Sumedh Anand Sontakke

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Current position

Annenberg Fellow, Viterbi School of Engineering, University of Southern California

Areas of specialization

Machine Learning, Artificial Intelligence, Foundation Models, Representation Learning, Robot Learning

Appointments held

May-August 2023	Research Intern, Microsoft Research, Redmond, WA. Research on the robustness of ChatGPT.
May-Dec 2022	Student Researcher, Google Brain, Mountain View, CA. Research on LLMs and decision-making.
May-Aug 2021	Research Intern, Nokia Bell Labs, Murray Hill, NJ. Research on robust computer vision.
April-Oct 2020	Visiting PhD Student, Max Planck Institute for Intelligent Systems. Research on causality.
May-Aug 2020	Research Intern, Adobe Media and Data Science Research
May-Aug 2018	Summer Undergraduate Research Fellow, California Institute of Technology
Summer 2017	Summer Research Fellow, University of Oxford
2015-2018	Chief Data Scientist, Skyline Labs (Facebook-Start funded)
Winter 2016	Data Engineering Intern, PepsiCo India

Education

2019-present	PhD in Computer Science, University of Southern California
2015 - 2019	Bachelor of Technology in Electrical Engineering, College of Engineering, Pune, India

Grants, honours & awards

2021	Annenberg Project Grant for Causal Curiosity, awarded annually to 10 PhD students across the University for high-impact projects.
2019	Annenberg Fellowship, Viterbi School of Engineering, University of Southern California
2019	Nikola Tesla Scholarship (declined), Columbia University
2018	Simons Foundation Autism Research SURF Fellow, California Institute of Technology
2017	Summer Research Scholarship, SENS Research Foundation, University of Oxford

Publications & talks

2023 **Sontakke, S.**, Zhang, J., Arnold, S.M.R., Pertsch, K., Bıyık, E., Sadigh, D., Finn, C., Itti, L. RoboCLIP: One Demonstration is Enough to Learn Robot Policies. Thirty-seventh Conference on Neural Information Processing Systems. (NeurIPS), 2023.

2023 Chebotar, Y., Vuong, Q., Irpan, A., Hausman, K., Xia, F., Lu, Y., Kumar, A., Yu, T., Herzog, A., Pertsch, K., Gopalakrishnan, K., **Sontakke, S.**, and others, 2023. Q-Transformer: Scalable Offline Reinforcement Learning via Autoregressive Q-Functions. Conference on Robot Learning (CoRL), 2023.

2023 Lightweight Learner for Shared Knowledge Lifelong Learning. Yunhao Ge, Yuecheng Li, Di Wu, Ao Xu, Adam M. Jones, Amanda Sofie Rios, Iordanis Fostiropoulos, Shixian Wen, Po-Hsuan Huang, Zachary William Murdock, Gozde Sahin, Shuo Ni, Kiran Lekkala, **Sumedh Anand Sontakke**, Laurent Itti. Transaction on Machine Learning Research (TMLR), 2023.

2023 Rt-1: Robotics transformer for real-world control at scale. Brohan, Anthony and Brown, Noah and Carbajal, Justice and Chebotar, Yevgen and Dabis, Joseph and Finn, Chelsea and Gopalakrishnan, Keerthana and Hausman, Karol and Herzog, Alex and Hsu, Jasmine and **Sontakke, Sumedh** and others. **Best Demo Paper Finalist**, Robotics Science and Systems (RSS), 2023

2022 Model2Detector: Widening the Information Bottleneck for Out-of-Distribution Detection using a Handful of Gradient Steps. Sumedh A. Sontakke, Buvaneswari Ramanan, Laurent Itti, Thomas Woo. Proceedings of the Robust Artificial Intelligence System Assurance (RAISA) Workshop, AAAI 2022.

2022 Roychowdhury S*., **Sontakke S.A.***, Puri N., Sarkar M., Aggarwal M., Badjatiya P., Krishnamurthy B., Itti L. Self-supervised Hierarchical Representation Learning. The 26th International Conference on Pattern Recognition (ICPR), 2022.

2022 **Sontakke S.A.**, Iota S., Hu Z., Mehrjou A., Itti L., Schölkopf B. GalilAI: Out-of-Task Distribution Detection using Causal Active Experimentation for Safe Transfer RL. The 25th International Conference on Artificial Intelligence and Statistics (AISTATS), 2022.

2021 **Sontakke S.A.**, Roychowdhury, S., Sarkar, M., Puri, N., Krishnamurthy, B. and Itti, L., 2021. Video2Skill: Adapting Events in Demonstration Videos to Skills in an Environment using Cyclic MDP Homomorphisms. arXiv preprint arXiv:2109.03813.

2021 **Sontakke S.A.**, Mehrjou A., Itti L., Schölkopf B. Causal Curiosity: RL Agents Discovering Self-supervised Experiments for Causal Representation Learning. International Conference on Machine Learning (ICML), 2021 (**Spotlight Oral**).

2019 **Sontakke S.A.**, Lohokare J., Dani R., Shivagaje P. (2019) Classification of Cardiotocography Signals Using Machine Learning. In: Arai K., Kapoor S., Bhatia R. (eds) Intelligent Systems and Applications. IntelliSys 2018. Advances in Intelligent Systems and Computing, vol 869. Springer

2019 Huddar P.,**Sontakke S.A.**. Acquiring Domain Knowledge for Cardiotocography: A Deep Learning Approach, IEEE International Conference on Informatics and Computational Sciences 2019

2018 **Sontakke S.A.** Predicting general intelligence using resting state fMRI data : A machine learning approach, Caltech Undergraduate Research Journal 2018

2017 **Sontakke, S.**, Lohokare, J., Dani, R. (2017, February). Diagnosis of liver diseases using machine learning. In 2017 International Conference on Emerging Trends & Innovation in ICT (ICEI) (pp. 129-133). IEEE.

2017 Lohokare, J., Dani, R., **Sontakke, S.**, Apte, A., & Sahni, R. (2017, July). Emergency services platform for smart cities. In 2017 IEEE Region 10 Symposium (TENSYMP) (pp. 1-5). IEEE.

2017 Lohokare, J., Dani, R., **Sontakke, S.**, Adhao, R. (2017, February). Scalable tracking system for public buses using IoT technologies. In 2017 International Conference on Emerging Trends Innovation in ICT (ICEI) (pp. 104-109). IEEE.

2017 Lohokare, J., Dani, R., **Sontakke, S.** (2017, February). Automated data collection for credit score calculation based on financial transactions and social media. In 2017 International Conference on Emerging Trends Innovation in ICT (ICEI) (pp. 134-138). IEEE.

2017 **Sontakke S.A.**, Machine learning improves attrition rates and cost-effectiveness in drug development, Proceedings of SENS Research Foundation Summer Scholars Conference 2017