

Chaitanya Amballa

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Education

University of Illinois Urbana–Champaign	Urbana, IL
Ph.D. in Electrical and Computer Engineering	2022 – present
Advisor: Prof. Romit Roy Choudhury (SiNRG Lab)	
<i>Research: generative modeling, spatial inference, diffusion models for inverse problems</i>	
University of Illinois Urbana–Champaign	Urbana, IL
M.S. in Electrical and Computer Engineering	2022 – 2025
Advisor: Prof. Romit Roy Choudhury	
Indian Institute of Technology Tirupati	Tirupati, India
B.Tech. in Electrical Engineering	2015 – 2019
Advisor: Prof. K. P. Naveen	









Honors & Awards

Shun Lien Chuang Memorial Award for Excellence in Graduate Education	2026
Best Poster Award, HotMobile 2026	2026
Qualcomm Graduate Award	2025
Best Bowler Award, Illinois Premier League	2022
Silver Medals, Intra IIT Table Tennis and Cricket	2018
INSPIRE Scholarship	2015
IMMO Silver Medal	2013
Sai Pratibha Puraskar	2013
NSO & NCO Gold Medals	2007 & 2008

Preprints

- [1] **Discrete Langevin-Inspired Posterior Sampling** 
[Chaitanya Amballa*](#), Sattwik Basu*, Jorge Vančo Sampedro, Romit Roy Choudhury
(* = equal contribution)
- [2] **Can Sparse Walking Patterns Disclose Spatial Maps?** 
[Chaitanya Amballa*](#), Sattwik Basu*, Mrudula Athi, Mohamed Mansour, Mehmet Ergezer, Wontak Kim, Romit Roy Choudhury
(* = equal contribution)
- [3] **Learning Energy-based Variational Latent Prior for VAEs** 
Debottam Dutta, [Chaitanya Amballa](#), Zhongweiyang Xu, Yu-Lin Wei, Romit Roy Choudhury
- [4] **Explicit Context-Driven Neural Acoustic Modeling for High-Fidelity RIR Generation** 
Chen Si, Qianyi Wu, [Chaitanya Amballa](#), Romit Roy Choudhury

Publications

- [1] **Contrastive Diffusion Guidance for Spatial Inverse Problems** [\[project page\]](#) 
[Chaitanya Amballa](#)^{*}, Sattwik Basu^{*}, Zhongweiyang Xu, Jorge Vančo Sampedro, Srihari Nelakuditi, Romit Roy Choudhury
(* = equal contribution)
ICLR, 2026
- [2] **Inferring Indoor Layouts using Audio** 
Zhijian Yang, Sattwik Basu^{*}, [Chaitanya Amballa](#)^{*}, Debottam Dutta, Srihari Nelakuditi, Romit Roy Choudhury
HotMobile, 2026
- [3] **Can NeRFs See without Cameras?** [\[project page\]](#) 
[Chaitanya Amballa](#), Yu-Lin Wei, Sattwik Basu, Zhijian Yang, Mehmet Ergezer, Romit Roy Choudhury
NeurIPS, 2025
- [4] **Identifying Near-Optimal Decisions in Linear-in-Parameter Bandit Models with Continuous Decision Sets** 
Sanjay P. Bhat, [Chaitanya Amballa](#)
UAI, 2022
- [5] **Computing an Efficient Exploration Basis for Learning with Univariate Polynomial Features** 
[Chaitanya Amballa](#), Manu K. Gupta, Sanjay P. Bhat
AAAI, 2021
- [6] **Coexistence of LTE-Unlicensed and WiFi: A Reinforcement Learning Framework** 
K. P. Naveen, [Chaitanya Amballa](#)
COMSNETS, 2021
- [7] **Learning Algorithms for Dynamic Pricing: A Comparative Study** 
[Chaitanya Amballa](#), Narendhar Gugulothu, Manu K. Gupta, Sanjay P. Bhat
ICML Workshop on Real World Experiment Design and Active Learning, 2020
- [8] **Coexistence of LTE-Unlicensed and WiFi: Optimization and Game-Theoretic Frameworks** 
[Chaitanya Amballa](#), K. P. Naveen
SPCOM, 2020

Research Projects

- Human Body Pose Estimation with No Fine-Tuning** [\[project page\]](#) Oct 2025 – Dec 2025
Advisor: Dr. Zhizhen Zhao
Diffusion and flow matching for HMD-based pose estimation; posterior sampling for generalization across body shapes
- RIR Generation and Geometry Estimation** Feb 2025 – May 2025
Advisor: Dr. Minje Kim
RIR generation using diffusion models; optimizing for unknown source position using Alexa measurements
- Click2Hear: Spatial Audio Separation using Visual Cues** [\[project page\]](#) Aug 2022 – Dec 2022
Advisor: Dr. Saurabh Gupta
Unsupervised source separation; binaural audio from video with mono audio

Co-existence of LTE-Unlicensed and WiFi	Aug 2018 – May 2019
Advisor: Dr. K. P. Naveen	
<i>Optimization, game-theoretic, and Q-learning frameworks for spectrum coexistence</i>	
Speech Enhancement	Aug 2018 – Dec 2018
Advisor: Dr. Rama Krishna Sai Gorthi	
<i>Convolutional autoencoder networks for real-time speech denoising</i>	
Blood Cell Classification and Disease Diagnosis	Sep 2017 – Jun 2018
Advisors: Dr. Rama Krishna Sai Gorthi & Dr. Subrahmanyam Gorthi	
<i>CNN-based classification of blood cells and disease detection from smear images</i>	

Industry Experience	Applied Scientist Intern	May 2025 – Aug 2025
	Amazon	Cambridge, MA
	Researcher	Jul 2019 – Jul 2022
	TCS Research	Hyderabad, India
	Sequential decision making, stochastic linear bandits, Thompson sampling, regret analysis under Dr. Sanjay P. Bhat	
	Project Associate	Jun 2019 – Jul 2019
	IIT Tirupati	Tirupati, India
	Research Intern	May 2018 – Jul 2018
	Lekha Wireless Solutions	Bengaluru, India

Teaching	Teaching Assistant	University of Illinois Urbana–Champaign
	ECE 498/598: Deep Generative Models	Spring 2026
	<i>Office hours, grading, and student support</i>	
	Teaching Assistant	University of Illinois Urbana–Champaign
	ECE 434: Real-World Algorithms for IoT and Data Science	Spring 2024, Spring 2025
	<i>Office hours, grading, and student support</i>	

Skills

Generative Modeling: Diffusion Models, NeRFs, Flow Matching, VAEs
Frameworks: PyTorch, TensorFlow, HuggingFace Diffusers/Transformers
Tooling: Slurm, Weights & Biases, Git, Streamlit, \LaTeX
Programming: Python, C/C++, MATLAB, SQL

Selected Coursework

ECE 598: Deep Generative Models
ECE 598: Generative Modeling with Diffusion and Flow Matching Models
CS 598: Generative Models for Audio
ECE 549: Computer Vision
ECE 543: Statistical Learning Theory
ECE 586: MDPs and Reinforcement Learning
ECE 534: Random Processes
ECE 490: Introduction to Optimization

Thesis

[1] **M.S. Thesis**

[Chaitanya Amballa](#)

M.S. in Electrical and Computer Engineering, UIUC, 2025



[2] **B.Tech. Thesis**

[Chaitanya Amballa](#)

B.Tech. in Electrical Engineering, IIT Tirupati, 2019



Leadership

House Captain, Team “Sivaliks”

IIT Tirupati, 2016–2017

Member, Technical Committee

IIT Tirupati, 2017–2019

Electrical Engineering Department Sports Representative

IIT Tirupati, 2017–2018