GAUTAM AGARWAL

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EDUCATION

Columbia University | New York [Dec 2026]

Master of Science Computer Science - Machine Learning & NLP Track

University of Wisconsin-Madison | Madison, Wisconsin [Dec 2022]

Bachelor of Science - Computer Science & Data Science GPA: 3.96/4.0

Awards: L&S Scholarship Fall 2021, Summer Study Scholarship 2020, Summer Internship Scholarship 2020, Dean's List

SKILLS & LANGUAGES

- **Languages:** Python, Java, R, SQL, C, C++, C#, M, HTML/CSS, JavaScript, PHP, React, Kotlin, Dart, MATLAB, Octave
- **Cloud Platforms:** AWS (Lambda, EC2, Sagemaker, Cloudwatch, API Gateway, MQ), GCloud (Compute Engine, AI, Apigee), Azure
- **Tools & Tech:** Terraform, Flutter, Unity, GitLab, Arduino, SonarQube, SDVI, Flask, sci-kit learn, MastML, Google Internal Tools

PROFESSIONAL EXPERIENCES

Software Engineer, *Epic Systems, Epic Assistant - Natural Language Platform* [Mar 2023 - Present]

- Created general-purpose NLP library to support user interactions in 6 Epic applications; reduced LLM dependency by 80%
- Set up LLM integration for conversational AI chatbot platform to automate entity extraction
- Designed and constructed dynamic backend infrastructure for chatbot to extend functionality for 3 Epic applications
- Led research project to enhance LLM output for multiple chatbot functionalities, improving automation by 76%
- Introduced native NLP in search snippets, improving user response by 62%
- Developed pre-charting clinical summarization tool cutting down provider prep time by 25 minutes per patient
- Directed investigation into building native Speech-To-Text service (STT) to deploy across organization
- Designed Chatbot - agentic framework integration, unlocking orchestration features and extending AI adoption across 6 products
- Stretched organization roadmap by pitching ideas to enhance end-user experience across 5 AI-based features
- Mentored 4 interns; provided expertise in STT & LLM-focused engineering for TranslationalAI, ConversationalAI & Summarization
- Engaged with customers as product expert during multiple customer conferences and group calls with 750 customers
- Judged 3 organization-sponsored hackathons and contributed to 4 university recruiting events, engaging with 400+ students

Software Engineering Intern, *Google - Display & Video 360* [May 2022 - Sep 2022]

- Developed workflow using Python and Google tools to automate cost model generation and weekly update
- Engineered fast, lightweight validation method to replace traditional iterative A/B validation method
- Decreased 7 manual steps to a single confirmation step; reduced runtime from 16 - 28 hours to 8 hours; decreased server load

Media Workflow Engineering Intern, *WarnerMedia* [Sep 2021 - Apr 2022]

- Developed media workflow software using SDVI and AWS platforms
- Participated in Scrum methodologies and teamwork strategies like pair programming & code reviews

Enterprise Integration Intern, *UW-Madison Division of Information Technology* [Feb 2021 - Sep 2021]

- Helped integrate IT systems and data across the UW, worked with modern DevOps technologies and cloud platforms
- Migrated systems integration to new Platforms: Informatica, AWS, & Apigee

Undergraduate Teaching Assistant, *UW-Madison Dept. of Computer Science* [Jan 2021 - May 2021]

- Designed debugging exercises, projects, and discussion content for Python course exploring web scraping and machine learning
- Guided up to 375 students throughout the course during office hours and weekly group mentoring sessions

AI & Computer Vision Intern, *CamfyVision Innovations* [May 2020 - Sep 2020]

- Developed products through Data Collection, Inference Engine Coding, Model Training & Testing to cater to client needs
- Products: Face Mask Detection, Social Distance Detection, Employee Detection, Solar Cell Detection, Helmet Detection

Project Intern, *The Tata Power Company Ltd.* | Mumbai, India [Jul 2018 - Oct 2018]

- Designed a PHP-based web application to monitor hydroelectric dam health remotely and store analyzable data

- Displayed various parameters including flow rate, reservoir volume, and gate integrity on a dashboard

SELECTED PROJECTS

Machine Learning To Identify Diabetic Pathways in Mice and Humans *[Link]* [May 2021 - Dec 2022]

- Led team representing university in international ML research competition, competing against 21 universities worldwide
- Applied 16 ML and Data Science Methods to correlate insulin & glucose levels in mice with gene expression data
- Extracted expressive genomes from models using ExplainableAI solutions and extrapolated results with human genomes

Machine Learning for Air Quality Prediction from Wildfires *[Link]* [Aug 2020 - Apr 2021]

- Led the team representing the university in an international machine learning research competition.
- Compared deep learning methods to predict the air quality impact of wildfires in Northern California.
- Created data processing pipelines to fetch, clean, complete & combine data from NASA satellites and NOAA ground stations.
- Analyzed data to establish patterns between vegetation, humidity, air quality, and other factors around wildfires.

Water Infrastructure *[Link]* [Sep 2020 - May 2021]

- Used data analysis and machine learning to optimize the maintenance of roads and water mains in Madison
- Analyzed breakage factors and predicted future breakages in water pipes
- Factored road quality to suggest a combined repair plan

Uncertainty Estimation *[Link]* [Jan 2021 - Aug 2021]

- Used error analysis to estimate the domain of standard machine learning models
- Explored the relationship between different distance metrics and the error in different error metrics to establish blind spots.

MeetFree *[Link]* [May 2024 - June 2024]

- Built web application to record and auto-summarize meetings, simplifying manual note-taking for team discussions
- Leveraged Google Cloud to establish infra and engineered transcription processing multi-speaker audio via Google Speech-To-Text
- Engineered prompt-based summarization service utilizing Gemini to generate concise, structured notes, cutting review time

Cybersecurity Jacket [Sep 2022 - Dec 2022]

- End-to-end Software engineering solution to demonstrate cybersecurity awareness among university students.
- Jacket with rubber ducky that connects to a computer, analyzes security and displays results on the jacket through self-sewn lights
- Developed backend infrastructure for Arduino: VM communication, web integration, and client-to-jacket light data translation

Blind Man's Bluff *[Link]* [HackMIT 2020]

- Built a mobile application in Flutter to help people who are blind navigate through their daily routines.
- Used state-of-the-art real-time object detection and distance estimation to alert the user with vibrations & audio feedback.

COVID Bot *[Link]* [SOS Hackathon 2020]

- Built an automated mopping robot to sanitize surfaces in hospitals during the COVID-19 outbreak
- Used Arduino and object detection algorithms to maneuver the robot and Ultraviolet light to sanitize surfaces.

LEADERSHIP

President, The Data Science Club *[Link]* [Sep 2020 - Dec 2022]

- Spearheaded 950-member organization to help students transform interests into career opportunities
- Organized networking events, research seminars, and career development & practical learning workshops
- Created collaboration opportunities through hackathons & group projects; secured industry sponsorships for student support

Co-Founder & Vice-President, Badger Cricket Club *[Link]* [Nov 2019 - Dec 2022]

- Built a community of 350+ cricket enthusiasts through inclusive organizational efforts.
- Advocated and secured athletic department recognition, funding, and institutional support for the club.
- Managed national organization affiliation, taught cricket, and organized matches, live streams, & networking events.

Vice-President, Undergraduate Computing Council [Jan 2022 - Dec 2022]

- Established a council to bridge the gap between students and university professionals.
- Advocated for aligning classroom education with evolving industry requirements to enhance student readiness.
- Spearheaded diversity initiatives to empower underrepresented students and foster inclusivity.