

Aniket Anand Deshmukh

CONTACT INFORMATION	<i>Google Scholar:</i> shorturl.at/cmxJS <i>Web:</i> https://aniketde.github.io/		<i>Email:</i> aniketde@umich.edu <i>Phone:</i> (734) 277-3529
EDUCATION	University of Michigan (UMich) , Ann Arbor, MI USA <i>MS-Ph.D, Electrical and Computer Engineering</i> <ul style="list-style-type: none">• Advisor: Dr. Clayton Scott• Courses: Machine Learning, Sequential Decision Making (Reinforcement Learning), Image Processing, Methods in Optimization Statistics, Matrix Methods for Signal Processing• Graduate Student Research Assistant (PhD Thesis Projects): Domain Generalization [2], Multitask Learning for Contextual Bandits [7], Simple Regret Minimization for Contextual Bandits [6]• Graduate Student Instructor: EECS 545 Machine Learning (Fall 2016, Fall 2018)		CGPA: 4.14/4.3 <i>Aug'13 - Jan'19</i>
	Indian Institute of Technology Hyderabad (IIT-H) , India <i>Bachelor of Technology with Honors, Electrical Engineering</i> <ul style="list-style-type: none">• Courses: Mathematics behind Machine Learning, Image & Video Processing, Speech Signal Processing, Adaptive Signal Processing, Information Theory & Coding		CGPA: 8.63/10.0 <i>Jul'09 - Jul'13</i>
PROFESSIONAL EXPERIENCE	Applied Scientist, Microsoft Ads , Sunnyvale, CA, USA <ul style="list-style-type: none">• Resource constrained offline reinforcement learning (ORL) for auto-bidding: During deployment, many agents have resource constraints, e.g. compute power, available energy. In this project, we propose a new method for ORL with resource constrained online deployment [3].• Multi Media Ads: Based on advertiser's textual information, goal of this project is to select high quality images for the advertisers from the proprietary and general purpose image-caption corpus. We trained the CLIP-like model on the image caption corpus and got precision@5 of more than 0.6 (by human labellers). This model is being used in a flight to check it's effect on online traffic.• Image Classification with limited labels: Developed Image classification model using curriculum learning. The model is currently in production on Microsoft Ads shopping platform which handles millions of searches and hundreds of thousands of dollars in shopping per day. This work is also published at ECCV 2020 [4].• Developed representation learning approach to calculate keyword-query similarity using click data. The model is currently in production and used by advertisers on the Microsoft Ads platform to search for any relevant keywords that match to their ads and their keyword [1].		<i>Mar'19 - present</i>
	Applied Scientist Intern, Microsoft AI & Research , Sunnyvale, CA, USA <ul style="list-style-type: none">• Proposed and implemented Word2Vec variant of CDSSM algorithm to improve text embedding of a search query from click feedback.• Developed self supervised learning for contextual bandits algorithms. Achieved the cumulative reward gains of 0.5% to 46.11 % over Neural-UCB on standard computer vision datasets. [1].		<i>May'18 - Aug'18</i>
	Research Intern, Mitsubishi Electric Research Labs , Cambridge, MA, USA <ul style="list-style-type: none">• Proposed a distribution free, graph based approach for semisupervised transfer learning.• Demonstrated that the additional information added in the form of unlabeled data improves prediction by 5.9% on the Parkinson's Telemonitoring dataset as compared to transfer learning method.		<i>May'16 - Aug'16</i>
SKILLS	<i>Languages</i> <i>Tools</i>	Python, Latex, HTML PyTorch, Keras, Matlab, Azure ML, Azure Cosmos DB	
POSITIONS OF RESPONSIBILITY	<ul style="list-style-type: none">• Co-ordinator, Machine Learning Reading Group, Microsoft Ads Signals Team• Co-ordinator, Statistical Machine Learning Reading Group, UMich• Mentor, Center for Engineering Diversity & Outreach• Science & Technology Secretary, Student Gymkhana, IIT-H		<i>Mar'19 - current</i> <i>Sep'17 - Apr'18</i> <i>Sep'15 - May'17</i> <i>May'11 - Apr'12</i>

1. Aniket Anand Deshmukh, Jayanth Reddy Regatti, Eren Manavoglu, and Urun Dogan. Representation learning for clustering via building consensus. *arXiv preprint arXiv:2105.01289*, 2021 (under review)
2. Gilles Blanchard, Aniket Anand Deshmukh, Urun Dogan, Gyemin Lee, and Clayton Scott. Domain generalization by marginal transfer learning. *Journal of Machine Learning Research*, 22(2):1–55, 2021
3. Jayanth Reddy Regatti, Aniket Anand Deshmukh, Frank Cheng, Young Hun Jung, Abhishek Gupta, and Urun Dogan. Offline rl with resource constrained online deployment. *arXiv preprint arXiv:2110.03165*, 2021 (under review)
4. Urun Dogan, Aniket Anand Deshmukh, Marcin Machura, and Christian Igel. Label-similarity curriculum learning. In *European Conference on Computer Vision*, pages 174–190. Springer, 2020
5. Udit Maniyar, Aniket Anand Deshmukh, Urun Dogan, and Vineeth N Balasubramanian. Zero shot domain generalization. In *British machine vision conference 2020 arXiv preprint arXiv:2008.07443*, 2020
6. Aniket Anand Deshmukh, Srinagesh Sharma, James W Cutler, Mark Moldwin, and Clayton Scott. Simple regret minimization for contextual bandits. In *Exploration in RL, ICML 2019 workshop arXiv preprint arXiv:1810.07371*, 2018
7. Aniket Anand Deshmukh, Urun Dogan, and Clay Scott. Multi-task learning for contextual bandits. In *Advances in Neural Information Processing Systems*, pages 4848–4856, 2017

EVERYTHING ELSE

1. Jayanth R Regatti*, Aniket Anand Deshmukh*, Eren Manavoglu, and Urun Dogan. Evaluation criteria for deep clustering algorithms. In *ICML 2021 Workshop: Self-Supervised Learning for Reasoning and Perception*. https://aniketde.github.io/processed_md/ICML2021_ConCurl_v2.pdf, 2021
2. Jayanth Reddy Regatti, Aniket Anand Deshmukh, Eren Manavoglu, and Urun Dogan. Consensus clustering with unsupervised representation learning. In *IJCNN 2021 arXiv preprint arXiv:2010.01245*, 2020
3. Levi Boyles, Aniket Anand Deshmukh, Urun Dogan, Rajesh Koduru, Charles Denis, and Eren Manavoglu. Semantic hashing with locality sensitive embeddings. 2020
4. Aniket Anand Deshmukh, Abhimanu Kumar, Levi Boyles, Denis Charles, Eren Manavoglu, and Urun Dogan. Self-supervised contextual bandits in computer vision. *arXiv preprint arXiv:2003.08485*, 2020
5. Abhimanu Kumar, Aniket Anand Deshmukh, Urun Dogan, Denis Charles, and Eren Manavoglu. Data transformation insights in self-supervision with clustering tasks. In *NeurIPS 2020 Workshop: Self-Supervised Learning - Theory and Practice arXiv preprint arXiv:2002.07384*, 2020
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7. Aniket Anand Deshmukh. *Kernel Methods for Learning with Limited Labeled Data*. PhD thesis, 2019
8. Mansi Mane, Aniket Anand Deshmukh, and Adam Iliff. Head and tail localization of c. elegans. In *ICML Workshop on Computational Biology*, number <https://drive.google.com/file/d/1Jx12NgK>, 2019
9. Yuren Zhong, Aniket Anand Deshmukh, and Clayton Scott. Pac reinforcement learning without real-world feedback. *arXiv preprint arXiv:1909.10449*, 2019
10. Leonardo Regoli, Mark B Moldwin, Srinagesh Sharma, Aniket Deshmukh, James Cutler, Clayton Scott, and Geoffrey Jenkins. Addressing magnetic interference in small spacecraft with machine learning. In *AGU Fall Meeting Abstracts*, volume 2019, pages SH43B–01, 2019

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12. Aniket Anand Deshmukh and Emil Laftchiev. Semi-supervised transfer learning using marginal predictors. In *2018 IEEE Data Science Workshop (DSW)*, pages 160–164. IEEE, 2018
13. Aniket Anand Deshmukh, Srinagesh Sharma, James W Cutler, and Clayton Scott. Multiclass domain generalization. In *NeurIPS workshop on limited labeled data*, 2017