Dave Van Veen

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EDUCATION

Stanford University - Ph.D. in Electrical Engineering — 2021 – Present
Focus: Computational imaging, large language models, machine learning
GPA: 4.0 / 4.0

University of Texas - M.S. in Electrical Engineering — 2017 – 2019
Focus: Machine learning, compressed sensing
Advisors: Alexandros Dimakis, Sriram Vishwanath
Thesis: Compressed sensing recovery with unsupervised neural networks
GPA: 3.8 / 4.0

University of Wisconsin - B.S. in Electrical Engineering — 2012 – 2016
Advisor: John Booske
GPA: 3.9 / 4.0

EXPERIENCE

Graduate Research Asst., Stanford University | Stanford, CA — 2021 – Present

Visiting Scholar, Machine Learning Group at TUM | Munich, Germany — 2023

Machine Learning Research Scientist, Subtle Medical | Menlo Park, CA — 2019 – 2021
Developed real-time video denoising algorithms for clinical deployment

Research Scientist, Center for AI in Medicine and Imaging | Stanford, CA — 2020 – 2021
Developed unsupervised machine learning methods for MRI reconstruction

Research Fellow, Data Science for Social Good | London, UK — 2019
Built a machine learning pipeline to streamline cardiologists' workflow

Graduate Research Asst., University of Texas | Austin, TX — 2017 – 2019
Developed machine learning algorithms for compressed sensing recovery

President + Co-founder, Badgerloop | Madison, WI — 2015 – 2017
Created and led 150-person organization for SpaceX competition

Research Intern, QBE Digital Innovation Lab | Madison, WI — 2017

Electrical Engr. + Project Mgmt. Intern, Boeing | Seattle, WA — 2016

Aquatics Supervisor, City of Madison | Madison, WI — 2014 – 2015
Hired and supervised 100+ employees. Managed budget of $250K

Undergraduate Research Asst., UW-Madison BME Dept. | Madison, WI — 2013 – 2014
Performed statistical analysis on cellular biomechanic experiments

PUBLICATIONS

CONFERENCES

[C6] D. Van Veen*, C. Van Uden*, M. Attias, A. Pareek, C. Bluethgen, M. Polacin, W. Chiu, J. B. Delbrouch, J. M. Zambrano Chaves, C. P. Langlotz, A. S. Chaudhari, J. Pauly, "RadAdapt: Radiology Report Summarization via Lightweight Domain Adaptation of Large Language Models," in *Association for Computational Linguistics (ACL) BioNLP* (oral), Toronto, ON, Canada, 2023.

[C5] D. Van Veen, R. van der Sluijs, B. Ozturkler, A. Desai, C. Bluethgen, R. Boutin, M. Willis, G. Wetzstein, D. Lindell, S. Vasanawala, J. Pauly, A. S. Chaudhari, "Scale-Agnostic Super-Resolution in MRI using Feature-Based Coordinate Networks" in *Medical Imaging with Deep Learning (MIDL)*, Zurich, Switzerland, 2022.

[C4] D. Lindell, D. Van Veen, J.J. Park, G. Wetzstein, "BACON: Band-limited coordinate networks for multiscale scene representation" in *Conference on Computer Vision and Pattern Recognition (CVPR)* (oral), New Orleans, LA, 2022.

[C3] D. Van Veen, B. Duffy, L. Wang, K. Datta, T. Zhang, G. Zaharchuk, E. Gong, "Real-Time Video Denoising to Reduce Ionizing Radiation Exposure in Fluoroscopic Imaging," in *Medical Image Computing and Computer Assisted Intervention (MICCAI) - Machine Learning for Medical Imaging Reconstruction (MLMIR)* (spotlight), Virtual, 2021.

[C2] W. Toussaint, D. Van Veen, C. Irwin, Y. Nachmany, et al., "Design Considerations for High Impact, Automated Echocardiogram Analysis," in *International Conference of Machine Learning (ICML) - Global Health*, Virtual, 2020.

[C1] D. Van Veen, A. Jalal, E. Price, S. Vishwanath, A. G. Dimakis, "Compressed Sensing Recovery of Medical Images using Deep Image Prior," in *Neural Information Processing Systems (NeurIPS) - Med-NeurIPS*, Montreal, Canada, 2018.

PRE-PRINTS

[P1] D. Van Veen, A. Jalal, M. Soltanolkotabi, E. Price, S. Vishwanath, A. G. Dimakis, "Compressed Sensing with Deep Image Prior and Learned Regularization," in *arXiv preprint arXiv:1806.06438*, 2020.

ABSTRACTS

[A3] A. Gatti, D. Van Veen, G. Gold, S. Delp, A. S. Chaudhari, "Neural Shape Models Predict Knee Pain Better than Conventional Statistical Shape Models: Data from the Osteoarthritis Initiative," in *The International Society for Magnetic Resonance in Medicine (ISMRM)* (summa cum laude), Toronto, ON, Canada, 2023.

[A2] D. Van Veen, A. Desai, R. Heckel, A. S. Chaudhari, "Using Untrained Convolutional Neural Networks to Accelerate MRI in 2D and 3D," in *The International Society for Magnetic Resonance in Medicine (ISMRM)*, Virtual, 2021.

[A1] K. Slavkova, J. C. DiCarlo, D. Van Veen, A. K. Syed, A. Jalal, J. Virostko, A. G. Sorace, A. G. Dimakis, T. E. Yankeelov, "Implementing Compressed Sensing with Deep Image Prior to Reconstruct Undersampled Dynamic Contrast-Enhanced MRI Data of the Breast," in *The International Society for Magnetic Resonance in Medicine (ISMRM)*, Virtual, 2020.

PATENTS

[2] E. Gong, B. Duffy, D. Van Veen, K. Datta, "Systems and Methods for Real-Time Video Denoising," Patent no. WO2022265875, 2022.

[1] D. Van Veen, L. Wang, T. Zhang, E. Gong, B. Duffy, "Systems and Methods for Real-Time Video Enhancement," Patent no. WO2021163022, 2021.

GRANTS

[2] D. Van Veen, E. Gong, G. Zaharchuk, E. Carragee, B. Duffy, "Real-time AI-enhanced Low Dose Fluoroscopy," National Institute of Health (NIH) Small Business Innovation Research (SBIR) Award FOA PA-20-260, 2021.

[1] S. Vishwanath, D. Van Veen, J. Tamir, et al., "Adaptive Machine Learning Techniques for Signal Identification, Classification, and Recovery," Office of Naval Research, Award N00014-19-1-2590, 2019.

AWARDS & HONORS

- Graduate Research Fellow, Stanford Club of Germany 2023
- Google's Distinguished Poster Award, SCIEN Meeting 2021
- Data Science for Social Good Fellow 2019
- Badgerloop 2015-2017
  - SpaceX Hyperloop Competition: Innovation Award
  - University of Wisconsin Dean's Excellence Award
  - SpaceX Hyperloop Competition: 3rd place in design (1800 entries)

- University of Wisconsin 2012-2016
  - Innovative Signal Analysis Award
  - Academic Excellence Scholarship, State of Wisconsin
  - Merit Scholarship, Electrical and Computer Engineering Dept.
  - Merit Scholarship, Biomedical Engineering Dept.
- Valedictorian, McFarland High School 2012

INVITED TALKS

- "Signal Reconstruction with Unsupervised Neural Networks," Data Days Mexico, Virtual, 2020.
- "Inverse Problems with Generative Models," UC - Berkeley's Computational Imaging Group, Berkeley, CA, 2019.
- "Increasing the Efficiency of Heart Diagnosis with Machine Learning," University of Salamanca Hospital, Salamanca, Spain, 2019.