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

JOURNALS

[J1] D. Van Veen, C. Van Uden, L. Blankemeier, J.B. Delbrouck, A. Aali, C. Bluethgen, A. Pareek, M. Polacin, E.P. Reis, A. Seehofnerova, N. Rohatgi, P. Hosamani, W. Collins, N. Ahuja, C.P. Langlotz, J. Hom, S. Gatidis, J. Pauly, A.S. Chaudhari, "Adapted Large Language Models Can Outperform Medical Experts in Clinical Text Summarization," in *Nature Medicine*, 2024.

CONFERENCES

[C6] D. Van Veen*, C. Van Uden*, M. Attias, A. Pareek, C. Bluethgen, M. Polacin, W. Chiu, J.B. Delbrouck, 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

[P3] A. Aali, D. Van Veen, Y.I. Arefeen, J. Hom, C. Bluethgen, E.P. Reis, S. Gatidis, N. Clifford, J. Daws, A.S. Tehrani, J. Kim, A.S. Chaudhari, "A Benchmark of Domain-Adapted Large Language Models for Generating Brief Hospital Course Summaries," in *arXiv preprint arXiv:2403.05720*, 2024.

[P2] Z. Chen, M. Varma, J.B. Delbrouck, M. Pachali, L. Blankemeier, D. Van Veen, J.M.J. Valanarasu, A. Youssef, J.P. Cohen, E.P. Reis, E.B. Tsai, A. Johnston, C. Olsen, T.M. Abraham, S. Gatidis, A.S. Chaudhari, C.P. Langlotz, "CheXagent: Towards a Foundation Model for Chest X-Ray Interpretation," in *arXiv preprint arXiv:2401.12208*, 2024.

[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

[A4] A. Gatti, L. Blankemeier, D. Van Veen, B. Hargreaves, S. Delp, F. Kogan, G. Gold, A.S. Chaudhari, A.S. Chaudhari, "Neural Shape Models Meaningfully Localize Features Relevant to Osteoarthritis Disease: Data from the Osteoarthritis Initiative," in *The International Society for Magnetic Resonance in Medicine (ISMRM)* (oral), Singapore, 2024.

[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

- Ignite Member, Stanford Graduate School of Business 2024
- Technical Founder Fellow, Cardinal Ventures 2024
- 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

- “Adapting Large Language Models for Clinical Text Summarization,” Memorial Sloan Kettering Cancer Center, Virtual, 2023.
- “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.