

## **Tolga Tasdizen**

Professor of Electrical and Computer Engineering

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University of Utah

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### **EDUCATION**

- Ph.D. in Engineering, Brown University, Providence, RI 2001
- M.S. in Engineering, Brown University, Providence, RI 1997
- B.S. in Electrical Engineering, Bogazici University, Istanbul, Turkey 1995

### **WORK EXPERIENCE**

- Professor, Electrical and Computer Engineering 2018 - present
- Adjunct Associate Professor, Computer Science  
University of Utah, Salt Lake City, UT
- Associate Professor, Electrical and Computer Engineering 2012 - 2018
- Adjunct Associate Professor, Computer Science  
University of Utah, Salt Lake City, UT
- Visiting Faculty, Faculty of Engineering and Natural Sciences 2014 - 2015  
Sabanci University, Istanbul, Turkey
- Assistant Professor, Electrical and Computer Engineering 2008 - 2012
- Adjunct Assistant Professor, Computer Science  
University of Utah, Salt Lake City, UT
- Research Assistant Professor, School of Computing 2004 - 2008  
University of Utah, Salt Lake City, UT
- Postdoctoral Research Scientist, Scientific Computing and Imaging Institute 2001 - 2004  
University of Utah, Salt Lake City, UT

### **RESEARCH INTERESTS**

- Image analysis with machine learning: Semi-and self-supervised learning, domain adaptation and interpretability.
- Applications of deep learning in radiology and pathology: predicting pulmonary function from chest radiographs, using eye tracking and radiological reports as a supervision signal for learning.
- Applications of image analysis and computer vision in public health.
- Material classification and particle segmentation from electron microscopy images.
- Neural circuit reconstruction (connectomics) from electron microscopy image stacks. Automatic methods for fast image registration of very large image mosaics. Deep learning based segmentation of electron microscopy images.

- Implicit and parametric shape models and their applications to segmentation, modeling priors, sampling and tracking. Variational methods for surface and shape processing.

## RESEARCH GRANTS

- **Thermal 3D Detection**  
Role: PI of Utah subcontract  
Funding Agency: USAF  
Award: \$281,849 8/2021-11/2022
- **NNSA Morphology**  
Role: Co-PI  
PI: Luther McDonald  
Funding Agency: DOE  
Award: \$2,760,000 (Tasdizen %24 share) 8/2021-3/2026
- **Novel morphometric and immuno-phenotypic predictors of prognosis in the clear cell renal cell cancer (ccRCC) subtype of kidney cancer**  
Role: Co-I  
Funding Agency: Computational Oncology Research Initiative (CORI), University of Utah  
Award: \$40,000, 2021-22
- **A Computational Pathology Infrastructure for Clinical Outcomes Studies at HCI**  
Role: PI  
Funding Agency: Computational Oncology Research Initiative (CORI), University of Utah  
Award: \$30,000, 2021-22
- **A scalable non-intrusive image annotation method using eye tracking for training deep learning models in radiology**  
Role: PI  
Funding Agency: NIH  
Award: \$395,864, 2020-22
- **AI/CXR Early Warning System for Infectious Respiratory Disease Outbreaks**  
Role: PI  
Funding Agency: University of Utah Health 3i Initiative  
Award: \$25,000, 2020
- **Neighborhood Looking Glass: 360 Degree Automated Characterization of the Built Environment for Neighborhood Effects Research**  
Role: PI of subcontract to the University of Utah  
PI: Quynh Nguyen  
Funding Agency: NIH  
Award: Utah subcontract \$477,484 (Tasdizen %88 share) 2018 - 23
- **Accelerated Nuclear Materials and Fuel Qualification by Adopting a First to Failure Approach**  
Role: PI of subcontract to the University of Utah  
PI: Jeffrey Aguiar  
Funding agency: Idaho National Laboratory LDRD  
Award: \$353,323 (Tasdizen %50 share), 2019 - 21

- **Realizing Multidimensional Imaging and Machine Learning on the Scanning Transmission Electron Microscope**  
 Role: PI of subcontract to the University of Utah  
 PI: Jeffrey Aguiar  
 Funding agency: Idaho National Laboratory LDRD  
 Award: \$582,471, 2018 - 20
- **Joint Radiology and Imaging Sciences and Scientific Computing and Imaging Institute Pilot Grants**  
 Role: PI  
 Funding Agency: Department of Radiology, University of Utah  
 Award: \$60,000, 2017 - 18
- **Machine Learning and Signature Analysis of Nuclear Forensic Data**  
 Role: PI  
 Funding Agency: DHS  
 Award: \$1,513,860, 2016 - 21
- **Multiscale Genetic Connectivity of Primate Social Circuits**  
 Role: Co-Investigator  
 PI: Sarang Joshi, Department of Bioengineering, University of Utah  
 Funding Agency: NIH  
 Award: \$ 3,203,270, 2016-19
- **CAREER: Deep sparse dictionary context models and their application to image parsing and neuron tracking for connectomics**  
 Role: PI  
 Funding Agency: NSF  
 Award: \$409,406, 2012-17
- **SLASH: Scalable Large Analytic Segmentation Hybrid**  
 Role: PI of subcontract to the University of Utah PI: Mark H Ellisman, UCSD  
 Funding agency: NIH NINDS  
 Award \$1,864,741. 2011-15 (Utah subcontract \$612,241)
- **Fluorender: An imaging tool for Visualization and Analysis of Confocal Data as Applied to Zebrafish Research**  
 Role: Co-PI  
 PI: Charles Hansen, School of Computing, University of Utah  
 Funding agency: NIH NIGMS  
 Award \$1,242,833, 2011-16.
- **Multiscale Models of Melting Arctic Sea Ice**  
 Role: co-Investigator PI: Kenneth Golden, Department of Mathematics, University of Utah  
 Funding Agency: Office of Naval Research  
 Award: \$479,316. 2012-15
- **Model-based Reconstruction for Dynamic MRI**  
 Role: Co-Investigator  
 PI: Edward Di Bella, Department of Radiology, University of Utah  
 Funding Agency: NIH

Award: \$410,668. 2007-13

- **Utah GOED TCIP: Haemoscan**

Role: PI

Funding Agency: State of Utah

Award \$40,000, 2012-13

- **The influence of visual context in natural image processing in the primary visual cerebral cortex**

Role: PI

Funding Agency: University of Utah Seed Grant

Award: \$22,500, 2011 - 2012

- **A Computational Framework for Mapping Long Range Genetic Circuits**

Role: co-PI

PI: Julie Korenberg

Funding agency: NIH NINDS

Award: \$996,734. 2009-11

- **A Software Framework for Processing, Visualization, and Analysis of High-Resolution Microscopy Data**

Role: PI

Funding Agency: University of Utah, Technology commercialization program

Award: \$70,000. 2009-11

- **High-Dimensional, Nonparametric Density Estimation for the Analysis of Images and Shapes**

Role: co-PI

PI: Ross Whitaker

Funding Agency: NSF

Program: Mathematical Sciences: Innovations at the Interface with Computer Sciences

Award: \$474,000. 2008-11

- **Large-scale computational reconstruction of three-dimensional neural connectivity from serial-section microscopy**

Role: PI

Funding agency: NIH NIBIB

Award \$1,148,297. 2005-10

- **Prevention of Hemodialysis Vascular Access Stenosis**

Role: Co-PI

PI: Alfred Cheung, Department of Internal Medicine, University of Utah

Funding Agency: NIH

Award: \$2,095,743. 2007-8

## **EQUIPMENT GRANTS**

- **Acquisition of NVIDIA deep learning supercomputer**

Role: PI

Funding Agency: Research Instrumentation Fund, University of Utah

Award: \$93,147, 2017

## HONORS AND AWARDS

- MICCAI 2022 Outstanding Area Chair Award
- The Scientific & Technological Research Council of Turkey (TUBITAK) Fellowship for Visiting Scientists and Scientists on Sabbatical Leave, 2014
- National Science Foundation Early Career Award, 2012
- Invited commentary by A. Cardona on our paper: *E Jurrus, S Watanabe, ARC Paiva, MH Ellisman, EM Jorgensen and T Tasdizen, Semi-Automated Neuron Boundary Detection and Nonbranching Process Segmentation in Electron Microscopy Images, Neuroinformatics, 2012.*
- College of Engineering Outstanding Teacher Award, 2012
- Electrical and Computer Engineering Department Outstanding Researcher Award, 2012
- Electrical and Computer Engineering Department Outstanding Teacher Award, 2011
- Dean's letter for top instructors in the College of Engineering, Fall 2010 (Digital Image Processing)
- Dean's letter for top instructors in the College of Engineering, Spring 2010 (Engineering Probability and Statistics)
- Best paper award MICCAI 2010 MedIA special Issue
- Dean's letter for top instructors in the College of Engineering, Fall 2009 (Estimation Theory)
- Best Student Paper Award Honorable Mention, 15th IEEE Computer Society International Conf. on Pattern Recognition, 2000.

## MEDIA COVERAGE

- Fox-13 local news channel story on studying COVID-19 with Google Street View Images, 9/20/2020.
- Utah Pulse article featuring our NSF Career Award, 10/14/2012.

## PATENTS

- Systems and Methods for Image Classification. Status: Pending. Type: Parent/Utility. Inventors: Tolga Tasdizen, Mojtaba Seyedhosseini. File date 02/05/2016. Assignee: The University of Utah. Country: United States.
- Microscopy Visualization (#9,104,903). Status: Issued. Type: Parent/Utility. Inventors: Steven P. Callahan, Bryan W. Jones, Greg M. Jones, Erik M. Jorgensen, Stan Kanarowski, John Schreiner, Tolga Tasdizen, Shigeki Watanabe, Joshua E. Cates. File date 03/18/2013; Issue date 08/11/2015. Assignee: The University of Utah. Country: United States.
- Methods and Systems for Segmentation of Cells for an Automated Differential Counting System. Status: Expired. Type: Provisional. Inventors: Tolga Tasdizen, Nisha Ramesh. File date 10/12/2011. Assignee: The University of Utah. Country: United States.

- Characterizing Datasets Using Sampling, Weighing, and Approximation of an Eigendecomposition (#8,412,651). Status: Issued. Type: Parent/Utility. Inventors: Antonio R.C. Paiva, Tolga Tasdizen. File date 09/03/2010; Issue date 04/02/2013. Assignee: The University of Utah. Country: United States.
- Image Pattern Recognition. Status: Nationalized PCT. Type: PCT/Provisional Priority. Inventors: Antonio R.C. Paiva, Tolga Tasdizen. File date 11/12/2009. Assignee: The University of Utah. Country: PCT.
- Robust Fingerprint Analysis Using Manifold Topology (#TXu 1-714-664). Status: Issued. Type: Copyright [CR]. Inventors: Tolga Tasdizen. File date 11/21/2008; Issue date 01/16/2009. Assignee: The University of Utah. Country: United States.
- System and Method for Image Segmentation By Solving an Inhomogenous Dirichlet Problem (#7,542,604). Status: Issued. Type: Parent/Utility. Inventors: Leo Grady, Tolga Tasdizen, Ross T. Whitaker. File date 08/17/2005; Issue date 06/02/2009. Assignee: The University of Utah. Country: United States.

## **INVENTION DISCLOSURES**

- Intelligent Damage Classification and Estimation in Power Distribution Poles Using Unmanned Aerial Vehicles and Convolutional Neural Networks, U-6831
- Automated Chromosome Analysis (Karyotyping), U-6340
- Scene Modeling with Contextual Hierarchical Models for Biologic Image Segmentation and Labeling, U-5753
- Multi-Dimensional Data Registration, Navigation and Visualization Package, University of Utah Invention Disclosure, U-5328.
- Segmentation and Classification of Blood Cells for an Automated Differential Blood Count System, University of Utah Invention Disclosure, U-5185
- Weighted Novelty Selection for Fast Kernel and Graph Methods, University of Utah Invention Disclosure, U-4920.
- Robust Fingerprint Analysis Using Manifold Topology, University of Utah Invention Disclosure, U-4549.
- IR-Tweak, IR-Mosaic, University of Utah Invention Disclosure, U-4275.
- Implicit Surface Representations for Fluids from Particle Simulations, University of Utah Invention Disclosure, U-4128.
- An Advanced Solver for the Diffusion Equation with Spatially Varying Coefficients, University of Utah Invention Disclosure, U-3750.

## **PROFESSIONAL ACTIVITIES (in chronological order)**

- Editorial
  - Senior Area Editor, IEEE Transactions on Image Processing, 2019 - 2022
  - Associate Editor, IEEE Transactions on Image Processing, 2016 - 2019

- Guest Editor, IEEE Transactions on Big Data: Special Issue on Biomedical Big Data: Understanding, Learning and Applications, 2018
- Guest Editor, Springer Machine Vision and Applications Special Issue on Learning and Understanding of Biomedical Big Data, 2018
- Associate Editor, IEEE Signal Processing Letters, 2012 - 2016
- Associate Editor, BMC Bioinformatics, 2012 - 2014
- Technical Committee
  - IEEE Signal Processing Society, Bio imaging and Signal Processing (BISP) Technical Committee Member, 2012-2017
  - IEEE Signal Processing Society, Bio imaging and Signal Processing (BISP) Technical Committee Awards Subcommittee Member, 2012-2013
  - IEEE Signal Processing Society, Bio imaging and Signal Processing (BISP) Technical Committee Associate Member, 2009-2011
- Conference Organization
  - Associate Editor, ISBI 2015 - 2017, 2021, 2022
  - Area and Session Chair, MICCAI 2020, 2021
  - Program Committee, Computer Vision for Microscopy Image Analysis (CVMI), 2017-20
  - Senior Program Committee member BioImage Informatics Conference 2017
  - Program Committee SIU 2015, 2016, 2017
  - Program Committee VISAPP 2012, 2015, 2017, 2018
  - Program Committee VipIMAGE 2013
  - Track area chair and session chair 20<sup>th</sup> International Conference on Pattern Recognition; *Pattern Recognition and Machine Learning Track*, 2010
  - Program Committee CompIMAGE 2010, 2012
  - Program Committee IMAGAPP 2010
  - Program Committee Microscopic Image Analysis with Applications in Biology (MIAAB) 2011
  - Program Chair, Fourth International Workshop on *Microscopic Image Analysis with Applications in Biology*, NIH Campus, Bethesda, MD, 2009.
  - Session Chair 6<sup>th</sup> IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro; *Electron Microscopy* session, 2009.
  - Organizing committee, MICCAI 2008 Workshop: *Microscopic Image Analysis with Applications in Biology*.
  - Program committee, MICCAI 2006 Workshop: *Microscopic Image Analysis with Applications in Biology*.
  - Scientific committee, VI International Congress on Computational Bioengineering
- Funding Agency Service
  - NIH CIHB study section ad-hoc reviewer, October 2021.

- NIH IGIS study section member, February & June 2019, February & October 2020, February 2021.
- NIH Zebrafish study section member, 2014.
- NIH P41 Scientific Review Panel Member, 2012
- NSF Robust Intelligence, Review Panel Member, 2011.
- NSF/NIH *Collaborative Research in Computational Neuroscience* program, Review Panel Member, 2006, 2008, 2009 and 2010.
- Journal reviewing: IEEE Transactions on Image Processing, IEEE Transactions on Medical Imaging, IEEE Transactions on Pattern Analysis and Machine Intelligence, Medical Image Analysis, IEEE Transactions on Visualization and Computer Graphics, Journal of Neuroscience Methods, IEEE Reviews in Biomedical Engineering, Journal of Mathematical Imaging and Vision, Pattern Analysis and Applications, ACM Solid Modeling, SIAM Journal of Scientific Computing, VisSym, Journal of Electronic Imaging, The Visual Computer, Elsevier Methods, Pattern Recognition Letters, Neuron.
- Conference Reviewing: NeurIPS (2019,2020,2021), ICLR (2021,2022), ICML (2021), ISBI, MICCAI, CVPR (2019,2020), ICCV (2019), ECCV (2018), ICIP, ICASSP, IEEE Visualization, Eurographics, SIGGRAPH
- Other
  - Judge, Bench to Bedside Competition, 2016, 2017, Salt Lake City, UT.
  - PhD external examiner at University College London 2013 (Martin O'Reilly October 8, 2013)
  - PhD external examiner at University of Eastern Finland 2021 (Ali Abdollahzadeh, December 3, 2021)
  - IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, Lunch with Leaders event participant, Barcelona, 2012.
  - Imaging and Computer in the Loop breakout session speaker, Opportunities in Biology at the Extreme Scale of Computing, Chicago, 2009.

## INTERNAL SERVICE

- College of Engineering RPT Committee, 2020-22
- SCI Director Search Committee 2020
- ECE Faculty Search Committee (Chair), 2019-2020
- ECE Undergraduate Committee (Chair) - 2017 - 2019
- ECE Undergraduate Committee (Member), 2015 - 2016
- Undergraduate Research Opportunities Program (UROP) Review Committee (Member), 2015 - 2018
- ECE Graduate Committee (Member), 2012 - 2015
- ECE Graduation and Admissions Committee (Member), 2010 - 2015
- ECE Faculty Search Committee (Member), 2012-2014
- College Council, 2010 - 2013



## MEMBERSHIPS

- Senior Member IEEE, IEEE Signal Processing Society and IEEE Computer Society

## TEACHING

- *Advanced Topics in Deep Learning*, Graduate level, University of Utah, Fall 2021.
- *Deep Learning for Image Analysis*, Graduate level, University of Utah, Spring 2019, Spring 2021, Spring 2023.
- *Digital Signal Processing*, Graduate and undergraduate level, University of Utah, Spring 2016, Spring 2017, Spring 2018.
- *Pattern Recognition*, Graduate level, Electrical and Computer Engineering, University of Utah, Spring 2014.
- *Estimation Theory*, Graduate level, Electrical and Computer Engineering, University of Utah, Fall 2009, Fall 2011.
- *Engineering Probability and Statistics*, Undergraduate level, Electrical and Computer Engineering, University of Utah, Spring 2009, Spring 2010, Spring 2011, Spring 2012 and Spring 2013.
- *Digital Image Processing*, Graduate level, Electrical and Computer Engineering, University of Utah, Fall 2008, Fall 2010, Fall 2013, Fall 2015, Fall 2016, Fall 2017, Fall 2019, Fall 2022.
- *Machine Learning*, Graduate and Undergraduate level, Computer Science, University of Utah, Spring 2006.
- *Image Analysis Seminar*, University of Utah, Fall 2015, Spring 2016, Fall 2020, Spring 2023.
- *Scientific Computing and Imaging Seminar*, University of Utah, Fall 2007, Spring 2008.

## Ph.D. STUDENTS GRADUATED

- Ricardo Lanfredi (2022), ECE, *Rich Information Exchange For Deep Chest X-Ray Analysis: Visual Interpretability And Weak Gaze Supervision*
- Nhat-Cuong Ly, (2022), ECE, *Improving Characterization of Surface Structures Captured in SEM Images with Convolutional Neural Networks*
- Mehran Javanmardi (2019), CS, *Learning Deep Models Under Constraints Of Annotated Data Insufficiency*
- Nisha Ramesh (2018), ECE, *Detection, Segmentation, And Tracking Of Cells In Microscopy Images*
- Fitsum Mesadi (2017), ECE, *Disjunctive Normal Shape Models For Image Segmentation And Tracking*
- Mehdi Sajjadi (2017), ECE, *Improving Accuracy Of Learning Models Using Disjunctive Normal Form And Semi-Supervised Learning*
- Ting Liu (2016), CS, *Image Segmentation with Hierarchical Models*
- Cory Jones (2016), ECE, *Connectomics: A semi-automatic approach*

- Srikant Kamesh Iyer (2016), ECE, *Improved Total Variation Reconstruction Methods for Cardiac Magnetic Resonance Imaging*
- Mojtaba Seyedhosseini (2014), ECE, *Scene Labeling with Supervised Contextual Models*
- Elizabeth Jurrus (2011), CS, *Segmentation of Neurons from Electron Microscopy Images*

#### **M.S. STUDENTS GRADUATED**

- Amir Nazem, M.S. in Computer Science (2021), *non-thesis option*.
- Meenakshi Barjatia, M.S. in Electrical and Computer Engineering (2014), *Analysis and Segmentation of Arctic Melt Pond Images*.
- Nisha Ramesh, M.S. in Electrical and Computer Engineering (2012), *Segmentation and Classification of Blood Cells for an Automated Differential Blood Count System*.
- Bradley Grimm, M.S. in Computer Science (2011), *non-thesis option*.
- Kannan Umadevi Venkataraju, M.S. Computer Science (2010), *Automatic Markup of Neural Cell Membranes Using Boosted Decision Stumps*.
- Deepak Antony, M.S. in Computational Engineering and Science (2009), *non-thesis option*.
- Samuel Preston, M.S. Computer Science (2009), *Processing of MRI Data for Simulation and Monitoring of Drug Delivery*.
- Neda Sadeghi, M.S. in Computational Engineering and Science (2008), *Automatic Classification of Alzheimer's Disease and Frontotemporal Dementia: A Decision Tree Approach with FDG-PET imaging*.

#### **CURRENT GRADUATE STUDENTS**

- Mitra Alirezai, Ph.D. candidate Electrical and Computer Engineering
- Jakob Johnson, Ph.D. candidate Computer Science
- Bodong Zhang, Ph.D. candidate Electrical and Computer Engineering
- Elham (Zahra) Ghelichkhan, Ph.D. candidate Computer Science

#### **POSTDOCTORAL RESEARCHERS**

- Jess Tate, Ph.D.
- Antonio R. Paiva, Ph.D.

#### **VISITING FACULTY**

- Jia Wei, PhD

#### **PAST AND CURRENT UNDERGRADUATE STUDENT PROJECTS**

- Salwa Ibrahim Bukhari, Radiologist eye tracking system, Spring, Summer, Fall 2020.
- Ayesha Khan, Characterization of COVID imaging patterns in CXRs, Summer 2020.

- Samuel Colby and Tyler Thompson, Visual feature attribution for nuclear material images, Summer 2019.
- Ada Toydemir, USC, Generating images of nuclear material with deep texture synthesis, Summer 2019.
- Andrew Radford, School of Computing, Nuclear forensics database, Summer 2018.
- Emmanuel Cardenas, Electrical and Computer Engineering, Roof structure analysis with deep learning for solar panel installation, 2018-19.
- Joshua Ong, Electrical and Computer Engineering, *Resolution matching of SEM images for nuclear material classification with convolutional networks*, 2017-18.
- Yincheng Cheng, Wangye Yin, Yuxiao Huo, Electrical and Computer Engineering, *Interactive segmentation of Electron Microscopy Image Stacks*
- Jason Thummel, School of Computing, *Vesicle Detection for Electron Microscopy Images with ImageJ*
- Michael Yang, Electrical and Computer Engineering, *User Interface for Neural Circuit Reconstruction from Electron Microscopy*

## PUBLICATIONS

### • Book Chapter

1. Nizinski, C., Ly, C., McDonald, L., Tasdizen, T. Computational Image Techniques for Analyzing Lanthanide and Actinide Morphology. Rare Earth Elements and Actinides: Progress in Computational Science Applications. Penchoff, D. A., Windus, T. L., Peterson, C. C. Eds.; ACS Symposium Series; American Chemical Society: Washington, DC, 2021; Vol. 1388, Chapter 6
2. N Ramesh and T Tasdizen, Detection and Segmentation in Microscopy Images, in *Computer Vision for Microscopy image Analysis*, pp. 43-72, Elsevier, ed. M Chen, Elsevier, December 2020.
3. T Tasdizen, SM Seyedhosseini, T Liu, C Jones and E Jurrus, Image segmentation for connectomics using machine learning, in *Computational Intelligence in Biomedical Imaging*, pp 237–278, ed. K Suzuki, Springer New York, 2014

### • Journal

1. Ricardo Bigolin Lanfredi, Joyce D Schroeder, Tolga Tasdizen, Localization supervision of chest x-ray classifiers using label-specific eye-tracking annotation, submitted to Frontiers in Radiology
2. C Ly, CA Nizinski, C Vachet, LW McDonald IV and T Tasdizen, Improving Robustness for Model Discerning Synthesis Process of Uranium Oxide with Unsupervised Domain Adaptation, submitted to Computational Materials Science.
3. RB Lanfredi, JD Schroeder, and T Tasdizen, Quantifying the Preferential Direction of the Model Gradient in Adversarial Training With Projected Gradient Descent, submitted to Pattern Recognition

4. Hu, Ming, Kai Zhang, Quynh Camthi Nguyen, Tolga Tasdizen, and Krupali Uplekar Krusche. 2022. "A Multistate Study on Housing Factors Influential to Heat-Related Illness in the United States" *International Journal of Environmental Research and Public Health* 19, no. 23: 15762. <https://doi.org/10.3390/ijerph192315762>
5. X Yue, A Antonietti, M Alirezai, T Tasdizen, D Li, L Nguyen, H Mane, A Sun, M Hu, RT Whitaker and QC Nguyen, Using Convolutional Neural Networks to Derive Neighborhood Built Environments from Google Street View Images and Examine Their Associations with Health Outcomes, *International Journal of Environmental Research and Public Health*, 2022.
6. RB Lanfredi, M Zhang, WF Auffermann, J Chan, P-A T Duong, V Srikumar, T Drew, JD Schroeder and T Tasdizen, REFLACX, a dataset of reports and eye-tracking data for localization of abnormalities in chest x-rays, *Nature Scientific Data*, 9:350, June 2022.
7. M Grant, MR Kunz, K Iyer, LI Held, T Tasdizen, JA Aguiar, and Pratik P Dholabhai, Integrating atomistic simulations and machine learning to design multi-principal element alloys with superior elastic modulus, *Journal of Materials Research, Springer International Publishing*, pp. 1-16, April 2022
8. C Nizinski, C Ly, C Vachet, A Hagen, T Tasdizen and LW McDonald IV, Characterization of Uncertainties and Model Generalizability for Convolutional Neural Network Predictions of Uranium Ore Concentrate Morphology, *Chemometrics and Intelligent Laboratory Systems*, vol 225, June 2022.
9. QC Nguyen, T Belnap, P Dwivedi, AHN Deligani, A Kumar, D Li, RT Whitaker, J Keralis, H Mane, X Xue, TT Nguyen, T Tasdizen and KD Brunisholz, Google Street View images as predictors of patient health outcomes 2017-2019, *Special Issue: Machine and Deep Learning in Computer Vision Applications, Big Data Cogn. Comput.* 2022, 6(1), 15
10. TT Nguyen, QC Nguyen, A Rubinsky, T Tasdizen, AHN Deligani, P Dwivedi, R Whitaker, JD Fields, MC DeRouen, H Mane, C Lyles, K Brunisholz, K Bibbins-Domingo, Google Street View derived neighborhood characteristics in San Francisco associated with coronary heart disease, hypertension, diabetes, *IJERPH* 18:19, 2021.
11. C Ly, CA Nizinski, A. Toydemir, C Vachet, LW McDonald IV and T Tasdizen, Determining the Composition of a Mixed Material with Synthetic Data, *Microscopy and Microanalysis*, Cambridge University Press, p. 1-11, 2021
12. Nicholas Petrick, Shazia Akbar, Kenny H. Cha, Sharon Nofech-Mozes, Berkman Sahiner, Marios A. Gavrielides, Jayashree Kalpathy-Cramer, Karen Drukker, Anne L. Martel, for the BreastPathQ Challenge Group, "SPIE-AAPM-NCI BreastPathQ challenge: an image analysis challenge for quantitative tumor cellularity assessment in breast cancer histology images following neoadjuvant treatment," *J. Med. Imag.* 8(3) 034501 (8 May 2021)
13. V Keshavarzzadeh, M Alirezai, T Tasdizen and R Kirby, Image-Based Multiresolution Topology Optimization using Deep Disjunctive Normal Shape Model, *Computer-Aided Design*, vol 130, January 2021.
14. JD Schroeder, RB Lanfredi, T Li, J Chan, C Vachet, R Paine III, V Srikumar and T Tasdizen, Enhanced Prediction of Obstructive Lung Disease from Chest Radiographs via Deep Learning Trained on Pulmonary Function Data: Comparison to Radiologist Text Reports, Vol 15:3455, *International Journal of Chronic Obstructive Pulmonary Disease*, 2020
15. QC Nguyen, Y Huang, H Duan, A Kumar, JM Keralis, P Dwivedi, H-W Meng, KD Brunisholz, J Jay, M Javanmardi and T Tasdizenn, Using 164 million Google Street View images to derive built environment predictors of COVID-19 cases, *International Journal of Environmental Research and Public Health* 2020, 17(17), 6359; doi:10.3390/ijerph17176359

16. QC Nguyen, M Javanmardi, J Keralis, A Ng, S Khanna, P Dwivedi, KD Brunisholz, Y Huang and T Tasdizen, Leveraging 31 million Google Street View images to characterize built environments and examine county health outcomes, *Public Health Reports*, 136:2, 201-211, 2021.
17. C Nizinski, B Fullmer, N Mecham, T Tasdizen and L McDonald IV, Effects of process history on the surface morphology of uranium ore concentrates extracted from ore, *Minerals Engineering*, vol 156, September 2020.
18. J Wei, W Yuan, J Wang, Q Ma and T Tasdizen, Unified generative adversarial networks for multimodal segmentation from unpaired 3D medical images, *Medical image Analysis*, vol 64, August 2020.
19. MM Hosseini, A Ummunnakwe, M Parvania and T Tasdizen, Intelligent Damage Classification and Estimation in Power Distribution Poles Using Unmanned Aerial Vehicles and Convolutional Neural Networks, *IEEE Transactions on Smart Grid*, 11:4, pp 3325-3333, July 2020. DOI 10.1109/TSG.2020.2970156
20. L Phan , W Yu , J Keralis , K Mukhija , P Dwivedi , K Brunisholz , M Javanmardi , T Tasdizen and Q Nguyen, Google Street View Derived Built Environment Indicators and Associations with State-level Obesity, Physical Activity, and Chronic Disease Mortality in the United States, *International Journal of Environmental Research and Public Health*, 17:10, May 2020.
21. C Ly, C Vachet, I Schwerdt, E Abbott, A Brenkmann, L McDonald IV and T Tasdizen, Determining Uranium Ore Concentrates and Their Calcination Products via Image Classification of Multiple Magnifications, *Journal of Nuclear Materials*, March 2020. DOI: 10.1016/j.jnucmat.2020.152082
22. JM Keralis, M Javanmardi, S Khanna, P Dwivedi, D Huang, T Tasdizen and QC Nguyen, Health and the built environment in U.S. cities: Measuring associations using Google Street View-derived indicators of the built environment, *BMC Public Health* 20, 215, February 2020. DOI: 10.1186/s12889-020-8300-1
23. JA Aguiar, ML Gong and T Tasdizen, Crystallographic prediction from diffraction and chemistry data for higher throughput classification using machine learning, *Computational Materials Science*, vol 173, February 2020. <https://doi.org/10.1016/j.commatsci.2019.109409>
24. M Javanmardi, D Huang, P Dwivedi, S Khanna, K Brunisholz, R Whitaker, Q Nguyen and T Tasdizen, Analyzing Associations Between Chronic Disease Prevalence and Neighborhood Quality Through Google Street View Images, *IEEE Access*, vol 8, pp 6407 - 6416, December 2019 DOI 10.1109/ACCESS.2019.2960010
25. E Erdil, S Yildirim, T Tasdizen and M Cetin, Pseudo-marginal MCMC Sampling for Image Segmentation using Nonparametric Shape Priors, *IEEE Trans Image Processing*, 28:11 pp. 5702-5715, November 2019. DOI 10.1109/TIP.2019.2922071
26. JA Aguiar, ML Gong, D Masiel, B Reed, B Miller, and T Tasdizen, Decoding Crystallography from High Resolution Electron Imaging and Diffraction Datasets with Deep learning, *Science Advances*, October 2019.
27. N Ramesh and T Tasdizen, Cell segmentation using multi-task learning with a convolutional neural networks, *IEEE Journal of Biomedical and Health Informatics*, 23:4, pp. 1457–68, July 2019. DOI 10.1109/JBHI.2018.2885544
28. A Hanson, R Lee, C Vachet, I Schwerdt, T Tasdizen, LW McDonald, Quantifying Impurity Effects on the Surface Morphology of U<sub>3</sub>O<sub>8</sub>, *Analytical Chemistry*, June 2019. DOI 10.1021/acs.analchem.9b02013

29. J Wei, J Wang, Q Ma, S Zhe, T Tasdizen, Graph Constraint-Based Robust Latent Space Low-Rank and Sparse Subspace Clustering, Neural Computing and Applications, June 2019. DOI 10.1007/s00521-019-04317-3
30. Q Nguyen, S Khanna, P Dwivedi, D Huang, Y Huang, T Tasdizen, K Brunisholz, F Li, W Gorman, TX Nguyen and C Jiang, Using Google Street View to Examine Associations between Built Environment Characteristics and U.S. Health Outcomes, Vol 14, pp 100859, Elsevier Preventive Medicine Reports, June 2019. DOI 10.1016/j.pmedr.2019.100859
31. ST Heffernan, N-C Ly, BJ Mowera, C Vachet, IJ Schwerdt, LW McDonald IV, T Tasdizen, Identifying Surface Morphological Characteristics to Differentiate Between Mixtures of U<sub>3</sub>O<sub>8</sub> Synthesized from Ammonium Diuranate and Uranyl Peroxide, Radiochimica Acta, May 2019. DOI 10.1515/ract-2019-3140
32. EC Abbott, A Brenkmann, C Galbraith, J Ong, IJ Schwerdt, BD Albrecht, T Tasdizen and LW McDonald, Dependence of UO<sub>2</sub> Surface Morphology on Synthetic Route, Radiochimica Acta, April 2019. DOI 10.1515/ract-2018-3065
33. C Ly, I Schwerdt, A Olsen, R Porter, K Sentz, L McDonald and T Tasdizen, A New Approach for Quantifying Morphological Features of U<sub>3</sub>O<sub>8</sub> for Nuclear Forensics using A Deep Learning Model, Journal of Nuclear Materials, February 2019. DOI 10.1016/j.jnucmat.2019.01.042
34. IJ Schwerdt, A Brenkmann, S Martinson, BD Albrecht, S Heffernan, MR Klosterman, T Kirkham, T Tasdizen and L McDonald, Nuclear proliferomics: A new field of study to identify signatures of nuclear materials as demonstrated on alpha-UO<sub>3</sub>, Talanta, Vol 186, pp. 433-444, August 2018.
35. Q Nguyen, T Nguyen, W Yu, M Pham, M McCullough, H-W Meng, M Wen, F Li, K Smith, K Brunisholz, M Sajjadi and T Tasdizen, Neighborhood Looking Glass: 360 Degree Automated Characterization of the Built Environment for Neighborhood Effects Research, J Epidemiol Community Health. 2018 Mar;72(3):260-266. doi: 10.1136/jech-2017-209456.
36. F Mesadi, E Erdil, M Cetin and T Tasdizen, Image Segmentation Using Disjunctive Normal Appearance and Shape Priors, IEEE Trans Medical Imaging, 37:1 pp. 193-305, January 2018. DOI 0.1109/TMI.2017.2756929
37. E Erdil, M Ghani, L Rada, AO Argunsah, D Unay, T Tasdizen and M Cetin, Nonparametric Joint Shape and Feature Priors for Image Segmentation, IEEE Trans Image Processing, 26:11 pp. 5312 - 5323, July 2017. DOI 10.1109/TIP.2017.2728185
38. N Ramesh, T Liu and T Tasdizen, Cell Detection Using Extremal Regions in a Semi-Supervised Learning Framework, Journal of Healthcare Engineering, vol. 2017, Article ID 4080874, 13 pages, 2017. DOI:10.1155/2017/4080874.
39. F Mesadi, M Cetin and T Tasdizen, Disjunctive Normal Parametric Level Set With Application to Image Segmentation, IEEE Trans Image Processing, 26:6, pp. 2618 - 2631, March 2017.
40. MU Ghani, SD Kanik, AO Argunsah, A Hobbiss, I Israely, D Unay, F Mesadi, T Tasdizen and M Cetin, Dendritic Spine Classification using Shape and Appearance Features based on Two-Photon Microscopy, J Neuroscience Methods, December 2016.
41. M Sajjadi, SM Seyedhosseini and T Tasdizen, Disjunctive Normal Networks, 218(19):276-285, Neurocomputing, December 2016.
42. T Liu, SM Seyedhosseini and T Tasdizen, Image Segmentation Using Hierarchical Merge Tree, 25(10): 4596–4607, IEEE Trans Image Processing, October 2016

43. SK Iyer, T Tasdizen, N Burgon, E Kholmovski, N Marrouche, G Adluru and EVR DiBella, Compressed sensing for rapid late gadolinium enhanced imaging of the left atrium: A preliminary study, *Magnetic Resonance Imaging*, 34(7): 846–854, 2016.
44. SK Iyer, T Tasdizen, D Likhite and EVR DiBella, Split Bregman Multicoil Accelerated Reconstruction Technique (SMART): A new framework for rapid reconstruction of cardiac perfusion MRI, *Medical Physics*, 43(4):1969–1981, April, 2016.
45. SM Seyedhosseini and T Tasdizen, Semantic Image Segmentation with Contextual Hierarchical Models, *IEEE PAMI*, 38(5):951–964, May 2016.
46. M Barjatia, T Tasdizen, B Song and KM Golden, Network Modeling of Arctic Melt Ponds, *Cold Regions Science and Technology*, 124:40-53, April 2016.
47. I Arganda-Carreras, SC Turaga, DR Berger, D Ciresan, A Giusti, LM Gambardella, J Schmidhuber, D Laptev, S Dwivedi, J Buhmann, T Liu, M Seyedhosseini, T Tasdizen, L Kametsky, R Burget, V Uher, X Tan, C Sun, TD Pham, E Bas, MG Uzunbas, A Cardona, J Schindelin, HS Seung, Electron Microscopy Challenge: Crowdsourcing the creation of machine intelligence for connectomics, *Frontiers in Neuroanatomy*, 9:00142, November, 2015.
48. M Sajjadi, SM Seyedhosseini and T Tasdizen, Nonlinear regression with logistic product basis networks, 22:8, pp 1011–1015, *IEEE Signal Processing Letters*, August 2015.
49. C Jones, T Liu, NW Cohan, MH Ellisman and T Tasdizen, Efficient Semi-Automatic 3D Segmentation for Neuron Tracing in Electron Microscopy Images, *J Neuroscience Methods*, 246:13–21, May 2015.
50. SM Seyedhosseini, S Shushruth, T Davis, JM Ichida, PA House, B Greger, A Angelucci and T Tasdizen, Informative features of local field potential signals in primary visual cortex during natural image stimulation, *J Neurophysiology* 113(5):1520-32, March 2015.
51. SM Seyedhosseini and T Tasdizen, Disjunctive Normal Random Forests, *Pattern Recognition* 48:3, pp 976–983, March 2015.
52. AJ Perez, SM Seyedhosseini, TJ Deerinck, EA Bushong, T Tasdizen and MH Ellisman, A Workflow for the Automatic Segmentation of Organelles in Electron Microscopy Image Stacks, *Frontiers in Neuroanatomy*, 8:126, 2014. In e-book *Quantitative Analysis of Neuroanatomy*.
53. T Liu, C Jones, SM Seyedhosseini and T Tasdizen, A Modular Hierarchical Approach to 3D Electron Microscopy Image Segmentation, *J Neuroscience Methods*, 226, pp. 88-102, 2014.
54. SM Seyedhosseini, MH Ellisman and T Tasdizen, Multi-Class Multi-Scale Series Contextual Model for Image Segmentation, *IEEE Trans Image Processing*, 22:11 pp. 4486–4496, November 2013.
55. E Jurrus, S Watanabe, ARC Paiva, MH Ellisman, EM Jorgensen and T Tasdizen, Semi-Automated Neuron Boundary Detection and Nonbranching Process Segmentation in Electron Microscopy Images, *Neuroinformatics*. 2013 Jan;11(1):5-29
56. ARC Paiva and T Tasdizen, Fingerprint Image Segmentation using Data Manifold Characteristic Features, *International Journal of Pattern Recognition and Artificial Intelligence*, 26:4, pp 12560, 2012.
57. L Hogrebe, ARC Paiva, E Jurrus, C Christensen, M Bridge, JR Korenberg, PR Hof, B Roysam, T Tasdizen, Serial Section Registration of Axonal Confocal Microscopy Datasets for Long Range Neural Circuit Reconstruction, *Journal of Neuroscience Methods* 207, pp. 200-210, June 2012.

58. N Ramesh, BJ Dangott, M Salama and T Tasdizen, Segmentation and Two-Step Classification of White Blood Cells in Peripheral Blood Smear, *Journal of Pathology Informatics* 3:13, 2012.
59. SK Iyer, T.Tasdizen and EVR DiBella, Edge Enhanced Spatio-Temporal Constrained Reconstruction of Undersampled Dynamic Contrast Enhanced Radial MRI, *Magnetic Resonance Imaging* 30, pp. 610-619, 2012
60. ML Berlanga, S Phan, EA Bushong, S Lamont, S Wu, O Kwon, BS Phung, M Terada, T Tasdizen, E Martone and MH Ellisman, Three-dimensional reconstruction of serial mouse brain sections using high-resolution large-scale mosaics, *Frontiers in Neuroscience Methods*, Vol 5, March 2011.
61. JR Anderson, BW Jones, CB Watt, MV Shaw, J.-H Yang, D DeMill, JS Lauritzen, Y Lin, KD Rapp, D Mastonarde, P Koshevoy, B Grimm, T Tasdizen, RT Whitaker and RE Marc, Exploring the Retinal Connectome, *Molecular Vision*, 17:355-379, February 2011.
62. JR Anderson, BC Grimm, S Mohammed, BW Jones, T Tasdizen, J Spaltenstein, P Koshevoy, RT Whitaker and RE Marc, The Viking Viewer: Scalable Multiuser Annotation and Summarization of Large Volume Datasets, *Journal of Microscopy*, 241(1), pp. 13-28, January 2011.
63. E Jurrus and ARC Paiva, S Watanabe, JR Anderson, BW Jones, RT Whitaker, EM Jorgensen, RE Marc and T Tasdizen, Detection of Neuron Membranes in Electron Microscopy Images using Auto-context, *Medical Image Analysis*, 14:6, pp. 770-783, December 2010
64. G Adluru, T Tasdizen, M Schabel and EVR DiBella, Reconstruction of 3D Dynamic Contrast Enhanced MRI using Non-Local Means, *Journal of Magnetic Resonance Imaging*, 32(5), pp. 1217-27, November 2010
65. T Tasdizen, P Koshevoy, BC Grimm, JR Anderson, BW Jones, CB Watt, RT Whitaker and RE Marc, Automatic mosaicking and volume assembly for high-throughput serial-section transmission electron microscopy, *Journal of Neuroscience Methods*, 193(1): 132-44, October 2010
66. S Gerber, T Tasdizen, PT Fletcher, S Joshi, RT Whitaker and the Alzheimers Disease Neuroimaging Initiative (ADNI), Manifold modeling for brain population analysis, *Medical Image Analysis*, Volume 14, Issue 5, Special Issue on the 12th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2009, October 2010, Pages 643-653. **Best paper of the special issue award.**
67. C Schlimper, O Nemitz, U Dorenbeck, J Scorzin, RT Whitaker, T Tasdizen, M Rumpf and K Schaller, Restoring three-dimensional magnetic resonance angiography images with mean curvature motion, *Neurological Research*, vol. 32, no. 1, pp. 87-93, February 2010.
68. T Tasdizen, Principal Neighborhood Dictionaries for Non-local Means Image Denoising, *IEEE Transactions on Image Processing*, vol. 18, no. 12., pp. 2649-60, December 2009. **Top third accessed paper in IEEE Xplore in November 2009.**
69. JR Anderson, BW Jones, J-H Yang, CB Watt, P Koshevoy, J Spaltenstein, UV Kannan, RT Whitaker, D Mastronarde, T Tasdizen and RE Marc, A Computational Framework for Ultrastructural Mapping of Neural Circuitry, *PLoS Biology*, vol. 7, no. 3, pp. e74, March 2009.
70. JS Preston, T Tasdizen, CM Terry, AK Cheung and RM Kirby, Using the Stochastic Collocation Method for the Uncertainty Quantification of Drug Concentration due to Depot Shape Variability, *IEEE Trans. Biomedical Engineering*, Vol. 56, no. 3, pp. 609-619, March 2009.



71. E Jurrus, T Tasdizen, P Koshevoy, PT Fletcher, M Hardy, C Chien, W Denk, and RT Whitaker, Axon Tracking in Serial Block-Face Scanning Electron Microscopy, *Medical Image Analysis*, Volume 13, Issue 1, pp. 180-188, February 2009.
72. N Sadeghi, NL Foster, AY Wang, S Minoshima, AP Lieberman and T Tasdizen, Automatic Diagnostic Classification of Dementia with FDG-PET Using a Spatial-Decision Tree Approach, *Alzheimer's and Dementia The Journal of the Alzheimer's Association*, Vol 4:4, Suppl. 1, T28, July 2008.
73. NL Foster, AY Wang, T Tasdizen, PT Fletcher, JM Hoffman and RA Koeppe, Realizing the potential of positron emission tomography with F-fluorodeoxyglucose to improve the treatment of Alzheimer's disease, *The Journal of the Alzheimer's Association*, Vol 4:1, Suppl. 1, pp. 29–36, January 2008.
74. NL Foster, AY Wang, T Tasdizen, K Chen, W Jagust, RA Koeppe, E Reiman, MW Weiner and S Minoshima, Cerebral Hypometabolism Suggesting Frontotemporal Dementia in an Alzheimer's Disease Clinical Trial, *Neurology*, 70:11, A103, 2008.
75. G Adluru, SP Awate, T Tasdizen, RT Whitaker and EVR DiBella, Temporally Constrained Reconstruction of Dynamic Cardiac Perfusion MRI, *Magnetic Resonance in Medicine*, 57, pp. 1027-1036, June 2007.
76. O Nemitz, T Tasdizen, M Rumpf and RT Whitaker, Anisotropic Curvature Motion for Structure Enhancing Smoothing of 3D MR Angiography Data, *Journal of Mathematical Imaging and Vision*, 7:3, pp 217-229, April 2007.
77. SP Awate, T Tasdizen, NL Foster and RT Whitaker, Adaptive Markov modeling for mutual-information-based, unsupervised MRI brain-tissue classification, *Medical Image Analysis*, 10:5, pp. 726-739, October 2006. *8th most cited paper in Medical Image Analysis 2006-9*.
78. T Tasdizen and RT Whitaker, Higher-order nonlinear priors for surface reconstruction, *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 26:7, pp. 878–891, July 2004.
79. T Tasdizen, RT Whitaker, P Burchard and S Osher, Geometric Surface Processing via Normal Maps, *ACM Transactions on Graphics*, 22:4, pp. 1012-1033, October 2003.
80. T Tasdizen, J.-P Tarel and DB Cooper, Improving the Stability of Algebraic Curves for Applications, *IEEE Transactions on Image Processing*, 9:3, pp. 405–416, March 2000.
81. T Tasdizen, L Akarun and C Ersoy, Color Quantization with Genetic Algorithms, *Signal Processing: Image Communication*, Elsevier, Vol. 12, pp. 49–57, March 1998.

#### • Conference

1. Zhang, B., Knudsen, B., Sirohi, D., Ferrero, A., Tasdizen, T. (2022). Stain Based Contrastive Co-training for Histopathological Image Analysis. *Medical Image Learning with Limited and Noisy Data. MILanD 2022. Lecture Notes in Computer Science*, vol 13559. Springer, Cham. [https://doi.org/10.1007/978-3-031-16760-7\\_11](https://doi.org/10.1007/978-3-031-16760-7_11)
2. RB Lanfredi, Ambuj Arora, Trafton Drew, JD Schroeder and T Tasdizen, Comparing radiologists' gaze and saliency maps generated by interpretability methods for chest x-rays, *NeurIPS 2022 Workshop GMMML*.
3. JN Brundage, B Zenger, JA Bergquist, A Lyons, R Buther, R Shah, R MacLeod, B Steinberg and T Tasdizen, Sex Detection Based Self-Supervised Learning for Prediction of LVEF from ECGs, *Computing in Cardiology 2022*.

4. RB Lanfredi, JD Schroeder, C Vachet and T Tasdizen, Interpretation of Disease Evidence for Medical Images Using Adversarial Deformation Fields, MICCAI 2020.
5. Z Wu, J Wei, W Yuan, J Wang and T Tasdizen, Inter-slice image augmentation based on frame interpolation for boosting medical image segmentation accuracy, ECAI 2020.
6. W Yuan, J Wei, J Wang, Q Ma, T Tasdizen, Unified Attentional Generative Adversarial Network for Brain Tumor Segmentation with Multimodal Unpaired Medical Image, MICCAI 2019.
7. RB Lanfredi, JD Schroeder, C Vachet and T Tasdizen, Adversarial regression training for visualizing the progression of chronic obstructive pulmonary disease with chest x-rays, MICCAI 2019.
8. E Erdil, AO Argunsah, T Tasdizen, D Unay and M Cetin, Combining Nonparametric Spatial Context Priors With Nonparametric Shape Priors For Dendritic Spine Segmentation In 2-Photon Microscopy Images, ISBI 2019
9. ML Gong, SJ Yoon, RR Unocic, H Ishii, JP Bradley, BD Miller, D Masiel, B Reed, T Tasdizen, JA Aguiar, Pioneering the use of Neural Network Architectures and Feature Engineering for Real-Time Augmented Microscopy and Analysis, Microscopy and Microanalysis, vol 24:S1, pp. 514-515, 2018
10. M Javanmardi, RB Lanfredi, M Cetin and T Tasdizen, Image Segmentation by Deep Learning of Disjunctive Normal Shape Model Shape Representation, CVPR 4th International Workshop on Differential Geometry in Computer Vision and Machine Learning, 2018.
11. N Ramesh and T Tasdizen, Semi-Supervised Learning For Cell Tracking In Microscopy Images, ISBI 2018.
12. M Javanmardi and T Tasdizen, Domain Adaptation for Biomedical Image Segmentation using Adversarial Training, ISBI 2018.
13. T Tasdizen, M Sajjadi, M Javanmardi and Nisha Ramesh, Improving the robustness of convolutional networks to appearance variability in biomedical images, ISBI 2018.
14. D Ayyagari, N Ramesh, D Yatsenko, T Tasdizen, and C Atria, Image reconstruction using priors from deep learning, SPIE Medical Imaging 2018.
15. E Erdil, S Yildirim, T Tasdizen and M Cetin, Image Segmentation with Pseudo-marginal MCMC Sampling and Nonparametric Shape Priors, AABI 2017.
16. E Erdil, F Mesadi, T Tasdizen and M Cetin, Disjunctive Normal Shape Boltzmann Machine, ICASSP 2017.
17. M Sajjadi, M Javanmardi and T Tasdizen, Regularization With Stochastic Transformations and Perturbations for Deep Semi-Supervised Learning, NIPS 2016.
18. MU Ghani, E Erdil, SD Kanik, AO Argunsah, A Hobbiss, I Israely, D Unay, T Tasdizen and M Cetin, Dendritic Spine Shape Analysis: A Clustering Perspective, ECCV BioImage Computing Workshop, 2016.
19. T Liu, M Zhang, M Javanmardi , N Ramesh and T Tasdizen, SSHMT: Semi-supervised Hierarchical Merge Tree for Electron Microscopy Image Segmentation, ECCV 2016.
20. M Sajjadi, M Javanmardi and T Tasdizen, Mutual exclusivity loss for semi-supervised deep learning, ICIP 2016.
21. F Mesadi, M Cetin and T Tasdizen, Disjunctive Normal Level Set: An Efficient Parametric Implicit Method, ICIP 2016.

22. M Elwardy, T Tasdizen and M Cetin, Disjunctive Normal Unsupervised LDA for P300-based Brain-Computer Interfaces, MLUB 2016.
23. E Erdil, S Yildirim, M Cetin and T Tasdizen, MCMC Shape Sampling for Image Segmentation with Nonparametric Shape Priors, CVPR 2016.
24. E Erdil, L Rada, AO Argunsah, D Unay, T Tasdizen and M Cetin, Joint Nonparametric Shape And Feature Density Estimation For Segmentation Of Dendritic Spines, ISBI 2016.
25. MU Ghani, AO Argunsah, I Israely, D Unay, T Tasdizen and M Cetin, On Comparison Of Manifold Learning Techniques For Dendritic Spine Classification, ISBI 2016.
26. MU Ghani, F Mesadi, SD Kanik, AO Argunsah, I Israely, D Unay, T Tasdizen and M Cetin, Dendritic Spine Shape Analysis Using Disjunctive Normal Shape Models, ISBI 2016.
27. F Mesadi, M Cetin and T Tasdizen, Disjunctive Normal Shape and Appearance Priors with Applications to Image Segmentation, MICCAI 2015.
28. I Yilmaz, SD Kanik, T Tasdizen and M Cetin, Semi-supervised Adaptation of Motor Imagery Based BCI Systems, SIU 2015.
29. MU Ghani, SD Kanik, AO Argunsah, T Tasdizen, D Unay and M Cetin, Dendritic Spine Shape Classification from Two-Photon Microscopy Images, SIU 2015.
30. E Erdil, AO Argunsah, T Tasdizen, D Unay and M Cetin, A Joint Classification And Segmentation Approach For Dendritic Spine Segmentation In 2-Photon Microscopy Images, ISBI 2015.
31. N Ramesh, F Mesadi, M Cetin and T Tasdizen, Disjunctive Normal Shape Model, ISBI 2015.
32. N Ramesh and T Tasdizen, Cell Tracking Using Particle Filters With Implicit Convex Shape Model In 4D Confocal Microscopy Images, ICIP 2014.
33. SM Seyedhosseini, M Sajjadi and T Tasdizen, Image Segmentation with Cascaded Hierarchical Models and Logistic Disjunctive Normal Networks, ICCV 2013.
34. T Liu, SM Seyedhosseini, MH Ellisman and T Tasdizen, Watershed Merge Forest Classification For Electron Microscopy Image Stack Segmentation, ICIP 2013.
35. N Ramesh and T Tasdizen, Three-Dimensional Alignment Of Confocal Microscopy Stacks, ICIP 2013.
36. SM Seyedhosseini, RJ Giuly, MH Ellisman and T Tasdizen, Segmentation of Mitochondria In Electron Microscopy Images Using Algebraic Curves, ISBI 2013.
37. C Jones, SM Seyedhosseini, MH Ellisman and T Tasdizen, Neuron Segmentation In Em Images Using Partial Differential Equations, ISBI 2013.
38. C Jones, T Liu, MH Ellisman and T Tasdizen, Semi-Automatic Neuron Segmentation In Em Images Via Sparse Labeling, ISBI 2013.
39. T Liu, S. M. Seyedhosseini, E Jurrus, MH Ellisman and T Tasdizen, Watershed Merge Tree Classification for Electron Microscopy Image Segmentation, ICPR 2012.
40. N Ramesh, ME Salama and T Tasdizen, Segmentation of Haematopoietic Cells in Bone Marrow Using Circle Detection and Splitting Techniques, ISBI 2012.
41. E Jurrus, S Watanabe, R Guily, ARC Paiva, M Ellisman, E Jorgensen, T Tasdizen, Semi-automated Neuron Boundary Detection and Slice Traversal Algorithm for Segmentation of Neurons from Electron Microscopy Images, Microscopic Image Analysis with Applications in Biology (MIAAB) Workshop, Chicago, August 1, 2011.

42. SM Seyedhosseini, R Kumar, E Jurrus, R Guily, M Ellisman, H Pfister and T Tasdizen, Detection of Neuron Membranes in Electron Microscopy Images using Multi-scale Context and Radon-like Features, Int. Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2011.
43. SM Seyedhosseini, ARC Paiva and T Tasdizen, Fast AdaBoost Training using Weighted Novelty Selection, International Joint Conference on Neural Networks 2011.
44. Z Leng, J Korenberg, B Roysam and T Tasdizen, A Rapid 2-D Centerline Extraction Method Based On Tensor Voting, IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, 2011.
45. L Hoglebe, ARC Paiva, E Jurrus, C Christensen, M Bridge, J Korenberg and T Tasdizen, Trace Driven Registration Of Neuron Confocal Microscopy Stacks, IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, 2011.
46. ARC Paiva and T Tasdizen, Detection of Salient Image Points using Manifold Structure, Int. Conf. on Pattern Recognition 2010.
47. ARC Paiva, E Jurrus and T Tasdizen, Using Sequential Context for Image Analysis, Int. Conf. on Pattern Recognition 2010.
48. G Adluru, T Tasdizen, RT Whitaker and E DiBella, Improving Undersampled MRI Reconstruction Using Non-Local Means, Int. Conf. on Pattern Recognition 2010.
49. SM Seyedhosseini, ARC Paiva and T Tasdizen, Image Parsing with a Three-State Series Neural Network Classifier, Int. Conf. on Pattern Recognition 2010.
50. SK Iyer, EVR DiBella, T Tasdizen, Edge enhanced spatio-temporal constrained reconstruction of undersampled dynamic contrast enhanced radial MRI, IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, 2010.
51. ARC Paiva and T Tasdizen, Fast semi-supervised image segmentation by novelty selection, ICASSP 2010.
52. E Jurrus, ARC Paiva, S Watanabe, RT Whitaker, EM Jorgensen and T Tasdizen, Serial Neural Network Classifier for Membrane Detection using a Filter Bank, Int. Workshop on Microscopic Image Analysis with Applications in Biology, 2009.
53. S Gerber, T Tasdizen and RT Whitaker, Dimensionality Reduction and Principal Surfaces via Kernel Map Manifolds, Int. Conf. on Computer Vision (ICCV), 2009.
54. S Gerber, T Tasdizen, S Joshi and RT Whitaker, On the Manifold Structure of the Space of Brain Images, Int. Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2009.
55. KU Venkataraju, ARC Paiva, E Jurrus, T Tasdizen, Automatic Markup of Neural Cell Membranes using Boosted Decision Stumps, IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, 2009
56. JR Anderson, BW Jones, JH Yang, M Shaw, CB Watt, P Koshevoy, J Spaltenstein, E Jurrus, KU Venkataraju, RT Whitaker, D Mastronarde, T Tasdizen, and RE Marc, Ultrastructural mapping of neural circuitry: A computational framework, IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, 2009
57. T Tasdizen, E Jurrus and RT Whitaker, Non-uniform Illumination Correction in Transmission Electron Microscopy, MICCAI Workshop on Microscopic Image Analysis with Applications in Biology, 2008.

58. T Tasdizen, Principal components for non-local means image denoising, International Conference on Image Processing (ICIP), 2008.
59. N Sadeghi, NL Foster, AY Wang, S Minoshima, AP Lieberman and T Tasdizen, Automatic Classification of Alzheimer's Disease vs. Frontotemporal Dementia: A Spatial Decision Tree Approach with FDG-PET, IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, pp. 408-411, 2008.
60. E Jurrus, RT Whitaker, BW Jones, RE Marc and T Tasdizen, An Optimal-Path Approach for Neural Circuit Reconstruction, IEEE International Symposium on Biomedical Imaging (ISBI): From Nano to Macro, pp. 1609-1612, 2008.
61. S Gerber, T Tasdizen and RT Whitaker, Robust Non-linear Dimensionality Reduction using Successive 1-Dimensional Laplacian Eigenmaps, Int. Conf. on Machine Learning (ICML), pp. 281-288, 2007.
62. T Tasdizen, P Koshevoy, BW Jones, RT Whitaker and RE Marc, Assembly of Large Three-Dimensional Volumes from Serial-Section Transmission Electron Microscopy, MICCAI Workshop on Microscopic Image Analysis with Applications in Biology, pp. 10-17, 2006.
63. E Jurrus, T Tasdizen, P Koshevoy, M Hardy, C.-B Chien, RT Whitaker and W Denk, Axon Tracking in Serial Block-Free Scanning Electron Microscopy, MICCAI Workshop on Microscopic Image Analysis with Applications in Biology, pp. 114-119, 2006.
64. SP Awate, EVR DiBella, T Tasdizen and RT Whitaker, Model-Based Image Reconstruction for Dynamic Cardiac Perfusion MRI from Sparse Data, IEEE Engineering in Medicine and Biology Conference, pp. 936-941, 2006.
65. SP Awate, T Tasdizen and RT Whitaker, Unsupervised Texture Segmentation with Nonparametric Neighborhood Statistics, European Conference on Computer Vision (ECCV), 2006.
66. JM Kniss, R Van Uitert, A Stephens, G Li, T Tasdizen and C Hansen, Statistically Quantitative Volume Visualization, IEEE Visualization, 2005.
67. T Tasdizen, SP Awate, RT Whitaker and NL Foster, MRI Tissue Classification with Neighborhood Statistics: A Nonparametric, Entropy-Minimizing Approach, 8th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), Lecture Notes in Computer Science LNCS 3749, Vol. 2 pp. 517-525, 2005.
68. T Tasdizen, RT Whitaker, RE Marc and BW Jones, Enhancement of Cell Boundaries in Transmission Microscopy Images, Int. Conf. on Image Processing (ICIP), Vol. 2, pp. 129-132, 2005.
69. L Grady and T Tasdizen, A Geometric Multigrid Approach to Solving the 2D Inhomogeneous Laplace Equation with Internal Dirichlet Boundary Conditions, International Conference on Image Processing (ICIP), Vol. 2, pp. 642-645, 2005.
70. T Tasdizen and RT Whitaker, Anisotropic diffusion of surface normals for feature preserving surface reconstruction, 4th Int. Conf. on 3-D Digital Imaging and Modeling, pp. 353-360, 2003.
71. T Tasdizen and RT Whitaker, Cramer-Rao Bounds for Nonparametric Surface Reconstruction from Range Data, 4th Int. Conf. on 3-D Digital Imaging and Modeling, pp. 70-77, 2003.
72. T Tasdizen and RT Whitaker, Feature preserving variational smoothing of terrain data, 2nd Int. IEEE Workshop on Variational, Geometric and Level Set Methods in Computer Vision, 2003.

73. G Kindlmann, RT Whitaker, T Tasdizen, and T Moller, Curvature-Based Transfer Functions for Direct Volume Rendering: Methods and Applications, IEEE Visualization, pp. 513–520, 2003.
74. S Premoze, T Tasdizen, J Bigler, A Lefohn and RT Whitaker, Particle-Based Simulation of Fluids, Eurographics, pp. 401–410, 2003.
75. M Barzohar, L Preminger, T Tasdizen and DB Cooper, Robust Method for Completely Automatic Aerial Detection of Occluded Roads with New Initialization, Proceedings of SPIE – Volume 4820, Infrared Technology and Applications XXVIII, Bjorn Andresen, Gabor F. Fulop, Marija Strojnik, Editors, pp. 688-698, 2003.
76. T Tasdizen, RT Whitaker, P Burchard and S Osher, Geometric Surface Smoothing via Anisotropic Diffusion of Normals, IEEE Visualization, pp. 125–132, 2002.
77. T Tasdizen and DB Cooper, Boundary Estimation from Intensity/Color Images with Algebraic Curve Models, 15th IEEE Computer Society International Conference on Pattern Recognition (ICPR), Vol 1, pp. 225–228, 2000. **Best Student Paper Award Honorable Mention.**
78. T Tasdizen, J.-P Tarel and DB Cooper, Algebraic Curves that Work Better, IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR), Vol 2, pp. 35–41, 1999.
79. Z Lei, T Tasdizen and DB Cooper, PIMs and Invariant Parts for Shape Recognition, in Proceedings of 6th IEEE Computer Society Int. Conf. on Computer Vision (ICCV), 1997.
80. L Akarun, T Tasdizen and C Ersoy, Genetik Algoritmalarla Renk Nicemlemesi, SIU'97 Bildiriler kitabı, 1997.

#### • Abstracts and Other Publications

1. Zewdie HY, Sarmiento OL, Pinzón Ortiz JD, Arbelaez PA, Chiquillo LB, Hildago D, Mooney SJ, Nguyen QC, Paez FE, Tasdizen T, Quistberg DA. Ecological analysis of neighborhood built environment features associated with pedestrian injury and death in Bogotá, Colombia between 2015-2019. Poster presentation, Society for Advancement of Violence and Injury Research, Denver, CO, April 2023
2. A Quistberg et al., Training Neural Networks to Identify Built Environment Features for Pedestrian Safety, SAFETY 2022, Adelaide, Australia, Nov 27-30, 2022
3. C Ly, CA Nizinski, C Vachet, LW McDonald IV and T Tasdizen, Learning to estimate the composition of a mixture with synthetic data, Microscopy and Microanalysis, Cambridge University Press, 27:S1, 2522-2525, 2021
4. J Tate, J Aguiar, M Gong and T Tasdizen, High Throughput Crystal Structure Classification, Microscopy and Microanalysis, Cambridge University Press, 26:S2, 10-12, 2020
5. J. Tate, J. Aguiar, M.L. Gong, T. Tasdizen, Identifying Crystal Structure from Open and Accessible Materials, 2020 TechConnect World Innovation Conference
6. Schroeder et al, Early identification of risk for lung cancer: Deep learning to predict COPD from chest radiographs using pulmonary function test annotation, Early Detection of Cancer Conference, September 24-26, 2019 Stanford University
7. J Chan, RB Lanfredi, T Tasdizen, V Srikumar and J Schroeder, Using Deep Learning to Predict Severity of Restrictive Pulmonary Function From Chest Radiographs of Patients With Interstitial Lung Disease, ARRS 2019 Annual Meeting and Scientific Program. ARRS Magna Cum Laude award for the "best in subspecialty" oral presentation.
8. PP Dholabhai, Y Zhang, T Tasdizen, M Grant, K Iyer, and JA Aguiar, Multi-scale Framework for Predicting Mechanical Properties in High Entropy Alloys, World Congress on High Entropy Alloys.

9. ML Gong, BD Miller, RR Unocic, K Hattar, B Reed, D Masiel , T Tasdizen and JA Aguiar, Merging Deep Learning, Chemistry, and Diffraction for High-Throughput Material Structure Prediction, Microscopy & Microanalysis 2019
10. JA Aguiar, A Monterrosa, B Reed , D Masiel, S Kwon, ML Gong, T Tasdizen, B Coryell, K Jungjohann, K Hattar, E Luther, and HT Hartman, In-situ Ion Irradiation and Recrystallization in Highly Structured Materials, Microscopy & Microanalysis 2019
11. JA Aguiar, M Gong, T Tasdizen, R Unocic, J Bradley, D Masiel, B Reed, BD Miller, and KL Jungjohann, Realizing Real-Time Augmented Microscopy and Analysis on the Latest Advanced Scanning Transmission Electron Microscopes, 19th International Microscopy Congress (IMC19), 2018.
12. JA Aguiar, M Gong and T Tasdizen, Pioneering the use of Neural Network Architectures and Feature Engineering for Real-Time Augmented Microscopy and Analysis, Nature Conference: Frontiers in Electron Microscopy for the Physical and Life Sciences 2018
13. M. Gong, T. Tasdizen, and JA Aguiar, Deep Learning and Electron Microscopy Study, Microscopy & Microanalysis 2018
14. Q Nguyen, M Sajjadi, M McCullough, W Yu, HW Meng, D Li, M Pham, F Li, M Javanmardi and Tolga Tasdizen, Neighborhood Looking Glass: 360 Degree Automated Characterization of the Built Environment for Neighborhood Effects Research, American Public Health Association (APHA) annual meeting 2017.
15. AJ Perez, C Churas, W Wong, M Chiu, K-Y Kim, EA Bushong, TJ Deerinck, S Panda, T Tasdizen, MH Ellisman, Automating the analysis of large-scale electron microscopy image stacks using scalable workflows and high performance computing, SfN 2015.
16. SK Iyer, T Tasdizen, G Adluru and E DiBella, Fast Multicoil Total Variation Reconstruction of Cardiac Perfusion Images, ISMRM 2015
17. AJ Perez, M Seyedhosseini, C Churas, K-Y Kim, M Hatori, EA Bushong, TJ Deerinck, H Le, S Panda, T Tasdizen, MH Ellisman, Workflows for the automatic segmentation and characterization of organelle morphology and distribution in electron microscopy image stacks, SfN 2014.
18. AJ Perez, SM Seyedhosseini, T Tasdizen and MH Ellisman, Automated workflows for the morphological characterization of organelles in electron microscopy image stacks, Experimental Biology, 2014.
19. SK Iyer, T Tasdizen, N Burgon, G Adluru and E Dibella, Fast Reconstruction of 3D LGE Images of the Left Atrium in a Compressed Sensing Framework using Split Bregman, ISMRM 2013.
20. SK Iyer, T Tasdizen, D Likhite and E DiBella, Rapid TV-based reconstruction techniques for cardiac perfusion imaging, ISMRM, 2013.
21. T Tasdizen, T Liu, SM Seyedhosseini, E Jurrus and M Ellisman, Neuron Segmentation in Electron Microscopy Images, MASFOR 2012.
22. SK Iyer, T Tasdizen, G Adluru and E DiBella, A Block Reordering Technique in a Compressed Sensing Framework, ISMRM 2012.
23. T Liu, S. M. Seyedhosseini, E Jurrus and T Tasdizen, Neuron Segmentation in EM Images using Series of Classifiers and Watershed Tree, ISBI EM Segmentation Challenge Workshop, 2012.

24. SM Seyedhosseini, S Shushruth, T Davis, B Greger, A Angelucci and T Tasdizen, Identification of Novel Natural Images from LFP Signals in V1 Predicted by a Gabor Wavelet Pyramid Model, SfN 2011.
25. S Shushruth, T Davis, T Tasdizen, JM Ichida, P House, B Greger, A Angelucci, LFP Signals Evoked by Natural Image Stimulation of the Far-Surround of V1 Neurons Carry Contrast-independent image-specific information, SfN 2011.
26. S Shushruth, T Tasdizen, JM Ichida, A Angelucci, Surround signals in V1 evoked by natural images carry image specific information, Grand Challenges in Neural Computation, Santa Fe, NM, 2011.
27. J Anderson, BW Jones, D Mastronarde, P Koshevoy, CB Watt, J Yang, T Tasdizen, RT Whittaker, J Spaltenstein and RE Marc, The Retinal Connectome: Networks in the Amacrine Cell Layer, The Association for Research in Vision and Ophthalmology (ARVO), 2009.
28. E Jurrus, T Tasdizen, S Watanabe, MW Davis, EM Jorgensen and RT Whitaker, Semi-Automated Reconstruction of the Neuromuscular Junctions in the *C. elegans*, MICCAI Workshop on Microscopic Image Analysis with Applications in Biology, 2008.
29. NL Foster, AY Wang, T Tasdizen, K Chen, W Jagust, RA Koeppe, E Reiman, MW Weiner and S Minoshima, Cerebral Hypometabolism Suggesting Frontotemporal Dementia in an Alzheimer's Disease Clinical Trial, American Academy of Neurology, 2008.
30. PT Fletcher, AY Wang, T Tasdizen, K Chen, W Jagust, RA Koeppe, E Reiman, MW Weiner, S Minoshima and NL Foster, Variability of Normal Cerebral Glucose Metabolism from the Alzheimer's Disease Neuroimaging Initiative: Implications for Clinical Trials, Annals of Neurology, Vol 62:11, 2007.
31. BW Jones, RE Marc, CB Watt, K Kinardi, D DeMill, JH Yang, T Tasdizen, P Koshevoy, E Jurrus and RT Whitaker, Structure and Function of Microneuromas in Retinal Remodeling, The Association for Research in Vision and Ophthalmology (ARVO), 2007.
32. W.-K Jeong, T Tasdizen and RT Whitaker, Feature Preserving Smoothing of Height Field Data using Multigrid Solver on GPU, in proceedings ACM Workshop on General Purpose Computing on Graphics Processors, 2004.
33. G Kindlmann, AL Alexander, M Lazar, J Lee, T Tasdizen and RT Whitaker, An Algorithm for Moment-Based Global Registration of Echo Planar Diffusion-Weighted Images, 12th Annual ISMRM, pp. 2200, 2004.
34. J Zhou, DP Lopresti and T Tasdizen, Finding Text in Color Images, SPIE Document Recognition V, 1998.
35. Z Lei, T Tasdizen and DB Cooper, Object Signature Curve and Invariant Shape Patches for Geometric Indexing into Pictorial Databases, Multimedia Storage and Archiving Systems II, SPIE International Symposium and Education Program on Voice, Video, and Data Communications, 1997.