ASHLEY (YE) GAO

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EMPLOYMENT

William & Mary *2023 - Present*
Assistant Professor in Computer Science

EDUCATION

University of Virginia *2019 - 2023*
Advisor: John A. Stankovic
Thesis: *Addressing Realisms Faced by Deep Learning Models in Cyber Physical Systems*
Ph.D. in Computer Science

University of Virginia *2017 - 2019*
M.S. in Computer Science

University of California, San Diego *2012 - 2017*
B.S. in Computer Science
B.A. in Literatures of the World

RESEARCH OVERVIEW

My research direction lies in the field of **transfer learning** and **domain adaptation/generalization**.

SELECTED PUBLICATIONS

[IOTDI'24] **Gao, Y.**, Jabbour, J., Ko, E., Wijayasingha, L., Kim, S., Wang, Z., Ma, M., Rose, K., Gordon, K., Wang, H., Stankovic, J. A., "Integrating Voice-Based Machine Learning Technology into Complex Home Environments", arXiv preprint arXiv:2211.03149. (in submission). [Paper]

[ArXiv] **Gao, Y.**, Chu, Z., Wang, H., Stankovic, J. "MiddleGAN: Generate Domain Agnostic Samples for Unsupervised Domain Adaptation", ArXiv preprint arXiv:2211.03144.[Paper]

[SmartComp'23] **Gao, Y.**, Baucom, B., Gordon, K., Rose, K., Wang, H., Stankovic. "E-ADDA: Unsupervised Adversarial Domain Adaptation Enhanced by a New Mahalanobis Distance Loss for Smart Computing", arXiv preprint arXiv:2201.10001. (accepted). [Paper]

[INA'22] Rose, K., Gordon, K., Schlegel, E., McCall, M., **Gao, Y.**, Jabbour, J. and Ko, E., 2021. "Pandemic Deployment of a Smarthealth Technology to Improve Stress in Dementia Family Caregivers", Innovation in Aging, 5(Suppl 1), pp.450-450. [Paper]

[HEALTH'21] **Gao, Y**, Salekin, A., Gordon, K., Rose, K., Wang, H. and Stankovic, J., 2021. "Emotion Recognition Robust to Indoor Environmental Distortions and Non-targeted Emotions Using Out-of-distribution Detection", ACM Transactions on Computing for Healthcare (HEALTH), 3(2), pp.1-22. [Paper]

[PERCOM'21] **Gao, Y.**, Jabbour, J., Schlegel, E.C., Ma, M., McCall, M., Wijayasingha, L., Ko, E., Gordon, K., Rose, K., Wang, H. and Stankovic, J., 2021. "Out-of-the-Box Deployment to Support Research on In-Home Care of Alzheimer's Patients", IEEE Pervasive Computing, 21(1), pp.37-47. [Paper]

[JAN'21] Rose, K.M., Coop Gordon, K., Schlegel, E.C., Mccall, M., **Gao, Y.**, Ma, M., Lenger, K.A., Ko, E., Wright, K.D., Wang, H. and Stankovic, J., 2021. "Smarthealth technology study protocol to improve

relationships between older adults with dementia and family caregivers", Journal of Advanced Nursing, 77(5), pp.2519-2529. [Paper]

[SENSYS'20] **Gao, Y.**, Ma, M., Gordon, K., Rose, K., Wang, H. and Stankovic, J., 2020, November. "A monitoring, modeling, and interactive recommendation system for in-home caregivers: Demo abstract", In Proceedings of the 18th Conference on Embedded Networked Sensor Systems (pp. 587-588). [Paper]

WORK EXPERIENCE

W6. Assistant Professor, Department of Computer Science, College of William & Mary. To start in August 2023. *2023*

W5. Research Assistant, CPS and Machine Learning, Department of Computer Science, University of Virginia. *2019 - 2023*

W4. Teaching Assistant, Signal Processing, Machine Learning and Control, Department of Computer Science, University of Virginia. *2021*

W3. Teaching Assistant, Cyber Physical Systems and the Internet of Things, Machine Learning and Control, Department of Computer Science, University of Virginia. *2021*

W2. Teaching Assistant, Signal Processing, Machine Learning and Control, Department of Computer Science, University of Virginia. *2022*

W1. Teaching Assistant, Computational Biology, Department of Computer Science, University of Virginia. *2022*

HONORS AND AWARDS

H4. Best Poster at CS Symposium, University of Virginia. *2022*

H3. UVA Computer Science PhD Fellowship, University of Virginia. *2019*

H2. Dept of Comp Sci Academic Excellence Fellowship, University of Virginia. *2017*

H1. Honors with High Distinction, University of California, San Diego. *2016*

POSTER PRESENTATIONS

P5. "Learning and Improving Alzheimer's Patient-Caregiver Relationships via Smart Healthcare Technology", National Science Foundation Research Traineeship (NRT) Program at Virginia Tech. *2022*

P4. "Learning and Improving Alzheimer's Patient-Caregiver Relationships via Smart Healthcare Technology", Link Lab Research Day at UVA. *2022*

P3. "Learning and Improving Alzheimer's Patient-Caregiver Relationships via Smart Healthcare Technology", Computer Science Department Fall Research Symposium at UVA. *2022*

P2. "Learning and Improving Alzheimer's Patient-Caregiver Relationships via Smart Healthcare Technology", Computer Science Department Spring Research Symposium at UVA. *2022*

P1. "A Monitoring, Modeling, and Interactive Recommendation System for In-Home Caregivers", The ACM Conference on Embedded Networked Sensor Systems (Sensys). *2020*

PROFESSIONAL SERVICES

S6. Primary Reviewer. AAAI, NeurIPS, ICLR. *2023*

S5. Primary Reviewer. IEEE Transactions on Affective Computing. *2022*

S4. Primary Reviewer. 37th AAAI Conference on Artificial Intelligence. AAAI. *2022*

S3. Primary Reviewer. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies. IMWUT/Ubicomp. *2022*

S2. Primary Reviewer. 36th Conference on Neural Information Processing Systems. NeurIPS. *2022*

S1. Primary Reviewer. ACM Transactions on Computing for Healthcare. HEALTH. *2021*

STUDENT ACTIVITY SERVICES

S1. Student Officer. Computer Science Department Graduate Student Group (CSGSG) at the UVa. *2019-2020*

FEATURED

F1. Honors student of the Department of Literature at UCSD. [Webpage] *2016*

ON-GOING RESEARCH WORKS (LEAD AUTHOR)

Learning and Improving Alzheimer's Patient-Caregiver Relationships via Smart Healthcare Technology. *2022*
We use transfer learning to detect the emotions of caregivers of dementia patients and reinforcement learning to recommend interventions to them to help them manage their (negative) emotions.

Learning and Forecasting Traffic and Pollution Information in Smart Cities. *2022*
We use graph neural network (GNN) based transfer learning to transfer-learn the traffic and weather information of a smart city to another smart city.

SELECTED PROJECTS

P4. Using Out-Of-Distribution Technique to Achieve Robustness of Deep Neural Network-Based Visual Recognition Classifiers. [Report]
- Propose a filter that can be applied to any pre-trained classifier to detect abnormal samples.
- Developed using pytorch. *2020*

P3. Acoustic Pipeline for Speech-Based Emotion Detection. [Report]
- Proposing an acoustical pipeline consisting of classifiers for emotion detection.
- Developed using tensorflow. *2019*

P2. A Comprehensive Product Rating System for Video Games Using Sentiment Mining. [Report]
- Mining sentiments from the reviews of video games on IGN to calculate a final rating.
- Developed using tensorflow. *2018*

P1. Changed Bodies: Ovid, Sekien, and the Motif of Transformation. [Report]
- A comparative study on Ovid's *Metamorphoses* (1st century Rome CE) and Sekien's *Gazu Hyakki Tsurezure Bukuro* (18th century Japan).
- Honors thesis in the Department of Literature at the University of California, San Diego. *2016*

REFERENCES

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