

## Education

- University of California, San Diego** San Diego, CA  
• *Ph.D in Electrical Engineering; GPA:4.0* Sept. 2018  
*Advisor: Bhaskar D. Rao, co-advisor: Truong Q. Nguyen*
- University of Illinois at Urbana-Champaign** Urbana-Champaign, IL  
• *M.S. in Electrical Engineering; GPA:3.78* May 2014  
*Advisor: Pierre Moulin*
- University of Illinois at Urbana-Champaign** Urbana-Champaign, IL  
• *B.S. in Electrical Engineering; GPA:3.90* May 2012  
*James Scholar, Highest Honors*

## Experience

- ARM Research** Waltham, MA  
• *Senior Research Engineer* Sept 2018 – present  
– Machine learning research group
- Samsung Research** San Diego, CA  
• *Intern* June 2017 – Sept 2017  
– Deep learning research group
- Qualcomm** San Diego, CA  
• *Intern* May 2015 – Aug 2015  
– Developed continuous multi-modal authentication system for verifying mobile user's identity
- Qualcomm** San Diego, CA  
• *Intern* May 2013 – Sept 2014  
– Developed real-time, fixed point C implementation of Fast Stereo Independent Vector Analysis
- Qualcomm** San Diego, CA  
• *Intern* Jun 2012 – Aug 2012  
– Developed novel voice activity detector using non-negative matrix factorization
- Cisco** San Jose, CA  
• *Intern* Jun 2011 – Aug 2011  
– Implemented testing framework for NX-OS
- ComEd** Libertyville, IL  
• *Intern* Jun 2010 – Aug 2010  
– Worked with Transmission and Substation Department in the Testing Group

## Publications (by topic)

### Neural Architecture Search

- S. Sandha, M. Aggarwal, **I. Fedorov**, M. Srivastava, “Mango: A Python Library for Parallel Hyperparameter Tuning,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2020.
- I. Fedorov**, R.P. Adams, M. Mattina, P.N. Whatmough, “SpArSe: Sparse Architecture Search for CNNs on Resource-Constrained Microcontrollers,” *Proc. of the Conference on Neural Information Processing Systems (NeurIPS)*, 2019.

### RNN Compression

- U. Thakker, **I. Fedorov**, J. Beu, D. Gope, C. Zhou, G. Dasika M. Mattina, “Pushing the limits of RNN Compression,” *NeurIPS Workshop on Energy Efficient Machine Learning and Cognitive Computing*, 2019.

## Multimodal Dictionary Learning

- **I. Fedorov**, B.D. Rao, “Multimodal Sparse Bayesian Dictionary Learning,” *arXiv preprint*, 2018.
- **I. Fedorov**, B.D. Rao, T.Q. Nguyen, “Multimodal Sparse Bayesian Dictionary Learning Applied to Multimodal Data Classification,” *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, 2017.

## Sparsifying Deep Neural Networks

- C. Lee, **I. Fedorov**, B.D. Rao, H. Garudadri, “SSGD: Sparsity-promoting Stochastic Gradient Descent Algorithm for Unbiased DNN Pruning,” *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2020.
- **I. Fedorov**, B.D. Rao, “Sparsifying Deep Neural Networks,” *arXiv preprint*, 2018.

## Non-negative Matrix Factorization

- **I. Fedorov**, A. Nalci, R. Giri, B.D. Rao, T.Q. Nguyen, H. Garudadri, “A Unified Framework for Sparse Non-Negative Least Squares using Multiplicative Updates and the Non-Negative Matrix Factorization Problem,” *Signal Processing*, Volume 146, May 2018, Pages 79-91, ISSN 0167-1648.
- A. Nalci, **I. Fedorov**, M. Al-Shoukairi, T. T. Liu, B.D. Rao. “Rectified Gaussian Scale Mixtures and the Sparse Non-Negative Least Squares Problem,” *IEEE Transactions on Signal Processing*, vol. 66, no. 12, pp. 3124-3139, June 2018.

## Robust Sparse Signal Recovery & Face Recognition

- **I. Fedorov**, R. Giri, B.D. Rao, T.Q. Nguyen, “Relevance Vector Machine: A Novel Person Re-Identification Framework,” *arXiv preprint arXiv:1703.10645*, 2017.
- **I. Fedorov**, R. Giri, B.D. Rao, T.Q. Nguyen, “Robust Bayesian Method for Simultaneous Block Sparse Signal Recovery with Applications to Face Recognition,” *IEEE International Conference on Image Processing (ICIP)*, 2016.

## Single Photon Emission Computed Tomography

- **I. Fedorov**, S. Obrzut, B. Song, B.D. Rao, “SPECT Image Reconstruction under Imaging Time Constraints,” *51st Asilomar Conference on Signals, Systems, and Computers*, 2017.
- **I. Fedorov**, B. Song, B.D. Rao, I. Levitan, S. Obrzut, “Total Variation Regularization in I-123 Ioflupane SPECT Reconstruction,” *Journal of Nuclear Medicine*, 2017.

## Action Recognition

- **I. Fedorov**, “Kinect depth video compression for action recognition,” *Master’s thesis*, 2014.
- A. Khosrowpour, **I. Fedorov**, A. Holynski, J.C. Niebles, and M. Golparvar-Fard, “Automated Worker Activity Analysis in Indoor Environments for Direct-Work Rate Improvement from long sequences of RGB-D Images,” *Construction Research Congress: Construction in a Global Network*, 2014.

## Miscellaneous

- P.S. Shenoy, **I. Fedorov**, T. Neyens, P.T. Krein, “Power delivery for series connected voltage domains in digital circuits,” *International Conference on Energy Aware Computing*, 2011.

## Skills

Python, Tensorflow, Pytorch, Matlab, C/C++, LaTeX, Fluent in Russian

## Teaching

WES 267: Intro to Digital Signal Processing, UCSD

ECE 161B: Digital Signal Processing, UCSD

ECE 445: Senior Design, UIUC

## Honors and Activites

ARCS Fellowship, 2015-2018

ECE Departmental Fellowship, UCSD, 2014

Jules D. Falzer Scholarship for outstanding scholastic record, UIUC, 2012