Iteration-Tuned and Aligned Dictionary (**Oral**). In *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 793–796, 2011.
- [20] Joaquin Zepeda, Christine Guillemot, and Ewa Kijak. Image Compression Using Sparse Representations and the Iteration-Tuned and Aligned Dictionary (**Journal**). *IEEE Journal of Selected Topics in Signal Processing*, 5(5):1061–1073, 2011.
- [21] Joaquin Zepeda, Christine Guillemot, and Ewa Kijak. The Iteration-Tuned Dictionary for Sparse Representations (**Oral, 2nd best paper**). In *IEEE Workshop on Multimedia Signal Processing*, 2010.
- [22] Joaquin Zepeda, Christine Guillemot, and Ewa Kijak. Approximate nearest neighbors using sparse representations. In *International Conference on Acoustics, Speech and Signal Processing*, pages 2370–2373, 2010.
- [23] Joaquin Zepeda. *Nouvelles méthodes de représentations parcimonieuses; Application à la compression et l'indexation d'images*. PhD thesis, Université de Rennes 1 (INRIA), 2010.
- [24] C. Morand, J. Benois-Pineau, J.-Ph. Domenger, J. Zepeda, E. Kijak, and C. Guillemot. Scalable Object-based Video Retrieval in HD Video Databases (**Journal**). *Image Communication, Elsevier*, 2010.
- [25] Joaquin Zepeda, Ewa Kijak, and Christine Guillemot. SIFT-based local image description using sparse representations. In *IEEE International Workshop on Multimedia Signal Processing*, 2009.
- [26] Joaquin Zepeda and Fabrice Labeau. Tandem Filter Bank-DFT Code for Bursty Erasure Correction. In *IEEE Vehicular Technology Conference*, 2006.
- [27] Joaquin Zepeda. *Tandem Filterbank / DFT Code for Bursty Erasure Correction*. Master's thesis, McGill University, 2006.
- [28] S. Martins, J. Zepeda, B. Picard, P. Radziszewski, and D. Roy. Investigating On-The-Shell Acoustics. In *Autogeneous and Semiautogeneous Grinding Technology Conference*, 2006.

FILED PATENTS

US20160140425	Method and apparatus for image classification with joint feature adaptation and classifier learning
EP20140306828	Method and apparatus for ranking 2D candidate images
EP2859505A1	Image descriptor for media content
EP2950224A1	Annotation display assistance device and method of assisting annotation display
US20160119628A1, EP3012780A1	A method and apparatus for encoding image features using a differentiable bag-of-words encoder

EP3029606A2	Method and apparatus for image classification with joint feature adaptation and classifier learning
US9244948	Computer tool with sparse representation
WO2013182241A1	Image descriptor for media content
WO2014001137A1	Synchronized movie summary
WO2014174058A1	Method of obtaining a mega-frame image fingerprints for image fingerprint based content identification, method of identifying a video sequence, and corresponding device
WO2015032670	Method of classification of images and corresponding device
WO2016008759A1	Method of determination of stable zones within an image stream, and portable device for implementing the method
WO2016037844A1	Method and apparatus for image retrieval with feature learning
WO2016037848A1	Image recognition using descriptor pruning
WO2016050729A1	Face inpainting using piece-wise affine warping and sparse coding
WO2016075274	Methods, systems and apparatus for image recognition based on recursively determined exemplar-support vector machines (E-SVM) features
WO2016075293A1	Accelerated support vector machine (SVM) learning using clustering
PF150004A,B,C,D	A family of electro-optical and opto-electrical transfer functions

MISCELLANEOUS

- *Image Retrieval* Session Chair, ICIP 2016
- Reviewer for \diamond *IEEE Transactions on Image Processing* \diamond *IEEE Signal Processing Letters* \diamond *IEEE Transactions on Multimedia* \diamond *SPIE Journal of Electronic Imaging*
- French certified first responder (Sauveteur Secouriste du Travail, 2015,2016) \diamond Piano enthusiast