

ASHISH PANCHAL

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EDUCATION

Georgia Institute of Technology - College of Computing (GaTech)

2021-2024

M.S. in Computer Science

GPA: 3.8/4.0

Related courses: Reinforcement Learning, Deep Learning, Machine Learning, Artificial Intelligence, AI for Robotics, Game AI, Ethics in AI, Data & Visual Analytics, Graduate Algorithms

Army Institute of Technology, India (AIT-Pune)

2012-2017

B.E. in Electronics and Telecommunication

GPA: 7.48/10, (AGIF Scholarship Recipient)

Related courses: Soft Computing, Internet of things, Information Theory, System Programming and Microcontrollers

RESEARCH INTERESTS

My research interest lies in designing sequential decision-making systems to create more efficient, equitable, and sustainable solutions for real-world challenges.

PUBLICATIONS

- [1] "Unraveling complex sequential social dilemmas: In a risky world with a2c decision transformer (under submission)," in *AAMAS*, 2025.
- [2] "External mechanism to prevent irreversible damage to hardware components of a cellular phone," in *IEEE, International Conference on Soft Computing Techniques Applications*, 2015.
- [3] "Mechanical movement aid to nerve damaged and parkinson's using pressure frequency detection," in *IEEE, 4th International Conference on Communication and Signal Processing*, 2015.
- [4] "Wired network services in mobile phones," in *IEEE, 2nd International Conference Electronics and Communication Systems*, 2015.

RESEARCH EXPERIENCE

Adaptive Decision-Making in Evolving Social Situations using A2C-DT [1] August 2024 - Present
Supervisor: Prof. Vandith Pamuru Indian School of Business

- Developed a simplified game environment, and A2C-Decision Transformer (A2C-DT), a RL model for implicit social learning, achieving 86% winrate against random opponents; submission (under rebuttal) AAMAS-2025.

Empirical Study on Strategic Decision-Making in Dynamic Multi-Agent Business Environments using Sequential Models October 2024 - Present
Supervisor: Prof. Vandith Pamuru Indian School of Business

- An empirical investigation, converting real-world business process data into a simulated environment, And exploring utility of A2C-DT to discover optimal strategies. Targeting *INFORMS Journal of Computing*.

Human Decision-Making in VR: Negotiation Study

June 2023 - Present

Supervisor: Prof. Vandith Pamuru

Indian School of Business

- Designed a study for human negotiation behavior in VR via Bilateral Monopoly, Ran pilot experiments to study behavior changes; IRB-approved, targeting *Journal of Organization Behaviour*.

Implicit Modeling of Mixed Markovian Behaviors using IRL

July 2023 - Present

Supervisor: Prof. Vandith Pamuru

Indian School of Business

- Applied Inverse-RL with Decision Transformers to model agent behavior across varied context windows, demonstrating high correlation between predicted and observed policies, offering an alternative to structural models for complex sequential decision-making. Targeting *INFORMS Journal of Computing*.

Precipitation Quantification in Cell Culture Media via Vision Transformers

Spring 2024

Self-Led Class Project — for Multus Biotech

Georgia Tech

- Developed and evaluated Vision Transformer models for automated precipitation scoring in cell culture images, achieving 96% accuracy, showing potential for acute and imbalanced data classification in cellular agriculture.

B.E. project: Integrated Voice-Based NLP for Web & Home Automation

Spring 2024

Supervisor: Prof. Dhananjay Auradkar

Army Institute of Technology

- Developed a novel system utilizing a highly accurate (89%) Naive Bayes classifier to provide voice-activated web search assistance and seamless control of home appliances and social media applications.

Exploratory Projects:-

2021-2024

Self-Led and Class Projects

Georgia Tech

- Social Listening-Based Crypto Market Prediction Engine: Developed an end-to-end system using transformers to summarize information and predict cryptocurrency prices by incorporating investor sentiment from social media, achieving an MSE of 0.04. (Selected for CreateX GT)
- Multi-Agent RL for Google Football: using Decentralized-QMIX & Centralized-PPO.
- DQN for Lunar Lander with Stability Enhancements: Analyzed the impact of skip-step learning, target networks, and exp-replay on mitigating the "deadly triad".
- Replication and Critique of TD-Learning: Analyzed Sutton's TD-learning algorithm, providing empirical evidence challenging the assumptions on random weight initialization convergence.
- Drone Navigation and Mapping in Simulated Jungle: using online Graph-SLAM based on noisy sensor readings to avoid obstacles.
- Warehouse Assortment Robot with Dynamic Path Planning: using A-star and dynamic programming.
- CNN Saliency Methods and Neural Style Transfer: Explored and implemented various saliency map techniques (Class Visualization, Class-Specific Saliency, Fooling Images, GradCAM) using SqueezeNet, and performed neural style transfer to analyze and manipulate CNN decision-making.
- Implementation of Sequential Models: RNN, LSTM, Seq2Seq, and Transformer models from scratch.

VOLUNTEER EXPERIENCE AND EXTRA-CURRICULAR

- Environmental Synergies in Development (ENSYDE): Promoted e-waste awareness through booths at various conventions. 2017-present
- Youth for Seva (YFS): Volunteered with YFS teaching children at government schools. 2018-present
- Youth For Parivarthan: Led community-driven initiatives to clean & revitalize public areas 2018-2022
- Teaching : Designed a course and taught Machine Learning, Data Science and Python programming new joiners at MoneyView 2021-2023
- Teaching : Mentored second and third-year Bachelor of Engineering students on the practical implementation of industry-relevant projects 2014-2016
- WITS conference volunteer (ISB): Event coordination and assistance. (Tracks: ML/AI, DEI, Recom. sys. 2023
- WISE conference volunteer (ISB): Track coordinator (Platforms and Misinformation; AI and governance) 2023
- Nvidia Lab Coordinator (AIT): Coordinated Nvidia CUDA programming workshops for students along, and Collaborated with Industry professionals 2015

MILITARY EXPERIENCE

Academics and Military Training (2013-2014) at prestigious National Defence Academy (India)

INDUSTRY EXPERIENCE

Senior Data Scientist, MoneyView

Nov 2021 - Feb 2023

- Risk model for customer segmentation on imbalanced loan data. (XGBoost - Production)
- Developed delinquent geolocation hot-spot identification module, reduced loan delinquency risk by 30%.
- Implemented fuzzy name matching for credit fraud/imposter detection. (Fuzzylogic- Production)
- Designed end-to-end data analytics pipeline for customer risk behavior analysis.

Senior Consultant: Data Science (Team-lead), Quantzig

July 2019 - Nov 2021

- Demand Forecasting: Developed probabilistic model (XGBoost, Ridge Regression) improving intermittent demand forecasting by up to 3x over SAP for a global chemical giant.
- Analytics Roadmap and Marketing Mix Modeling: Designed custom analytics roadmap and MMM (SAMIRAX, Bayesian methods) incorporating econometric factors for a major US furniture retailer.
- Keyword Bidding Optimization: Optimized keyword bidding via NLP analysis of social media chatter, 3500x improvement in target identification for a major FMCG brand.

- Sales Channel Optimization: Analyzed channel cannibalization (attribution modeling, Random Forest) for a multi-channel retailer.

Business Technology Analyst, Deloitte US-India

July 2017 - June 2019

- Okta Systems Analysis & Automation: Analyzed key metrics and created processes to improve employee application availability and reliability, predict future license needs, & automate inactive user deactivation.

ACHIEVEMENTS

Project selected for CreateX startup lab, Georgia Institute of Technology	2022
Star of the Quarter, Quantzig, Awarded by HOD for exceptional project delivery	2020
Super Star Award, Quantzig, Awarded by VP for exceptional yearly contribution	2020
Spot Award, Deloitte USI, Awarded by HOD	2019
Recommended for Officers Training Academy (Indian Army - Engg.) All-India-Rank: 13	2018
AGIF Scholarship (Award for academic excellence), Army Institute of Technology	2015
Recommended for National Defence Academy(Indian Army) All-India-Rank: 107 in 400,000 applicants	2013

SKILLS

Programming Languages	Python, R, C#, SQL
Machine Learning Tools	TensorFlow, PyTorch, Scikit-Learn, Pandas, NumPy, Matplotlib, Seaborn, RL, DL, NLP, CV