

Prabin Bhandari

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Dear Hiring Team,

I am a Ph.D. candidate in Computer Science at George Mason University, expecting to graduate in December 2026. I am interested in opportunities involving large language models (LLMs), natural language processing (NLP), and agentic AI. My work brings together agent development, model training, and evaluation, supported by experience translating research ideas into working systems.

I developed UrbanLLMind, an LLM-powered generative agent-based model for urban mobility that integrates planning, sequential decision-making, persistent memory, and reflection. I ran simulations with up to 10,000 agents using the open-weight OSS-120B model, with all agent inference running locally on our university's GPU cluster. Building on my supervised fine-tuning work, I am extending the framework to support multi-agent interactions and coordination within households and communities, alongside further fine-tuning and reinforcement learning to improve agent behavior. UrbanLLMind was published at COLM 2026.

A central challenge in this work is determining whether agents exhibit realistic behavior beyond producing plausible text. Human travel surveys provide observed patterns against which generated behavior can be assessed. I developed an evaluation framework spanning multiple levels of granularity, including aggregate patterns, trip transitions, and daily activity sequences, to compare generated and observed behavior and examine differences across cities. Initially developed for LLM-generated travel diaries and later applied to UrbanLLMind, this framework provides a basis for evaluating behavioral realism and assessing how model training and agent design affect simulated behavior.

At Oak Ridge National Laboratory, I also built an LLM-based pipeline to extract epidemiological events from scientific documents and resolve their locations in context. My earlier experience as a senior software engineer and software-company co-founder includes backend development and engineering leadership, supporting my ability to implement and maintain the systems behind this work.

I am eager to contribute to research and development in machine learning and applied AI, combining my experience in language models and agent systems with a strong software engineering foundation. I look forward to discussing how I can help your team investigate new methods and translate them into practical, rigorously evaluated systems. Thank you for considering my application.

Sincerely,

Prabin Bhandari