

Rishabh Baral

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Education:

- MS Computer Science, Arizona State University, Tempe, AZ May 2026
- BS Computer Science, University of Maryland, College Park, MD May 2024

Skills: OS(Windows / Linux), DB (SQL DB, MongoDB), Packages (JAVA, Node.JS, Express, HTTP, Python (NumPy, StatPy, SciPy, PyTorch, scikitlearn, OSGeo, GDAL, LightGBM)), IDE (Eclipse, Android Studio, VSCode, MobaXTerm, Google CoLab, NetBeans)

Programming Languages: JAVA, JS, C, Python, C#, OCaml, Ruby, Rust, Node.JS, R, MATLAB, Kotlin, SQL, HTML, PHP

Course Work: Applied Statistics & Probability, Multivariate Calculus, Linear Algebra, Discrete Mathematics, Data Structures and Algorithms, Organization of Programming Languages, Systems Programming, Databases, Mobile and Web Application Development, Network Security, Data Science, Artificial Intelligence, Machine Learning, Image Processing, Operating Systems, Information Assurance, Natural Language Processing, Computer Networks, Knowledge Representation and Reasoning, Multimedia and Web Databases, Algorithms in Computational Biology, Data Mining

Papers:

[Under Review] S. Mukhopadhyay*, R. Baral*, N. Mahajan, S. Harish, A. R. Rangasamy Veerasamy, M. Parmar, M. Nakamura, C. Baral. "PHANTOM RECALL: When Familiar Puzzles Fool Smart Models." Submitted to ACL Rolling Review, October 2025.

[Under Review] R. Upadhyay, R. Baral*, N. Ahuja*, V. Gupta. "CMT Bench: Cricket Multi-Table Generation Benchmark for Probing Robustness in Large Language Models." Submitted to ACL Rolling Review, October 2025.

Projects:

08/2024 – Present Graduate Projects / Teaching Assistant Arizona State University, Tempe, Arizona

- PHANTOM RECALL → Benchmark for evaluating LLM reasoning through puzzle variations, exposing memorization vs. true reasoning with automated error classification achieving 96% human agreement.
- Information Assurance Analysis for Health Care Industry using Artificial Intelligence / Machine Learning
- SportsT2T → Project centered around evaluating the capabilities of various AI models (GPT-4o, Gemini 2.0 Flash, etc.) to summarize sports commentary into tables designed to tabulate player stats.
- Implemented working Distributed Hash Table for NOAA records in Python
- CS Lab Teaching Assistant with Java Script teaching responsibility

08/2023 – 12/2023 JavaScript Review Guides University of Maryland, College Park, Maryland

- Created comprehensive review guides for CMSC335 (Object-Oriented Design and Programming), tailored to help students prepare effectively for exams.
- Recognized by Professor Nelson Padua-Perez, who included these materials on the official course resources page: [Review Guides](#)

- **AI Artificial Intelligence**
 - Developed a neural network, implementing the backpropagation algorithm and applying the neural network to simple, synthetic datasets to tune network parameters.
 - Developed a benchmark for transfer learning across various domains, focusing on computer vision (CV), natural language processing (NLP), and multi-modality.
- **ML Machine Learning**
 - Implemented a 2-Layer version of two major Classification Algorithms (Decision Trees, K-nearest neighbors) and also Developed a basic architecture to model a perceptron neural network.
 - Developed a model that would reduce multiclass classification (non-binary datasets) to a binary decision tree classifier and perform gradient descent while simulating various other linear models.
 - Explored dimensionality reduction through Principal Component Analysis, Developed a 2-Layer model that would perform SoftMax linear regression to analyze the MNIST dataset.
- **DS Data Science**
 - Developed various Data Science Applications employing features such as web scraping using Python's BeautifulSoup module, exploratory data analysis using Pandas Dataframe and SQLite, linear regression through the use of Python's Seaborn library, and simulation of a Gradient Descent Model for univariate and multivariate data.
- **Applying Image Processing(Identification, Extraction & Analysis) Technology, Tools, & Methods in GIS**
 - Processed Images from Landsat-8 and Sentinel-2 data, including color composites Developed in QGIS. Calculated the Bias and RMSE of provided Landsat Data, using statpy, across 4 bands (Blue, Green, Red, NIR). Used SciKitLearn metrics to analyze the performance of the processing model.
 - Processed NOAA GOES-16E Images, created data plots & animated the motion of Hurricane Idalia using imagemagick.
 - Analyzed proximity impacts from California Wildfires using Computer Cartography and Spatial Analysis through ArcGIS
- **Mobile and Web-Based Application Development**
 - Developed a multi-screen weather app with multiple language support, API access using Kotlin, and a sample advertisement using Google AdMob.
 - Developed Order Processing Supermarket Application using HTML/CSS frontend, and JS backend server applications, JSON and MongoDB databases.
- **Projects In Other Programming Languages**
 - Developed various applications in C, Java, and Ruby using various data structures (Linked List, Hash Set, BTree, Graph, Bag (Set)), various sorting and search algorithms, and memory management techniques applied to projects such as a document management system, a calendar application, various games (fighting simulator, Poker, Fish Club, Blackjack, Maze, and Clear Cell), and a translator.
 - Developed a program in Java that performs frequency-based text search indexing and subsequence search with applicability in search engines
 - Developed MicroCaml with major features (Lexer, Parser, Interpreter) as a sublanguage of OCaml
 - Used OCaml to develop programs to perform various higher-order functions on trees, simulate a Regular Expression Engine, and simulate a database.