MINH N. DO
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Research Interests

Signal processing, computational imaging, geometric vision, data science.

Educational Background

1998 - 2001 **Doctor of Science in Communication Systems**, Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland.

1994 - 1997 **Bachelor of Engineering in Computer Engineering** (First Class Honors), University of Canberra, Australia.

Professional Positions

2014 - present **Professor**, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign (UIUC).

2008 - 2014 **Associate Professor**, Department of Electrical and Computer Engineering, UIUC.

2002 - 2008 **Assistant Professor**, Department of Electrical and Computer Engineering, UIUC.

2002 - present **Faculty Member**, Coordinated Science Laboratory, UIUC.

2002 - present **Faculty Member**, Beckman Institute for Advanced Science and Technology, UIUC.

2017 - present **Affiliate Faculty**, Department of Computer Science, UIUC.

2009 - present **Affiliate Faculty**, Department of Bioengineering, UIUC.

2010 - 2017 **Affiliate Faculty**, Advanced Digital Sciences Center, Univeristy of Illinois in Singapore.

2019 - present **Member of Scientific Advisory Board**, Vingroup, Vietnam.

2019 - present **Chief Scientist**, Homa Techs Inc.

2015 - 2016 **Chief Scientist**, Misfit Inc. (acquired by Fossil Group)

2009 - 2015 **Co-Founder & Chief Technology Officer**, Personify Inc. (formerly Nuvixa).

Awards and Honors

- Associate, Center for Advanced Study, UIUC (2017).
- Fellow of the IEEE (2014).
- Young Author Best Paper Award, IEEE Signal Processing Society (2008).

- Xerox Award for Faculty Research, College of Engineering, UIUC (2007).
- Co-authored a paper (with Yue Lu) that received a IBM Student Paper Award at the IEEE International Conference on Image Processing (2007).
- Beckman Fellow, Center for Advanced Study, UIUC (2006).
- Teachers Ranked as Excellent, UIUC (Spring 2006; Fall 2014; Spring 2018).
- Co-authored a paper (with Yue Lu) that received a Most Innovative Paper Award at the IEEE International Conference on Image Processing (2006).
- Co-authored a paper (with Arthur L. da Cunha) that received a Best Student Paper Award at the IEEE International Conference on Acoustics, Speech, and Signal Processing (2005).
- Co-authored a paper (with Ha T. Nguyen) that received a Best Student Paper Award at the IEEE International Conference on Acoustics, Speech, and Signal Processing (2005).
- CAREER Award from the National Science Foundation (2003).
- Best Doctoral Thesis Award from the Swiss Federal Institute of Technology Lausanne (2001).
- University Medal from the University of Canberra, Australia (1997).
- Silver Medal in the 32nd International Mathematical Olympiad, Sweden (1991).

Professional Activities

- Area Chair of the Computer Vision and Pattern Recognition (CVPR) Conference, 2019.
- Member of the Machine Learning for Signal Processing Technical Committee, IEEE Signal Processing Society (elected, 2018 - 2021).
- Member of the Big Data Special Interest Group, IEEE Signal Processing Society (elected, 2016 - present).
- Co-Chair, Allerton Conference on Communication, Control, and Computing (2015 & 2016).
- Member of Program Committee, IS&T / SPIE Conference on Computational Imaging (2012 - present).
- Member of Technical Committee of IEEE International Workshop on Hot Topics in 3D (Hot3D), (2012 - present)
- Technical Program Co-Chair of the IEEE GlobalSIP Symposium on Mobile Imaging, Austin, 2013.
- Member of Organizing Committee of the IEEE IVMSP Workshop on 3D Image/Video Technologies and Applications, 2013.
- Associate Editor of the IEEE Transactions on Image Processing (2007 - 2012).
- Member of the Signal Processing Theory and Methods Technical Committee, IEEE Signal Processing Society (elected, 2007 - 2013).
- Member of the Image, Video, and Multidimensional Signal Processing Technical Committee, IEEE Signal Processing Society (elected, 2007 - 2013).

- Guest Editor of the Special Issue on Multicamera Imaging in the Journal of Visual Communication and Image Representation, 2010.
- Program Co-Chair of the 27th Picture Coding Symposium, Chicago, 2009.
- Member of Technical Program Committee for the SPIE Wavelet Applications in Signal and Image Processing Conference (2003, 2005, & 2007).
- Member of a team of professors selected by the US National Academies and the Vietnam Education Foundation for traveling to Vietnam to select talented students for graduate studies in the US (2004 & 2005).
- Members of NSF Proposal Review Panels in Signal Processing.
- Reviewer for major journals and conferences in signal and image processing.
- Fellow of the Institute of Electrical and Electronics Engineers (IEEE).
- Member of the Association for Computing Machinery (ACM).
- Member of Society for Industrial and Applied Mathematics (SIAM).

Teaching at the University of Illinois

- Digital Signal Processing I.
- Digital Signal Processing II.
- Probability with Engineering Applications.
- Making Sense of Big Data.
- Embedded Digital Signal Processing Lab.
- Introduction to Image and Video Processing.
- Wavelets in Signal Processing.
- Digital Signal and Spectral Analysis.
- Vector Space Signal Processing.
- Digital Imaging.
- Topics in Image Processing.
- Signal Processing Seminars (coordinator).

Research Supervision

- **Current graduate students**: Molly Dasso, Daniel Gonzales, Qian Jiang, Andy Lai, Teck Yian Lim, Khoi-Nguyen Mac, Spencer Markowitz, Renán A. Rojas, Corey Snyder, Vaishnavi Subramanian, Raymond Yeh, Mona Zehni.

- **Former postdocs**:
  - Daniel Lin (2015-2018; now at Singapore Management University)
  - Jiangbo Lu (2010-2016; now at Shenzhen Cloudream Technology, China)
  - Nianjuan Jiang (2012-2016; now at Shenzhen Cloudream Technology, China)
  - Dongbo Min (2010-2015; now at Ewha Womans University, Korea),
  - Viet-Anh Nguyen (2011-2016; now at Blackmagic, Singapore),
  - Suma P. Bhat (2012-2015; now at UIUC),
  - Mathews Jacob (2003-2006; now at University of Iowa),
  - S. Derin Babacan (2010-2012; now at Snap Inc.).
- **Former graduate students**:
  - Duncan Po (M.Sc. 2003, now at The MathWorks),
  - Jianping Zhou (Ph.D. 2005, now at Apple),
  - Arthur L. A. da Cunha (Ph.D. 2006; now at BNP Paribas),
  - Robert L. Morrison Jr. (Ph.D. 2007, now at MIT Lincoln Laboratory),
  - Yue Lu (Ph.D. 2007; now at Harvard University),
  - Ha T. Nguyen (Ph.D. 2007; now at Sony Electronics),
  - Chinh La (M.Sc. 2007; now at Intel),
  - Joseph Coombs (M.Sc. 2007; now at Apple),
  - Matthieu Maitre (Ph.D. 2008; now at Microsoft),
  - Ka L. Law (Ph.D. 2008; now at SenseTime),
  - Spencer Brady (M.Sc. 2009; now at Cisco Systems),
  - Quang H. Nguyen (M.Sc. 2009; now at Personify),
  - Alex Dapore (M.Sc. 2010; now at L-3 Commnunications),
  - Joshua Blackburn (M.Sc. 2010; now at Jacobs Technology),
  - Daniel Kubacki (M.Sc. 2011; now at Jacobs Technology),
  - Hien M. Nguyen (Ph.D. 2011; now at Stanford University),
  - Ha Q. Nguyen (Ph.D. 2014; now at EPFL),
  - Huy Q. Bui (Ph.D. 2015; now at VanGogh Imaging),
  - André L. N. Targino da Costa (Ph.D. 2015; now at ImmersiveTouch),
  - Tan H. Nguyen (Ph.D. 2016; now at PathAI),
  - Siying Liu (Ph.D. 2016; now at A*-STAR),
  - Greg Meyer (Ph.D. 2016; now at Uber),
  - Benjamin Chidester (Ph.D. 2017; now at CMU),
  - Ramanpreet Singh (Ph.D. 2017; now at A*-STAR),
  - Dario Aranguiz (M.Sc. 2018; now at Petronics),
  - Chen Chen (Ph.D. 2018; now at Apple),
  - Jason Nie (M.Sc. 2019; now at Aurora),
  - Trong N. Nguyen (Ph.D. 2019; now at IGI Technologies),
  - Kirk Busche (M.Sc. 2019; now at North Star Imaging).
- **Undergraduate students**: Have supervised about 50 undergraduate research students at UIUC.

Research Funding

2003 - 2009 *CAREER: Directional Multiresolution Image Processing: Theory, Algorithms and Applications*, National Science Foundation (total amount: $400,001).

2003 - 2007 *Remote Reality: 4-D Audio-Visual Reconstruction and Compression from Multiple Sensors*, National Science Foundation (co-PI with Prof. Douglas Jones; total amount: $326,735).

2004 - 2008 *A Modern Autofocus Methodology with Applications to Radar Imaging*, National Science Foundation (co-PI with Prof. David Munson, University of Michigan; total amount: $449,993).

2006 - 2010 *Practical Compressed Sensing*, National Science Foundation (co-PI with Prof. Yoram Bresler; total amount: $530,926).

2009 - 2013 *Sparse and Geometric Representations of Images and Multidimensional Signals*, National Science Foundation (total amount: $335,635).

2009 - 2014 *Advanced Digital Sciences Center (ADSC)*, A*STAR Singapore (about 20 faculty PI's from UIUC; total amount: $50,000,000).

2009 - 2014 *Universal Parallel Computing Research Center (UPCRC)* later became *Illinois-Intel Parallel Center (I2PC)*, Intel and Microsoft (about 20 faculty PI's from UIUC; total amount: $10,000,000).

2010 - 2013 *Novel Acquisition and Computation in Vibrational Spectroscopic Imaging*, National Science Foundation (co-PI with Prof. Rohit Bhargava; total amount: $400,000).

2011 - 2012 *Real-Time Remote Reality for Telepresence*, Intel (total amount: $25,000).

2011 - 2014 *Collaborative Research: Advances in the Theory and Practice of Low-Rank Matrix Recovery and Modeling*, National Science Foundation (total amount: $368,875).

2011 - 2014 *A Region-Based Approach to Reconstructing Urban Scenes*, National Science Foundation (total amount: $450,000).

2012 - 2015 *Develop Mobile Visual Computing Building Blocks and Applications*, Intel (total amount: $30,000).

2012 - 2015 *Image and Video Processing with Depth*, National Science Foundation (total amount: $390,510).

2013 - 2014 *Perceptual Signal Processing for Digital Touch*, Texas Instruments (total amount: $30,000).

2014 - 2017 *Visual Modeling and Analytics of Dynamic Environments for the Masses*, Advanced Digital Science Center (ADSC), A*STAR, Singapore (total amount: $1,287,941).

2015 - 2018 *Multi-modal Augmented Reality and 3D Object Recognition*, DAQRI (total amount: $50,000).

2015 - 2016 *Internal Structure Mapping with X-Ray Phase Contrast Imaging*, Sandia National Labs (total amount: $27,000).

2015 - 2018 *3D Imaging with Multiple RGB-D Cameras*, Personify (total amount: $15,000).

2016 - 2018 *Making Sense of Big Data*, Jump Labs (total amount: $35,000).

2016 - 2017 *Inferential and Feature Selection Methods for Video Imaging*, Sandia National Labs (total amount: $65,000).

2016 - 2020 *IBM-UIUC Center of Cognitive Systems Research*, IBM (total amount: $3,000,000).

2017 - 2018 *Towards a Science of Actionable Intelligence*, Sandia National Labs (total amount: $170,000).

2018 - 2019 *Visual Representation and Sensing from Mobile Cameras*, UIUC-ZJU Research Collaboration (total amount: $75,000).

2018 - 2020 *Color Matching and Recolorization*, PPG Industries (total amount: $205,000).

2018 - 2020 *AI for Image Restoration and Video Prediction*, FutureWei (total amount: $100,000).

2018 - 2020 *Foreground-Background Modeling with Object-Level Semantics*, Sandia National Labs (total amount: $134,000).

2018 - 2021 *Gift to Research in Image Synthesis*, Intel Labs (total amount: $55,000).

2018 - 2020 *Real-time Ultrasonic Visualization and Feedback for Focused Ultrasound Therapy*, National Institutes of Health (co-PI with Prof. Michael Oelze; total amount: $404,677).

2019 - 2020 *Data Processing Algorithms and Software*, Sandia National Labs (total amount: $30,000).

2019 - 2020 *Lung Cancer Radiomics and Radiogenomics*, Jump ARCHES (total amount: $75,000).

2019 - 2020 *Gift to Research in Radar Fusion*, Texas Instruments (total amount: $40,000).

2019 - 2023 *Smartphone-linked System for Diagnosis and Epidemiological Reporting of Pathogens at the Point of Care*, National Institutes of Health (co-PI with Prof. Brian Cunningham; total amount: $447,937).

Publications

Google Scholar: `https://scholar.google.com/citations?hl=en&user=RIeAomMAAAAJ`

Book Chapters

1. M. N. Do and M. Vetterli, "Contourlets," *Beyond Wavelets*, G. V. Welland ed., Academic Press, New York, 2003.

Monographs

1. M. N. Do and Y. M. Lu, "Multidimensional filter banks and multiscale geometric representations," *Foundations and Trends in Signal Processing*, vol. 5, issue. 3, pp. 157-264, 2012.

Journals

1. N Kumar et al., "A multi-organ nucleus segmentation challenge," *IEEE Transactions on Medical Imaging*, 2019.

2. QH Luong, DT Tran, NL Trung, HT Huynh, and MN Do, "Simulation study of two-dimensional viscoelastic imaging of soft tissues using the extended Kalman filter for tumor detection," *Simulation*, 2019.

3. TN Nguyen, AJ Tam, MN Do, and ML Oelze, "Estimation of backscatter coefficients using an in situ calibration source," *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 2019.

4. D Huang, X Tao, J Lu, and MN Do, "Geometry-aware GAN for face attribute transfer," *IEEE Access*, 2019.

5. T. N. Nguyen, A. S. Podkowa, A. Y. Tam, E. C. Arnold, R. J. Miller, T. H. Park, M. N. Do, and M. L. Oelze, "Characterizing fatty liver in vivo in rabbits using quantitative ultrasound," *Ultrasound in Medicine & Biology*, 2019.

6. B. Chidester, T. Zhou, M. N. Do, and J. Ma, "Rotation equivariant and invariant neural networks for microscopy image analysis," *Bioinformatics*, vol. 35 (14), pp. 530-537, 2019.

7. M. Merler, K. N. C. Mac, D. Joshi, Q. B. Nguyen, S. Hammer, J. Kent, J. Xiong, M. N. Do, J. R. Smith, and R. Feris, "Automatic curation of sports highlights using multimodal excitement features," *IEEE Transactions on Multimedia*, 2018.

8. Y. Kim, B. Ham, M. N Do, and K. Sohn, "Structure-texture image decomposition using deep variational priors," *IEEE Transactions on Image Processing*, 2018.

9. T. N. Nguyen, M. N. Do and M. L. Oelze, "Visualization of the intensity field of a focused ultrasound (FUS) source in situ," *IEEE Transactions on Medical Imaging*, 2018.

10. R. S. Pahwa, J. Lu, N. Jiang, T. T. Ng, and M. N. Do, "Locating 3D object proposals: A depth-based online approach," *IEEE Transactions on Circuits and Systems for Video Technology*, pp. 626-639, 28(3), Mar. 2018.

11. W.-Y. Lin, F. Wang, M.-M. Cheng, S.-K. Yeung, P. H. S. Torr, M. N. Do, and J. Lu, "CODE: Coherence based decision boundaries for feature correspondence," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, pp. 34-47, 40(1), Jan. 2018.

12. S. Liu and M. N. Do, "Inverse rendering and relighting from multiple color plus depth images," *IEEE Transactions on Image Processing*, pp. 4951-4961, 26(10), Oct. 2017.

13. S. Kim, D. Min, B. Ham, M. N. Do and K. Sohn, "DASC: Robust dense descriptor for multi-modal and multi-spectral correspondence estimation," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, pp. 1712-1729, Sep. 2017.

14. J. A. Bengua, H. N. Phien, H. D. Tuan, and M. N. Do, "Matrix product state for higher-order tensor compression and classification," *IEEE Transactions on Signal Processing*, 2017.

15. J. A. Bengua, H. N. Phien, H. D. Tuan, and M. N. Do, "Efficient tensor completion for color image and video recovery: Low-rank tensor train," *IEEE Transactions on Image Processing*, 2017.

16. T. H. Nguyen, S. Sridharan, V. Macias, A. K. Balla, J. Melamed, M. N. Do, and G. Popescu, "Automatic Gleason grading of prostate cancer using quantitative phase imaging and machine learning," *Journal of Biomedical Optics*, 2017.

17. T. H. Nguyen, M. Kandel, H. M. Shakir, C. B.-Popescu, M. N. Do, and G. Popescu, "Halo-free Phase Contrast Microscopy," *Scientific Reports*, 2017.

18. A. J. Bower, B. Chidester, J. Li, Y. Zhao, M. Marjanovic, E. J. Chaney, M. N. Do, S. A. Boppart, "A quantitative framework for the analysis of multimodal optical microscopy images," *Quant Imaging Med Surg*, 7(1):24-37, 2017.

19. Y. Zhang, L. Cheng, J. Wu, J. Cai, M. N. Do, and J. Lu, "Action recognition in still images with minimum annotation efforts," *IEEE Transactions on Image Processing*, vol. 25 (11), 5479-5490, Nov. 2016.

20. J. Lu, Y. Li, H. Yang, D. Min, W. Eng, and M. N. Do, "PatchMatch Filter: Edge-aware filtering meets randomized search for visual correspondence," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, pp. 1866-1879, Oct. 2016.

21. Y. Zhang, X. S. Wei, J. Wu, J. Cai, J. Lu, V. A. Nguyen, and M. N. Do, "Weakly supervised fine-grained categorization with part-based image representation," *IEEE Transactions on Image Processing*, vol. 25 (4), 1713-1725, Apr. 2016.

22. L. Wang, D. Tang, Y. Guo, and M. N. Do, "Common visual pattern discovery via nonlinear mean shift clustering," *IEEE Transactions on Image Processing*, vol. 24, no. 12, pp. 5442-5454, Dec. 2015.

23. V. A. Nguyen, J. Lu, S. Zhao, D. T. Vu, H. Yang, D. L. Jones, and M. N. Do, "ITEM: Immersive Telepresence for Entertainment and Meetings – a practical approach," *IEEE Journal of Selected Topics in Signal Processing*, pp. 546-561, vol. 9, Apr. 2015.

24. H. Q. Bui, C. N. H. La, and M. N. Do, "A fast tree-based algorithm for compressed sensing with sparse-tree prior," *Signal Processing*, pp. 628-641, vol. 108, Mar. 2015.

25. H. Q. Nguyen and M. N. Do, "Downsampling of signals on graphs via maximum spanning trees," *IEEE Transactions on Signal Processing*, pp. 182-191, vol. 63, Jan. 2015.

26. H. Q. Nguyen and M. N. Do, "Inverse rendering of Lambertian surfaces using subspace methods," *IEEE Transactions on Image Processing*, pp. 5545-5558, Dec. 2014.

27. D. Min, S. Choi, J. Lu, B. Ham, K. Sohn, and M. N. Do, "Fast global image smoothing based on weighted least squares," *IEEE Transactions on Image Processing*, pp. 5638-5653, Dec. 2014.

28. V. A. Nguyen, J. Lu, S. Zhao, D. L. Jones, and M. N. Do, "Teleimmersive audio-visual communication using commodity hardware," *IEEE Signal Processing Magazine*, Nov. 2014.

29. S. D. Babacan, S. Nakajima, and M. N. Do, "Bayesian group-sparse modeling and variational inference," *IEEE Transactions on Signal Processing*, vol. 62, no. 11, pp. 2906-2921, June 2014.

30. D. T. Vu, B. Chidester, H. Yang, M. N. Do, and J. Lu, "Efficient hybrid tree-based stereo matching with applications to postcapture image refocusing," *IEEE. Transactions on Image Processing*, vol. 23, no. 8, pp. 3428-3442, Aug. 2014.

31. A. L. N. Targino da Costa and M. N. Do, "A retina-based perceptually lossless limit and a Gaussian foveation scheme with loss control," IEEE Journal on Selected Topics in Signal Processing, vol. 8, no. 3, pp. 438-453, 2014.

32. B. Ham, D. Min, C. Oh, M. N. Do, and K. Sohn, "Probability-based rendering for view synthesis," *IEEE Trans. on Image Processing*, vol. 23, no. 2, pp. 870-884, Feb. 2014.

33. D. Min, J. Lu, and M. N. Do, "Joint histogram based cost aggregation for stereo matching," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 35, no. 10, pp. 2539-2545, Oct. 2013.

34. V.-A. Nguyen, D. Min, and M. N. Do, "Efficient techniques for depth video compression using weighted mode filtering," *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 23, no. 2, pp. 189-202, Feb. 2013.

35. H. M. Nguyen, X. Peng, M. N. Do, and Z.-P. Liang, "Denoising MR spectroscopic imaging data with low-rank approximations," *IEEE Trans. on Biomedical Engineering*, vol. 60, pp. 78-89, Jan. 2013.

36. M. Mir, S. D. Babacan, M. Bednarz, M. N. Do, I. Golding, and G. Popescu, "Visualizing Escherichia coli sub-cellular structure using sparse deconvolution spatial light interference tomography," *PLoS ONE*, vol. 7, June 2012.

37. D. Min, J. Lu, and M. N. Do, "Depth video enhancement based on weighted mode filtering," *IEEE Transactions on Image Processing*, vol. 21, no. 3, pp. 1176-1190, Mar. 2012.

38. M. N. Do, D. Marchand-Maillet, and M. Vetterli, "On the bandwidth of the plenoptic function," *IEEE Transactions on Image Processing*, vol. 21, no. 2, pp. 708-717, Feb. 2012.

39. Y. Liang, K. Rupnow, Y. Li, D. Min, M. N. Do, and D. Chen, "High level synthesis: Productivity, performance, and software constraints," *Journal of Electrical and Computer Engineering*, Jan. 2012

40. S. D. Babacan, Z. Wang, M. Do, and G. Popescu, "Cell imaging beyond the diffraction limit using sparse deconvolution spatial light interference microscopy," *Biomedical Optics Express*, vol. 2, no. 7, pp. 1815-1827, July 2011.

41. H. Pham, H. Ding, N. Sobh, M. Do, S. Patel, and G. Popescu, "Off-axis quantitative phase imaging processing using CUDA: toward real-time applications," *Biomedical Optics Express*, vol. 2, no. 7, pp. 1781-1793, July 2011.

42. A. J. Dapore, M. R. King, J. Harter, S. Sarwate, M. L. Oelze, J. A. Zagzebski, M. N. Do, T. J. Hall, and W. D. OBrien, "Analysis of human fibroadenomas using three-dimensional impedance maps," *IEEE Transactions on Medical Imaging*, vol. 30, no. 6, pp. 1206-1213, June 2011.

43. M. N. Do, Q. H. Nguyen, H. T. Nguyen, D. Kubacki, and Sanjay J. Patel, "Immersive visual communication with depth cameras and parallel computing," *IEEE Signal Processing Magazine*, vol. 28, pp. 58-66, Jan. 2011.

44. K. L. Law and M. N. Do, "Multidimensional filter bank signal reconstruction from multichannel acquisition," *IEEE Transactions on Image Processing*, vol. 20, pp. 317-326, Feb. 2011.

45. M. Maitre and M. N. Do, "Depth and depth-color coding using shape-adaptive wavelets," *Journal of Visual Communication and Image Representation*, pp. 513-522, July 2010.

46. A. L. Cunha, M. N. Do, and M. Vetterli, "On the information rates of the plenoptic function," *IEEE Transactions on Information Theory*, vol. 56, pp. 1306-1321, Mar. 2010.

47. D. Lin, X. Huang, Q. Nguyen, J. Blackburn, C. Rodrigues, T. Huang, M. N. Do, S. Patel, and W.-M. Hwu, "Parallelization of video processing: from programming models to applications," *IEEE Signal Processing Magazine*, pp. 103-112, Nov. 2009.

48. K. L. Law, R. M. Fossum, and M. N. Do, "Generic invertibility of multidimensional FIR filter banks and MIMO systems," *IEEE Transactions on Signal Processing*, vol. 57, no. 11, pp. 4282-4291, Nov. 2009.

49. Y. M. Lu, M. N. Do, and R. S. Laugesen, "A computable Fourier condition generating alias-free sampling lattices," *IEEE Transactions on Signal Processing*, vol. 57, no. 5, pp. 1768-1782, May 2009.

50. R. L. Morrison, M. N. Do, and D. C. Munson, "MCA: a multichannel approach to SAR autofocus, *IEEE Transactions on Image Processing*, vol. 18, no. 4, pp. 840-853, Apr. 2009.

51. H. T. Nguyen and M. N. Do, "Error analysis for image-based rendering with depth information," *IEEE Transactions on Image Processing*, vol. 18, no. 4, pp. 703-716, Apr. 2009.

52. H. M. Nguyen, B. P. Sutton, R. L. Morrison, and M. N. Do, "Joint estimation and correction of geometric distortions for EPI functional MRI using harmonic retrieval," *IEEE Transactions on Medical Imaging*, vol. 28, no. 3, pp. 423-434, Mar. 2009.

53. H. T. Nguyen and M. N. Do, "Hybrid filter banks with fractional delays: Minimax design and application to multichannel sampling," *IEEE Transactions on Signal Processing*, vol. 56, no. 7, pp. 3180-3190, July 2008.

54. M. Maitre, Y. Shinagawa, and M. N. Do, "Wavelet-based joint estimation and encoding of depth-image-based representations for free-viewpoint rendering," *IEEE Transactions on Image Processing*, vol. 17, no. 6, pp. 946-957, June 2008.

55. Y. M. Lu and M. N. Do, "A theory for sampling signals from a union of subspaces," *IEEE Transactions on Signal Processing*, vol. 56, no. 6, pp. 2334-2345, June 2008.

56. Y. M. Lu and M. N. Do, "A mapping-based design for nonsubsampled hourglass filter banks in arbitrary dimensions," *IEEE Transactions on Signal Processing*, vol. 56, no. 4, pp. 1466-1478, Apr. 2008.

57. Y. M. Lu and M. N. Do, "Sampling signals from a union of subspaces," *IEEE Signal Processing Magazine*, vol. 25, pp. 41-47, Mar. 2008.

58. R. L. Morrison, M. N. Do, and D. Munson, "SAR image autofocus by sharpness optimization: a theoretical study," *IEEE Transactions on Image Processing*, vol. 16, no. 9, pp. 2309-2321, Sep. 2007.

59. A. L. Cunha and M. N. Do, "On two-channel filter banks with directional vanishing moments," *IEEE Transactions on Image Processing*, vol. 16, no. 5, pp. 1207-1219, May 2007.

60. Y. M. Lu and M. N. Do, "Multi-dimensional directional filter banks and surfacelets," *IEEE Transactions on Image Processing*, vol. 16, no. 4, pp. 918-931, Apr. 2007.

61. D. Xu and M. N. Do, "On the number of rectangular tilings," *IEEE Transactions on Image Processing*, vol. 15, no. 10, pp. 3225-3230, Oct. 2006.

62. J. Zhou and M. N. Do, "Multidimensional multichannel FIR deconvolution using Gröbner bases," *IEEE Transactions on Image Processing*, vol. 15, no. 10, pp. 2998-3007, Oct. 2006.

63. A. L. Cunha, J. Zhou, and M. N. Do, "The nonsubsampled contourlet transform: Theory, design, and applications," *IEEE Transactions on Image Processing*, vol. 15, no. 10, pp. 3089-3101, Oct. 2006.

64. Y. Huang, I. Pollak, M. N. Do, and C. A. Bouman, "Fast search for best representations in multitree dictionaries," *IEEE Transactions on Image Processing*, vol. 15, no. 7, pp. 1779-1793, July 2006.

65. D. D.-Y. Po and M. N. Do, "Directional multiscale modeling of images using the contourlet transform," *IEEE Transactions on Image Processing*, vol. 15, no. 6, pp. 1610-1620, June 2006.

66. Y. Huang, I. Pollak, C.A. Bouman, and M. N. Do, "Best basis search in lapped dictionaries," *IEEE Transactions on Signal Processing*, vol. 54, no. 2, pp. 651- 664, Feb. 2006.

67. J. Zhou, M. N. Do, and J. Kovacevic, "Special paraunitary matrices, Cayley transform, and multidimensional orthogonal filter banks," *IEEE Transactions on Image Processing*, vol. 15, no. 2, pp. 511-519, Feb. 2006.

68. M. N. Do and M. Vetterli, "The contourlet transform: an efficient directional multiresolution image representation," *IEEE Transactions on Image Processing*, vol. 14, no. 12, pp. 2091-2106, Dec. 2005.

69. J. Zhou, M. N. Do, and J. Kovacevic, "Multidimensional orthogonal filter bank characterization and design using the Cayley transform," *IEEE Transactions on Image Processing*, vol. 14, no. 6, pp. 760-769, June 2005.

70. R. Shukla, P. L. Dragotti, M. N. Do and M. Vetterli, "Rate-distortion optimized tree structured compression algorithms for piecewise smooth images," *IEEE Transactions on Image Processing*, vol. 14, pp. 343-359, Mar. 2005.

71. C. Xu, D. L. Marks, M. N. Do, and S. A. Boppart, "Separation of absorption and scattering profiles in spectroscopic optical coherence tomography using a least-squares algorithm," *Optics Express*, vol. 12, no. 20, pp. 4790-4803, Oct. 2004.

72. M. N. Do and M. Vetterli, "Framing pyramids," *IEEE Transactions on Signal Processing*, vol. 51, pp. 2329-2342, Sep. 2003.

73. M. N. Do, "Fast approximation of Kullback-Leibler distance for dependence trees and hidden Markov models," *IEEE Signal Processing Letters*, vol. 10, pp. 115-118, Apr. 2003.

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137. R. Shukla, M. N. Do and M. Vetterli, "Best adaptive tiling in a rate-distortion sense," *MSRI Workshop on Nonlinear Estimation and Classification*, Berkeley, Mar. 2001.

138. Z. Pecenovic, M. N. Do, M. Vetterli and P. Pu, "Integrated browsing and searching of large image collections," *International Conference on Visual Information Systems*, pp. 279-289, Lyon, France, Nov. 2000.

139. M. N. Do and M. Vetterli, "Orthonormal finite ridgelet transform for image compression, *IEEE International Conference on Image Processing*, vol. II, pp. 367-370, Vancouver, Canada, Sep. 2000.

140. M. N. Do and M. Vetterli, "Texture similarity measurement using Kullback-Leibler distance on wavelet subbands," *IEEE International Conference on Image Processing*, vol. III, pp. 730-733, Vancouver, Canada, Sep. 2000.

141. M. N. Do and M. Vetterli, "Image denoising using orthonormal finite ridgelet transform," *SPIE Conference on Wavelet Applications in Signal and Image Processing*, San Diego, Aug. 2000.

142. M. N. Do, A. C. Lozano and M. Vetterli, "Rotation invariant texture retrieval using steerable wavelet-domain hidden Markov models," *SPIE Conference on Wavelet Applications in Signal and Image Processing*, San Diego, Aug. 2000.

143. M. N. Do and M. Vetterli, "Orthonormal finite ridgelet transform for image denoising and compression," *NSF-CBMS Conference on Interactions of Harmonic Analysis, Statistical Estimation and Data Compression*, University of Missouri - St. Louis, May 2000.

144. M. N. Do and M. Vetterli, "Wavelet-based texture characterization with application to content-based image retrieval," *Wavelets, Harmonic Analysis and Image Processing Workshop*, Technische Universität München, Germany, Dec. 1999.

145. M. Do, S. Ayer and M. Vetterli, "Invariant image retrieval using wavelet maxima moment," *International Conference on Visual Information and Information Systems*, pp. 451-458, Amsterdam, The Netherlands, June 1999.

146. Z. Pecenovic, M. Do, S. Ayer and M. Vetterli, "New methods for image retrieval," *ICPS'98 Congress on Exploring New Tracks in Imaging*, pp. 242-246, Antwerp, Belgium, Sep. 1998.

147. M. Do, S. Ayer and M. Vetterli, "Invariant image retrieval using wavelet maxima moment," *Wavelet and Applications Workshop - Swiss Science Foundation*, Ascona, Switzerland, Oct. 1998.

148. D. Tran, M. Do, M. Wagner and T.V. Le, "A proposed decision rule for speaker identification based on a posteriori probability," *Workshop on Speaker Recognition and Its Commercial and Forensic Applications*, pp. 85-88, Avignon, France, Apr. 1998.

149. M. Do and M. Wagner, "Speaker recognition with small training requirements using a combination of VQ and DHMM," *Workshop on Speaker Recognition and Its Commercial and Forensic Applications*, pp. 169-172, Avignon, France, Apr. 1998.

Invited Talks

1. "Imaging Genomics," Cornell University, 2019.
2. "Visual Representation and Sensing from Mobile Cameras and Other Information," Qualcomm, 2019.
3. "Visual Sensing and Perception from Mobile and Network Cameras," VinGroup, 2018.
4. "Visual Sensing and Perception from Mobile and Network Cameras," PPG Industries, 2018.
5. "Visual Representation and Sensing from Mobile Cameras and Other Information," Zhejiang University, 2018.
6. "Visual Representation and Sensing from Mobile Cameras and Other Information," Dow AgroSciences, 2017.
7. "Quantifying and Extracting Visual Information from Mobile Devices," Keynote at International Conference on Advanced Technologies for Communications (ATC), Hanoi, Vietnam, Oct. 2016.
8. "Discontinuities-Preserving Image and Motion Coherence: Computational Models and Applications," Half-day tutorial at IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP), Shanghai, China, Mar. 2016.
9. "Visual Correspondences: Modern Techniques and Applications," University of Nevada at Reno, Oct. 2015.
10. "Visual Correspondences: Taxonomy, Modern Approaches and Ubiquitous Applications," Half-day tutorial in IEEE Int. Conf. Multimedia and Expo (ICME), Torino, Italy, Jun. 2015.
11. "Image Filtering 2.0: Efficient Edge-Aware Filtering and Their Applications," Half-day tutorial in IEEE Int. Conf. Image Processing (ICIP), Melbourne, Australia, Sep. 2013.
12. "Immersive Visual Communication," Department of Electrical Engineering, Pennsylvania State University, Apr. 2013.
13. "Immersive Visual Communication," UIUC Beckman Institute Director's Seminar, Nov. 2012.
14. "Immersive Visual Communication with Depth," Microsoft Research Faculty Summit, July 2012.
15. "Immersive Visual Communication with Depth", Global 3D Technology Forum, Seoul, Korea, Oct. 2011.
16. "Immersive Visual Communication with Depth", Microsoft Research, Redmond, June 2011.
17. "Immersive Visual Communication with Depth Cameras and Parallel Computing," National University of Singapore, Mar. 2010.
18. "Using Computational Power to Overcome Physical Limitations in Imaging," Universal Parallel Computing Research Center, UIUC, May 2009.
19. "Imaging for remote reality and computational photography," Agency for Science, Technology and Research (A*STAR), Singapore, Feb. 2009.
20. "Tree-based majorize-minimize algorithm for signal reconstruction with sparse-tree prior," Information Theory and Applications Workshop, University of California at San-Diego, Jan. 2008.

21. “Sampling signals from a union of subspaces,” Department of Mathematics, Vanderbilt University, Nov. 2007.

22. “Sampling signals from a union of subspaces,” SIAM Conference on Imaging Science, Minneapolis, May 2006.

23. “Signal reconstruction from limited number of measurements: theory and algorithms,” Bernoullli Center, Swiss Federal Institute of Technology, Lausanne, Switzerland, Mar. 2006.

24. “Surfacelets and directional filter banks in N-D,” Applied and Computational Mathematics Department, California Institute of Technology, Feb. 2006.

25. “Beyond wavelets: multiscale geometric analysis,” Department of Electrical and Computer Engineering, Carnegie Mellon University, Apr. 2005.

26. “Discrete geometrical image processing using contourlets,” Multiscale Geometry and Analysis in High Dimensions, Institute for Pure and Applied Mathematics (IPAM), University of California at Los Angeles, Sep. 2004.

27. “Discrete geometrical image processing: constructions and algorithms,” Summer School, Institute for Mathematical Research, Swiss Federal Institute of Technology Zürich, Sep. 2004.

28. “Contourlets: construction, approximation, and compression,” SIAM Conference on Imaging Science, Salt Lake City, May 2004.

29. “Beyond wavelets: directional multiresolution image representation,” Department of Electrical and Computer Science, University of California at Berkeley, Nov. 2003.

30. “Beyond wavelets: directional multiresolution image representation,” School of Electrical and Computer Engineering, Purdue University, Apr. 2003.

31. “A filter bank approach for directional multiresolution image representation,” Institute for Pure and Applied Mathematics (IPAM), University of California at Los Angeles, Jan. 2003.

32. “Contourlets: a new directional multiresolution image representation,” Center for Imaging Science Seminar Series, The Johns Hopkins University, Apr. 2002.

33. “Directional bases and frames for image representation,” SIAM Conference on Imaging Science, Boston, Mar. 2002.