

# Curriculum Vitae – Javier Turek

## Address & Personal information

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Born in Argentina, June 9<sup>th</sup>, 1981.

## Academic Education

2003 – 2007: B.Sc., Computer Science, Cum Laude.  
Technion, Israel Institute of Technology, Haifa, Israel.  
2008 – 2015: Ph.D., Computer Science (Direct Track).  
Technion, Israel Institute of Technology, Haifa, Israel.  
Advisors: Prof. Michael Elad and Prof. Irad Yavneh.  
Dissertation: Topics in Sparse Representation Modeling.

## Professional Experience

6.2015 – Present: Research Scientist in Machine Learning at Intel Labs, Oregon, USA.  
7.2012 – 10.2012: Research Intern in Medical Imaging at G.E. Healthcare, Israel.  
2.2006 – 5.2008: Research Developer in Parallel Optimization at IBM Haifa Research Lab, Israel.  
2.2004 – 2.2006: Software Developer in CAD Systems at Intel, Haifa, Israel.

## Teaching Experience

5.2008 – 10.2014: Computer Science, Technion: Lecturer and teaching assistant in Introductory courses to Computer Science and Programming.

## Research Interests

Image and Signal Processing, Inverse Problems, Optimization, Sparse Representations, Signal Statistics, Medical Imaging, Computer Vision, Machine Learning.

## Academic Activities

- Journal and Conference Refereeing:  
IEEE Transactions in Image Processing  
IEEE Transactions in Signal Processing  
International Journal of Computer Vision  
Numerical Linear Algebra with Applications  
Advances in Neural Information Processing Systems (NeurIPS)

## Awards

- 2014: 2<sup>nd</sup> place award student poster competition: CS research day, Technion.
- 2013: Winner of student poster competition: CS research day, Technion.

## Journal Papers

1. J. Tamir, V. Taviani, M. Alley, B. Perkins, L. Hart, K. Obrien, F. Wishah, M. Anderson, **J. Turek**, T. Willke, M. Lustig, S. Vasanawala. Targeted Rapid Knee MRI Exam using T2 Shuffling. *Journal of Magnetic Resonance Imaging*, 2018.
2. E. Treister, **J.S. Turek**, I. Yavneh. A Multilevel Framework for Sparse Optimization with Application to Inverse Covariance Estimation and Logistic Regression. To appear *SIAM Journal on Scientific Computing (SISC)*, 2016
3. **J. S. Turek**, I. Yavneh, and M. Elad. Clutter Mitigation on Echocardiography using Sparse Signal Separation. *International Journal in Biomedical Imaging*, 2015.
4. **J. S. Turek**, I. Yavneh, and M. Elad. On MMSE and MAP Estimators for the Co-sparse Analysis Model. *Elsevier Digital Signal Processing*, 2014.
5. **J. S. Turek**, I. Yavneh, and M. Elad. On MMSE and MAP Denoising Under Sparse Representation Modeling over a Unitary Dictionary. *IEEE in Transactions in Signal Processing*, 2011.
6. M. Biberstein, S. Dori-Hacohen, Y. Harel, A. Heilper, B. Mendelson, U. Shvadron, E. Treister, **J. Turek**, and M. S. Chang. Cell/B.E. Processor Performance Optimization: Tracing Tools Implementation and Use. *IBM Journal of Research and Development, Special Issue on Hybrid Systems*, 2009.

## Refereed Conference Papers

1. **J. S. Turek**, A. Huth. Sparse and Low-Rank Approximations of Large Symmetric Matrices Using Biharmonic Interpolation. *Submitted to International Conference on Machine Learning (ICML)*, 2017.
2. **J. S. Turek**, T. L. Willke, P.-H. Chen, P. J. Ramadge. A Semi-Supervised Method for Multi-Subject fMRI Functional Alignment. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2017.
3. M.J. Anderson, M. Capotă, **J. S. Turek**, X. Zhu, T. L. Willke, Y. Wang, P.-H. Chen, J. R. Manning, P. J. Ramadge, K. A. Norman. Enabling Factor Analysis on Thousand-Subject Neuroimaging Datasets. *IEEE International Conference on Big Data (BigData)*, 2016.

4. **J. S. Turek**, J. Sulam, M. Elad, I. Yavneh. Fusion of Ultrasound Harmonic Imaging with Clutter Removal Using Sparse Signal Separation. *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2015
5. E. Treister and **J. S. Turek**. A Block-Coordinate Descent Approach for Large-scale Sparse Inverse Covariance Estimation. *Advances in Neural Information Processing Systems 27 (NIPS)*, 2014.
6. **J. S. Turek**, M. Elad, and I. Yavneh. Sparse Signal Separation with an Off-line Learned Dictionary for Clutter Reduction in Echocardiography. *IEEE 28-th Convention of Electrical and Electronics Engineers in Israel*, 2014.
7. M. Biberstein, U. Shvadron, **J. Turek**, B. Mendelson, and M. S. Chang. Trace-based Performance Analysis on Cell BE. *Proceedings of the IEEE International Symposium on Performance Analysis of Systems and Software (ISPASS)* 213–222, 2008.

### Preprints

1. M. J. Anderson, J. I. Tamir, **J. S. Turek**, M. T. Alley, T. L. Willke, S. S. Vasanaawala, M. Lustig. Clinically Deployed Distributed Magnetic Resonance Imaging Reconstruction: Application to Pediatric Knee Imaging. [arXiv:1809.04195](https://arxiv.org/abs/1809.04195), 2018.
2. H. Zhang, P.-H. Chen, J. Chen, X. Zhu, **J. S. Turek**, T. L. Willke, U. Hasson, P. J. Ramadge. A Searchlight Factor Model Approach for Locating Shared Information in Multi-Subject fMRI Analysis. [arXiv:1609.09432](https://arxiv.org/abs/1609.09432), 2016.
3. P.-H. Chen, X. Zhu, H. Zhang, **J. S. Turek**, J. Chen, T. L. Willke, U. Hasson, P. J. Ramadge. A Convolutional Autoencoder for Multi-Subject fMRI Data Aggregation. [arXiv:1608.04846](https://arxiv.org/abs/1608.04846), 2016.

### International Conferences

1. **J. S. Turek**, M. J. Anderson, P.-H. Chen, T. L. Willke, P. J. Ramadge. Enabling Brain Functional Alignment for a Thousand Subjects. *Algorithms for Modern Massive Data Sets (MMDS)*, June 2016.
2. **J. S. Turek**, E. Treister. A Multilevel Acceleration for  $l_1$ -regularized Logistic Regression. Optimization Workshop at Advances in Neural Information Processing Systems 28th (OPT at NIPS'15), December 2015.
3. E. Treister, **J. S. Turek**, I. Yavneh. A Multilevel Framework for Sparse Inverse Covariance Estimation. Optimization Workshop at Advances in Neural Information Processing Systems 27th (OPT at NIPS'14), December 2014.
4. **J. S. Turek**, I. Yavneh and M. Elad. Clutter Mitigation on Echocardiography using Sparse Signal Separation. *Signal Processing with Adaptive Sparse Structured Representations (SPARS)*, July 2013.
5. **J. S. Turek**, I. Yavneh and M. Elad. On MMSE and MAP Estimators for the Co-sparse Analysis Model. *Signal Processing with Adaptive Sparse Structured Representations (SPARS)*, July 2013.

### Undergraduate Research

- 2006: B.Sc Research Project on Multiframe Demosaicing and Super-Resolution of Color Images, Geometric Image Processing Lab, CS Dept., Technion.

- 2005: B.Sc Research Project on Cropping of Scanned Images, Geometric Image Processing Lab, CS Dept., Technion.

#### **Extracurricular Activities & Service**

- 2011: Project Mentor at SciTech Summer Camp for high-school students, Technion.
- 2008 – 2010: Military Service, Israel Defense Forces Junior Command Preparatory School.

Last update: 21-Feb-19