

# Aditya Deshmukh

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CONTACT INFORMATION	Emails: <a href="mailto:ad11@illinois.edu">ad11@illinois.edu</a>    <a href="mailto:aditya.deshmukh78@gmail.com">aditya.deshmukh78@gmail.com</a> Websites: <a href="https://adityadeshmukh.github.io">adityadeshmukh.github.io</a>    <a href="#">GoogleScholar</a>    <a href="#">LinkedIn</a>	
RESEARCH INTERESTS	Statistical Inference, Machine Learning, Reinforcement Learning, Data Compression, Optimization & Information Theory	
EDUCATION	<b>University of Illinois at Urbana-Champaign (UIUC)</b> <i>Ph.D. in Electrical and Computer Engineering</i> <ul style="list-style-type: none"><li>• Advisor: <a href="#">Venugopal Veeravalli</a></li><li>• Thesis Committee: <a href="#">Venugopal Veeravalli</a>, <a href="#">Maxim Raginsky</a>, <a href="#">Pierre Moulin</a>, <a href="#">Georgios Fel-louris</a></li></ul>	Aug 2017 – Dec 2023 3.97/4.0
	<b>Indian Institute of Technology Madras (IIT Madras)</b> <i>B.Tech. and M.Tech. in Electrical Engineering</i> <ul style="list-style-type: none"><li>• Advisor: <a href="#">Srikrishna Bhashyam</a></li></ul>	2012 – 2017 8.81/10.0
PROFESSIONAL EXPERIENCE	<b>Amazon Inc.</b> Remote – Research Scientist Intern <ul style="list-style-type: none"><li>• Identified relevant features and implemented machine learning models for the problem of online defect identification to improve output of Alexa’s NLP model</li></ul>	May - Aug 2021
	<b>Tata Institute of Fundamental Research (TIFR)</b> Mumbai – Junior Research Fellow <ul style="list-style-type: none"><li>• Conducted research under the guidance of <a href="#">Rahul Vaze</a> on the problem of online energy-efficient packet scheduling</li></ul>	May – July 2015
	<b>Phasorz Technologies</b> Chennai – Android Development Intern <ul style="list-style-type: none"><li>• Developed ‘DocsApp’ (now <a href="#">MediBuddy</a>) - an android based messaging and consulting platform for patients and doctors</li></ul>	March – July 2014
FELLOWSHIPS & ACHIEVEMENTS	<ul style="list-style-type: none"><li>• <a href="#">Mavis Future Faculty Fellowship</a> (conferred by UIUC) 2021</li><li>• <a href="#">Joan and Lalit Bahl Fellowship</a> (conferred by UIUC) 2021,2022</li><li>• <a href="#">Dr. Ok Kyun Kim Fellowship</a> (conferred by UIUC) 2019</li><li>• All India Rank 599 in <a href="#">IIT-JEE</a> among half million applicants 2012</li><li>• Selected for <a href="#">KVPY</a> Scholarship (SX Stream) by IISc 2011</li></ul>	
JOURNAL PUBLICATIONS & PREPRINTS	<ul style="list-style-type: none"><li>• <u>Distributed and Adaptive Feature Compression using VQ-VAEs</u> <b>A. Deshmukh</b>, V. Veeravalli, and G. Verma <i>under preparation</i></li><li>• <u>Robust Mean Estimation in High Dimensions: An Outlier Fraction Agnostic and Efficient Algorithm</u> <b>A. Deshmukh</b>, J. Liu, and V. Veeravalli <a href="#">[arXiv]</a> <i>IEEE Transactions on Information Theory</i> (2023)</li><li>• <u>Information Flow Optimization for Estimation in Linear Models Using a Sensor Network</u> <b>A. Deshmukh</b>, J. Liu, V. Veeravalli, and G. Verma <a href="#">[IEEE Xplore]</a> <i>IEEE Signal Processing Letters</i> (2023)</li></ul>	

	<ul style="list-style-type: none"> <li>• <u>Sequential controlled sensing for composite multihypothesis testing</u>  <b>A. Deshmukh</b>, S. Bhashyam, and V. Veeravalli [arXiv]  <i>Sequential Analysis</i> (2021)</li> <li>• <u>Online Energy-Efficient Packet Scheduling for a Common Deadline With and Without Energy Harvesting</u>  <b>A. Deshmukh</b> and R. Vaze [arXiv]  <i>IEEE Journal on Selected Areas in Communications</i> (2016)</li> </ul>
CONFERENCE PROCEEDINGS	<ul style="list-style-type: none"> <li>• <u>Robust High-Dimensional Linear Discriminant Analysis under Training Data Contamination</u>  Y. Shi, <b>A. Deshmukh</b>, Y. Mei, and V. Veeravalli [IEEE Xplore]  <i>IEEE International Symposium on Information Theory</i> (ISIT 2023)</li> <li>• <u>Robust Mean Estimation in High Dimensions: An Outlier Fraction Agnostic and Efficient Algorithm</u>  <b>A. Deshmukh</b>, J. Liu and V. Veeravalli [IEEE Xplore]  <i>IEEE Int. Symposium on Information Theory</i> (ISIT 2022)</li> <li>• <u>High-dimensional robust mean estimation via outlier-sparsity minimization</u>  <b>A. Deshmukh</b>, J. Liu, and V. Veeravalli [IEEE Xplore]  <i>55th Asilomar Conference on Signals, Systems, and Computers</i> (Asilomar 2021)</li> <li>• <u>Information Flow Maximization in Inference Networks</u>  <b>A. Deshmukh</b>, J. Liu, and V. Veeravalli [arXiv]  <i>IEEE International Conference on Acoustics, Speech, and Signal Processing</i> (ICASSP 2020)</li> <li>• <u>Controlled Sensing for Composite Multihypothesis Testing with Application to Anomaly Detection</u>  <b>A. Deshmukh</b>, S. Bhashyam, and V. Veeravalli [IEEE Xplore]  <i>52th Asilomar Conference on Signals, Systems, and Computers</i> (Asilomar 2018)</li> <li>• <u>Online energy efficient packet scheduling with a common deadline</u>  <b>A. Deshmukh</b> and R. Vaze [IEEE Xplore]  <i>International Symposium on Modeling and Optimization in Mobile, Ad Hoc, and Wireless Networks</i> (WiOpt 2016)</li> </ul>
TEACHING & MENTORING EXPERIENCE	<p><b>Teaching Assistant</b>  6 semesters at UIUC and 2 semesters at IIT Madras</p> <ul style="list-style-type: none"> <li>• UIUC: Data Science and Engineering (ECE365), Introduction to Optimization (ECE490), Statistical Inference for Engineers and Data Scientists (ECE561), Computational Inference (ECE566)</li> <li>• IIT Madras: Communication Systems (EE3005), Communication Networks (EE5150)</li> </ul> <p><b>Undergraduate Mentor</b></p> <ul style="list-style-type: none"> <li>• Naman Raina: ‘Robust Estimation’</li> <li>• Kevin Zhang: ‘Distributed Feature Compression’</li> </ul>
PROFESSIONAL SERVICE	<p><b>Reviewer</b></p> <ul style="list-style-type: none"> <li>• Conferences: ISIT (2019, 2022, 2024)</li> <li>• Journals: IEEE Transactions on Signal Processing (2020, 2021), IEEE Transactions on Information Theory (2020, 2022)</li> </ul>
PROGRAMMING SKILLS	Python (including PyTorch, scikit-learn), C, Java, MATLAB