Laurens van der Maaten, Research Director

lvdmaaten@gmail.com, http://lvdmaaten.github.io

EXPERIENCE

Meta AI, Fundamental AI Research (FAIR) team.

- 2021–now: AI for Math & Science lead, Research Director.

  - Managed a team of 60+ Research Scientists and Research Engineers, across all levels of seniority (IC4 to IC9) and across six different sites in the US and Europe.
  - Pioneered culture and processes that enable large, focused research projects (10+ researchers per project, multi-year efforts) in a bottom-up research organization. Strengthened FAIR's communication around major research results.
  - Responsible for all key processes including hiring, performance evaluation, people management, and budget.
  - Team successes include development of the ESM protein models and ESM-Atlas, the Cicero full-press Diplomacy bot, the Galileo scientific language model, and the current state-of-the-art in automatic theorem proving.
  - Initiated several new research efforts at the intersection of AI and climate technology and the intersection of AI and augmented-reality technology.

- 2019–2021: New York site lead, Research Director (since 2020).

  - Managed all 30+ FAIR Research Scientists based in New York, across all levels of seniority (IC4 to IC9).
  - Closely partnered with Research Engineering organization of 40+ engineers.
  - Responsible for all key processes including hiring, performance evaluation, and people management.
  - Developed several new processes and contributed to key strategic initiatives. Examples include development of FAIR's publication review process and of clear career paths for senior researchers.
  - Contributed to several other key research innovations, including the development of Fisher information loss as a versatile alternative for differential privacy (UAI 2021 Best Paper Award).

- 2015–2019: Research Scientist.

  - Pioneered web-scale weakly supervised training of image-recognition models at Meta. These models were presented by Meta's CTO at the F8 developer conference in 2018, and form the backbone of all major image-recognition systems used in Facebook and Instagram.
  - Developed the CrypTen framework that allows developers to execute PyTorch code on data that is secret-shared across parties, enabling fully private training and inference of deep-learning models.
  - Contributed to several other key research innovations, including the DenseNet convolutional network architecture (CVPR 2017 Best Paper Award) and the first models that learned to associate images and language from web data.

Delft University of Technology. Assistant Professor (with tenure). Delft, The Netherlands, January 2015–February 2018.

Delft University of Technology. Assistant Professor (tenure-track). Delft, The Netherlands, April 2013–December 2014.

Netherlands Institute for Advanced Study. Fellow. Wassenaar, The Netherlands, February 2013–April 2013.

Delft University of Technology. Post-doc in (EU FP7) SSPNet project, working with Dr. Emile Hendriks, Dr. Bob Duin, Dr. Marco Loog, and Dr. David Tax. Delft, The Netherlands, August 2009–March 2013.

University of California, San Diego. Post-doc with Prof. Lawrence Saul. San Diego CA, December 2009–November 2010.

Tilburg University. Ph.D. student under supervision of Prof. Eric Postma and Prof. Jaap van den Herik, Tilburg, The Netherlands, October 2008–August 2009. Ph.D. received at June 23rd 2009 (*cum laude*).

Dutch State Service for Cultural Heritage (RCE). Ph.D. student working with Dr. Guus Lange, Amersfoort, The Netherlands, August 2005–August 2009.

Maastricht University. Ph.D. student under supervision of Prof. Eric Postma and Prof. Jaap van den Herik, Maastricht, The Netherlands, August 2005–October 2008.

RESEARCH VISITS
University of Geneva. Visiting postdoctoral researcher working with Dr. Marc Mehu, Geneva, Switzerland, January 2012.

Imperial College London. Visiting postdoctoral researcher working with Prof. Maja Pantic, London, UK, July 2011.

University of Toronto. Visiting Ph.D. student working with Prof. Geoffrey Hinton, Toronto, ON, Canada, January 2008–June 2008.

EDUCATION
Tilburg University. Doctoral degree (*cum laude*) for Ph.D. thesis "Feature Extraction from Visual Data". Thesis defense on June 23rd 2009.

Maastricht University. Doctorandus (= Dutch M.Sc.) in Knowledge Engineering and Computer Science, Maastricht, The Netherlands, September 2001–August 2005.

RESEARCH INTERESTS
I am broadly interested in machine learning and computer vision research. I have worked on topics including dimensionality reduction, embedding, metric learning, generative models, deep learning, privacy-preserving machine learning, large-scale weakly supervised learning, self-supervised learning, and applications of machine learning in the arts and sciences.

SELECTED PUBLICATIONS
My h-index is 51 and my total number of citations is $81,191$ (Google Scholar; retrieved October, 2022). The following publications are representative for my work:

B. Knott, S. Venkataraman, A.Y. Hannun, S. Sengupta, M. Ibrahim, and L.J.P. van der Maaten. CrypTen: Secure Multi-Party Computation Meets Machine Learning. In

Advances of Neural Information Processing Systems (NeurIPS), 2021. [Acceptance rate: 26%; 85 citations].

D. Mahajan, R.B. Girshick, V. Ramanathan, K. He, M. Paluri, Y. Li, A. Bharambe, and L.J.P. van der Maaten. Exploring the Limits of Weakly Supervised Pretraining. In *European Conference on Computer Vision (ECCV)*, pages 185–201, 2018. [Acceptance rate: 31.8%; 1,048 citations].

G. Huang, Z. Liu, K.Q. Weinberger, and L.J.P. van der Maaten. Densely Connected Convolutional Networks. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017. [Best paper award; Oral acceptance rate: 2.65%; 29,461 citations].

L.J.P. van der Maaten. Accelerating t-SNE using Tree-Based Algorithms. *Journal of Machine Learning Research* 15(Oct):3221–3245, 2014. [Impact factor: 3.42; 2,383 citations]

L.J.P. van der Maaten and G.E. Hinton. Visualizing High-Dimensional Data Using t-SNE. *Journal of Machine Learning Research* 9(Nov):2579–2605, 2008. [Impact factor: 2.949; 31,379 citations]

AWARDS

UAI Best Paper Award. Best paper award at the Uncertainty in Artificial Intelligence (UAI) conference for paper: A. Hannun, C. Guo, and L.J.P. van der Maaten. Measuring Data Leakage in Machine-Learning Models with Fisher Information, 2021.

CVPR Best Paper Award. Best paper award at the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) for paper: G. Huang, Z. Liu, K.Q. Weinberger, and L.J.P. van der Maaten. Densely Connected Convolutional Networks, 2017.

SNN Machine Learning Award. Awarded once per year by the Netherlands Society for Neural Networks (SNN) to a researcher or research group who has achieved an important result in machine learning. I received the award for my work on new machine-learning techniques for data visualization. Amount: 5k€.

Merck Molecular Activity Visualization Challenge Winner. Best visualization of molecular activity data of Merck published on Kaggle.com. Amount: 2k$.

NIAS-Lorentz Fellowship. Awarded by the Netherlands Institute for Advanced Study and the Lorentz Center for my research on "Texture Analysis for the Arts". Awarded in March 2012. Amount: 9k€.

AAAI-08 Most Innovative Video Award. Awarded for the video entitled "Digital Analysis of Van Gogh Paintings" at the conference of the Association for the Advancement of Artificial Intelligence, July 2008, Chicago, IL, USA. Joint work with Eric Postma.

MUSCLE CIS Coin Competition 2007 Winner. Best classification performance in a benchmark on automatic classification of modern coins based on coin photographs, Vienna, Austria, August 2007. Joint work with Paul Boon.

Travel awards. I received travel awards for NIPS 2010 (sponsored by Google; $800), AI-STATS 2009 (sponsored by Nokia; $550), and CAA 2009 (sponsored by Computer Applications for Archaeology; $400).

SOFTWARE

I am the lead developer of CrypTen. I was one of the developers of Classy Vision and of the visdom tool for scientific visualization (over 6,900 stars on Github). I maintain the Matlab Toolbox for Dimensionality Reduction. Since its introduction in 2006, the toolbox has been downloaded over 40,000 times. I also maintain a website on t-Distributed Stochastic Neighbor Embedding (t-SNE), which is a new technique for the visualization of high-dimensional data that I developed together with Prof. Geoffrey Hinton. My website on t-SNE contains implementations of the technique in various programming language. My personal homepage also features Matlab implementations of, among others, state-of-the-art system for writer identification, fields of experts, and matrix relational embedding. I also contributed to the open-source visualization software Divvy and to several (Py)Torch repositories.

RESEARCH GRANTS

Learning the Fundamental Symmetries in Video Data.
    Funding agency: Netherlands Scientific Organisation (NWO)
    PI: Prof.dr. M. Welling (University of Amsterdam)
    Co-PI: Dr. L.J.P. van der Maaten (TU Delft)
    Amount: 217k€
    Start date / end date: January 2015 / January 2019
    Duration: 48 months

HDCLUSTER
Development of novel clustering methods for gene expression, proteomic and imaging readouts by concurrently mining the Allen Brain Atlas.
    Funding agency: FET Flagship (Human Brain Project)
    PIs: Prof.dr. B. Lelieveldt (LUMC), Prof.dr. M.J.T. Reinders (TU Delft
      / LUMC), Dr. Laurens van der Maaten (TU Delft / LUMC), Prof. A. van den
      Maagdenberg (LUMC), Dr. W. van Roon (LUMC)
    Amount: 234k€
    Start date / end date: September 2014 / September 2016.
    Duration: 24 months

Technology in Motion.
    Funding agency: Netherlands Scientific Organisation (NWO)
    Project coordinator: Prof.dr. B. van Hilten (LUMC)
    Partners: Leiden University Medical Center, TU Delft (EWI and TBM), Free
      University Amsterdam.
    PI at TU Delft-EWI: Dr. L.J.P. van der Maaten
    Amount for TU Delft-EWI: 210k€
    Start date / end date: January 2014 / January 2018
    Duration: 48 months

Learning from Corruption.
    Funding agency: Netherlands Scientific Organisation (NWO)
    PI: Dr. L.J.P. van der Maaten
    Amount: 207k€
    Start date / end date: July 2014 / July 2018
    Duration: 48 months

Integration of Technological Solutions for Imaging, Detection, and Digitisation of Hidden Elements in Artworks (INSIDDE).
    Funding agency: European Commission (FP7-ICT 2011.8.2; STReP)
    Project coordinator: Dr. S. Garcia (Treelogic)
    PI at TU Delft: Dr. L.J.P. van der Maaten
    Partners: Treelogic (ES), Universidad de Oviedo (ES), Fundacion ITMA (ES),

TU Delft (NL), 3DDynamics (BE), Consiglio Nazionale delle Ricerche (IT), Regional Museum of History - Stara Zagora (BG), and Doerner Institute (DE).
Amount for TU Delft: 401k€
Start date / end date: January 2013 / January 2016
Duration: 36 months

Smart Assisted Living involving Informal careGivers (SALIG++).
Funding agency: European Commission and Netherlands Organisation for Health Research and Development (ZonMW); Ambient Assisted Living Programme
Project coordinator: Dr. G. Juell-Skielse (Stockholm University)
PI at TU Delft: Dr. L.J.P. van der Maaten
Partners: Stockholm University (SE), Almende (NL), HI Iberia (ES), TU Delft (NL), FeSalud (ES), Stockholm LänsLandsting (SE), PIAP (PL), Actimage (LU), and Divitel (NL).
Amount for TU Delft: 280k€
Start date / end date: June 2013 / June 2016
Duration: 36 months

Visualizing High-Dimensional Data using Dimensionality Reduction.
Funding agency: Netherlands Scientific Organisation (NWO)
PI: Dr. L.J.P. van der Maaten
Amount: 28k€
Start date / end date: December 2010 / December 2011
Duration: 12 months
Research team at UC San Diego: Dr. L.J.P. van der Maaten and Prof. L.K. Saul

SUPERVISION At Meta, I have (co-)supervised the following interns and residents:
- Steffen Schneider, 2022.
- Amrita Roy Chowdhury, 2021.
- Ruihan Wu, 2021.
- Karan Desai, 2021.
- Tony Ginart, 2021.
- Mimee Xu, 2020.
- Kexin Yi, 2020.
- Eltayeb Ahmed, 2020.
- Yin Cui, 2019.
- Chuan Guo, 2019 and 2017.
- Terrence DeVries, 2019.
- Mandela Patrick, 2018.
- Abhimanyu Dubey, 2018.
- Hexiang Hu, 2018.
- Cihang Xie, 2018.
- Ishan Misra, 2017.
- Justin Johnson, 2017.
- Andreas Veit, 2017.
- Haytham Fayek, 2016.
- Ang Li, 2016.

- Ranjay Krishna, 2016.

I have supervised two post-doctoral researchers:
- Hamdi Dibeklioglu. *Machine Learning and Computer Vision for Painting Analysis.* July 2013–January 2015.
- Julian Kooij. *Automatic Analysis of Tremors of Parkinson's Patients.* Started October 2014–January 2015.

The following Ph.D. students have completed their thesis under my supervision:
- Gorkem Saygili. *Depth Estimation by Combining Active and Passive Stereo Techniques.* Defense date: June 17, 2015. Co-supervised with Dr. Emile Hendriks.
- Wouter Kouw. *Machine Learning and Computer Vision for Painting Analysis.* Defense date: June 5, 2018. Co-supervised with Dr. Marco Loog.
- Wenjie Pei. *Machine Learning and Computer Vision for Assistance of Elderly People.* Defense date: June 13, 2018. Co-supervised with Dr. David Tax.
- Taygun Kekec. *Learning by Marginalizing Corrupted Features.* Defense date: June 7, 2019. Co-supervised with Dr. David Tax.
- Lu Zhang. *Tracking for Automatic Analysis of Human Eating Behavior.* Defense date: January 30, 2015.

I was member of the thesis committee of the following Ph.D. students:

- Damith Senananayake, *Exploratory Analysis of Highly Dimensional Data: Parametric Methods for Dimensionality Reduction, Visualization and Feature Extraction with Applicatons in Computational Biology*, University of Melbourne, April 2020.
- Stephen Tyree, *Some Approaches to Parallel and Distributed Machine Learning*, Washington University in St. Louis, November 2014.
- Philemon Brakel, *The Estimation and Application of Unnormalized Statistical Models*, Ghent University, July 2014.

TEACHING   I have been a (guest) lecturer of the following M.Sc./B.Sc. courses:

- Introduction to Computer Vision (African Master on Machine Intelligence; M.Sc), 2019, 2020, 2021, 2022
- Convolutional Networks (Georgia Tech; B.Sc.), 2022
- Big Ideas in AI (New York University; B.Sc.), 2021
- Machine Learning (Cornell Tech; M.Sc.), 2015, 2016, 2017
- Computer Vision (Delft University of Technology; M.Sc.) 2013, 2014
- Machine Learning (Delft University of Technology; M.Sc.) 2013, 2014
- Datamining (Delft University of Technology; B.Sc.) 2014
- Imaging Project (Delft University of Technology; B.Sc.) 2012
- Bachelor Seminar (Delft University of Technology; B.Sc.) 2011, 2012

I gave lectures at the following Ph.D.-level summer schools:

- Advanced Pattern Recognition (ASCI), Delft, The Netherlands, 2011, 2012, 2013

- Computer Vision by Learning (ASCI), Amsterdam, The Netherlands, 2014, 2016, 2018
- Computational Intelligence (SIKS), Utrecht, The Netherlands, 2011
- Summer School on Social Signal Processing, Mullsjö, Sweden, 2013
- Spring School on Social Interaction Computing, Almen, The Netherlands, 2010
- Datamining Summer School, Maastricht, The Netherlands, 2008

ACTIVITIES

Together with Aaron Adcock, Deepti Ghadiyaram, Angelina Wang, Vicente Ordonez-Roman, Judy Hoffman, Reza Shokri, Cristian Canton Ferrer, and Been Kim, I co-organized the ECCV 2022 Workshop on Responsible Computer Vision.

Together with Deepti Ghadiyaram, Abhimanyu Dubey, Han Zhao, Dhruv Mahajan, and Olga Russakovsky, I co-organized the CVPR 2021 Workshop on Responsible Computer Vision.

Together with Alex Berg, Cheng-Fang Yu, Dhruv Mahajan, Ishan Misra, Vignesh Ramanathan, and Zhenheng Yang, I co-organized the CVPR 2021 Workshop on Extreme Computer Vision.

Together with Pengtao Xie, Shanghang hang, Pulkit Agrawal, Ishan Misra, Cynthia Rudin, Abdelrahman Mohamed, Wenzhen Yuan, Barret Zoph, Xingyi Yang, and Eric Xing, I co-organized the NeurIPS 2020 Workshop on Self-Supervised Learning.

Together with Vignesh Ramanathan, Dhruv Mahajan, Alex Berg, Ishan Misra, and Rahul Sukthankar, I co-organized the ICCV 2019 Workshop on Extreme Vision Modeling.

Together with Dr. Marco Loog (Delft University of Technology), I organized the Belgian-Dutch Machine Learning Conference (Benelearn) 2015.

In 2014, I served as a young expert for the "National Think Tank" (*Nationale Denktank*) on Big Data.

Together with Dr. Cees Snoek (University of Amsterdam), I have organized the inaugural Netherlands Conference on Computer Vision (NCCV) 2014.

With Prof. Robert Erdmann, I have organized a NIAS Workshop on *"New Technologies for Art Conservation and History"* (2013).

I have co-organized the Advances in Neural Information Processing Systems (NIPS) 2010 Workshop on *"Challenges of Data Visualization"* (with Prof. Barbara Hammer, Prof. Fei Sha, and Prof. Alexander Smola).

SERVICE

- Neural Information Processing Systems (NeurIPS): Area Chair in 2015 and 2018; Senior Area Chair in 2020, 2021, and 2022; Best Paper Award Committee in 2020.
- International Conference on Machine Learning (ICML): Area Chair in 2016, 2017, 2018, 2019, and 2021; Best Paper Award Committee in 2022; Tutorial Chair in 2022.
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR): Area Chair in 2018 and 2021; Senior Area Chair in 2022.

- International Conference on Learning Representations (ICLR): Area Chair in 2017, 2018, and 2022.
- European Conference on Computer Vision (ECCV): Area Chair in 2016.

Since 2016, I am an associate editor for IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI). In 2014, I was associate editor of IEEE Transactions on Neural Networks and Learning Systems (TNNLS).

I have reviewed research proposals of the Swiss National Science Foundation (SNSF), the Belgian Agency for Innovation by Science and Technology (IWT), and the European Commission.

I have reviewed papers for over 35 different journals. Five prominent journals for which I served as a reviewer are:

- Journal of Machine Learning Research
- Machine Learning
- Proceedings of the National Academy of Science
- Science
- Neural Computation

I have been a reviewer for over 27 different conferences. Five prominent conferences for which I served as a reviewer are:

- Advances in Neural Information Processing Systems (NIPS) 2010, 2012, 2013, 2014, 2015, 2016, 2017
- International Conference on Machine Learning (ICML) 2012, 2013, 2014, 2015, 2016, 2017
- Artificial Intelligence and Statistics (AI-STATS) 2010, 2011, 2012, 2013, 2014, 2015, 2016
- ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD) 2011, 2015
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2015, 2016, 2017

CONFERENCE PUBLICATIONS

K. Desai, I. Misra, J.C. Johnson, and L.J.P. van der Maaten. Scaling up Instance Segmentation using Approximately Localized Phrases. To appear in *British Machine Vision Conference (BMVC)*, 2022.

A. Roy Chowdhury, C. Guo, S. Jha, and L.J.P. van der Maaten. EIFFeL: Ensuring Integrity for Federated Learning. To appear in *ACM Conference on Computer and Communications Security (ACM CCS)*, 2022.

C. Guo, B. Karrer, K. Chaudhuri, and L.J.P. van der Maaten. Bounding Training Data Reconstruction in Private (Deep) Learning. In *International Conference on Machine Learning (ICML)*, 2022. [Acceptance rate: 21.9%]

M. Hall, L.J.P. van der Maaten, L. Gustafson, and A. Adcock. A Systematic Study of Bias Amplification. To appear in *NeurIPS 2022 Workshop on Trustworthy and Socially Responsible Machine Learning*, 2022.

M. Singh, L. Gustafson, A. Adcock, V. de Freitas Reis, B. Gedik, R. Prateek Kosaraju, D. Mahajan, R.B. Girshick, P. Dollar, and L.J.P. van der Maaten. Revisiting Weakly Supervised Pre-Training of Visual Perception Models. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. [Acceptance rate: 25.3%]

R. Girdhar*, M. Singh*, N. Ravi*, L.J.P. van der Maaten, A. Joulin, and I. Misra*. Omnivore: A Single Model for Many Visual Modalities. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. [Acceptance rate: 25.3%; 28 citations]

M. Xu, L.J.P. van der Maaten, A.Y. Hannun. Data Appraisal Without Data Sharing. In *Proceedings of Artificial Intelligence and Statistics Conference (AI-STATS)*, 2022. [Acceptance rate: 29.2%]

B. Knott, S. Venkataraman, A.Y. Hannun, S. Sengupta, M. Ibrahim, and L.J.P. van der Maaten. CrypTen: Secure Multi-Party Computation Meets Machine Learning. In *Advances of Neural Information Processing Systems (NeurIPS)*, 2021. [Acceptance rate: 25.7%; 85 citations]

R. Wu, C. Guo, A. Hannun, and L.J.P. van der Maaten. Fixes That Fail: Self-Defeating Improvements in Machine-Learning Systems. In *Advances of Neural Information Processing Systems (NeurIPS)*, 2021. [Acceptance rate: 25.7%]

A. Hannun, C. Guo, and L.J.P. van der Maaten. Measuring Data Leakage in Machine-Learning Models with Fisher Information. In *Proceedings of Uncertainty in Artificial Intelligence (UAI)*, 2021.[Acceptance rate: 32.3%; Best Paper Award]

R. Wu, C. Guo, F. Wu, R. Kidambi, L.J.P. van der Maaten, and K.Q. Weinberger. Making Paper Reviewing Robust to Bid Manipulation Attacks. In *Proceedings of the International Conference on Machine Learning (ICML)*, 2021. [Acceptance rate: 21.75%]

I. Misra and L.J.P. van der Maaten. Self-supervised learning of pretext-invariant representations. In *International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2020. [Acceptance rate: 25%; 847 citations]

C. Guo, T. Goldstein, A.Y. Hannun, and L.J.P. van der Maaten. Certified data removal from machine learning models. In *International Conference on Machine Learning (ICML)*, 2020. [Acceptance rate: 21.8%; 106 citations]

A. Bakhtin, L.J.P. van der Maaten, J.C. Johnson, L. Gustafson, and R.B. Girshick. PHYRE: A New Benchmark for Physical Reasoning. In *Advances of Neural Information Processing (NeurIPS)*, 2019. [Acceptance rate: 21%; 71 citations]

T. DeVries*, I. Misra*, C. Wang*, and L.J.P. van der Maaten. Does Object Recognition Work for Everyone? In *CVPR Workshop on Computer Vision for Global Challenges*, 2019. [135 citations]

H. Hu, I. Misra, and L.J.P. van der Maaten. Evaluating Text-to-Image Matching using Binary Image Selection (BISON). In *ICCV Workshop Closing the Loop Between Vision and Language*, 2019.

Y. Wang, Z. Lai, G. Huang, B.H. Wang, L.J.P. van der Maaten, M. Campbell, and K.Q. Weinberger. Anytime Stereo Image Depth Estimation on Mobile Devices. In

International Conference on Robotics and Automation (ICRA), 2019. [125 citations]

A. Dubey, L.J.P. van der Maaten, Z. Yalniz, Y. Li, and D. Mahajan. Defense Against Adversarial Images using Web-Scale Nearest-Neighbor Search. In *International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019. [Acceptance rate: 25.2%; 50 citations]

C. Xie, Y. Wu, L.J.P. van der Maaten, A. Yuille, and K. He. Feature Denoising for Improving Adversarial Robustness. In *International Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019. [Acceptance rate: 25.2%; 636 citations]

D. Mahajan, R.B. Girshick, V. Ramanathan, K. He, M. Paluri, Y. Li, A. Bharambe, and L.J.P. van der Maaten. Exploring the Limits of Weakly Supervised Pretraining. In *European Conference on Computer Vision (ECCV)*, pages 185–201, 2018. [Acceptance rate: 31.8%; 1,048 citations].

I. Misra, R.B. Girshick, R. Fergus, M. Hebert, A. Gupta, and L.J.P. van der Maaten. Learning by Asking Questions. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. [Oral acceptance rate: 2.1%; 68 citations]

A. Veit, M. Nickel, S. Belongie, and L.J.P. van der Maaten. Separating Self-Expression and Visual Content in Hashtag Supervision. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. [Acceptance rate: 29.6%; 27 citations]

G. Huang, S. Liu, L.J.P. van der Maaten, and K.Q. Weinberger. CondenseNet: An Efficient DenseNet using Learned Group Convolutions. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. [Acceptance rate: 29.6%; 693 citations]

B. Graham, M. Engelcke, and L.J.P. van der Maaten. 3D Semantic Segmentation with Submanifold Sparse Convolutional Networks. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2018. [Acceptance rate: 29.6%; 823 citations]

C. Guo, M. Rana, M. Cisse, and L.J.P. van der Maaten. Countering Adversarial Images using Input Transformations. In *International Conference on Learning Representations (ICLR)*, 2018. [Acceptance rate: 33.6%; 1,062 citations]

G. Huang, D. Chen, T. Li, F. Wu, L.J.P. van der Maaten, and K.Q. Weinberger. Multi-Scale Dense Convolutional Networks for Efficient Prediction. In *International Conference on Learning Representations (ICLR)*, 2018. [Oral acceptance rate: 2.5%; 623 citations]

A. Li, A. Jabri, A. Joulin, and L.J.P. van der Maaten. Learning Visual N-Grams from Web Data. In *Proceedings of the International Conference on Computer Vision (ICCV)*, 2017. [Acceptance rate: 29.0%; 68 citations]

J. Johnson, B. Hariharan, L.J.P van der Maaten, J. Hoffman, L. Fei-Fei, C.L. Zitnick, and R.B. Girshick. Inferring and Executing Programs for Visual Reasoning. To appear in *Proceedings of the International Conference on Computer Vision (ICCV)*, 2017. [Oral acceptance rate: 2.1%; 490 citations]

H. Fayek, L.J.P. van der Maaten, G. Romigh, and R. Mehra. On Data-Driven Approaches to Head-Related-Transfer Function Personalization. In *Audioengineering*, 2017.

G. Huang, Z. Liu, K.Q. Weinberger, and L.J.P. van der Maaten. Densely Connected Convolutional Networks. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017. [Best paper award; Oral acceptance rate: 2.65%; 29,461 citations]

J. Johnson, B. Hariharan, L.J.P. van der Maaten, L. Fei-Fei, C.L. Zitnick, and R.B. Girshick. CLEVR: A Diagnostic Dataset for Compositional Language and Elementary Visual Reasoning. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017. [Acceptance rate: 29.0%; 1,550 citations]

A. Joulin*, L.J.P. van der Maaten*, A. Jabri, and N. Vasilache. Learning Visual Features from Large Weakly Supervised Data. In *Proceedings of the European Conference on Computer Vision (ECCV)*, pages 67–84, 2016. [Acceptance rate: 26.6%; 305 citations]

A. Jabri, A. Joulin, and L.J.P. van der Maaten. Revisiting Visual Question Answering Baselines. In *Proceedings of the European Conference on Computer Vision (ECCV)*, pages 727–739, 2016. [Acceptance rate: 26.6%; 283 citations]

R. Collobert, L.J.P. van der Maaten, and A. Joulin. Torchnet: An Open-Source Platform for (Deep) Learning Research. In *ICML Machine Learning Systems Workshop*, 2016.

L. Zhang, H. Dibeklioglu, and L.J.P. van der Maaten. Speeding Up Tracking by Ignoring Features. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1266–1273, 2014. [Acceptance rate: 29.9%]

Y. Guo, H. Dibeklioglu, and L.J.P. van der Maaten. Graph-Based Kinship Recognition. In *Proceedings of the International Conference on Pattern Recognition (ICPR)*, pages 4287–4292, 2014. [80 citations]

L. Zhang and L.J.P. van der Maaten. Improving Object Tracking by Adapting Detectors. In *Proceedings of the International Conference on Pattern Recognition (ICPR)*, pages 1218–1223, 2014.

G. Saygili, L.J.P. van der Maaten, and E.A. Hendriks. Stereo Similarity Metric Fusion Using Stereo Confidence. In *Proceedings of the International Conference on Pattern Recognition (ICPR)*, pages 2161–2166, 2014.

G. Saygili, L.J.P. van der Maaten, and E.A. Hendriks. Hybrid Kinect Depth Map Refinement For Transparent Objects. In *Proceedings of the International Conference on Pattern Recognition (ICPR)*, pages 2751–2756, 2014.

P. Messier, C.R. Johnson, H. Wilhelm, W.A. Sethares, A.G. Klein, P. Abry, S. Jaffard, H. Wendt, S. Roux, N. Pustelni, N. van Noord, L.J.P. van der Maaten, and E.O. Postma. Automated Surface Texture Classification of Inkjet and Photographic Media. In *Proceedings of the International Conference on Digital Printing Technologies*, 2013.

L.J.P. van der Maaten. Barnes-Hut-SNE. In *Proceedings of the International Conference on Learning Representations (ICLR)*, 2013. [Oral acceptance rate: 21%; 226 citations]

L. Zhang and L.J.P. van der Maaten. Structure Preserving Object Tracking. In *Proceedings of the IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, pages 1838–1845, 2013. [Oral acceptance rate: 3.2%; 241 citations]

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