

# Shuvam Shiwakoti



## Skills

**Languages:** Python, C++, C, Bash, JavaScript, SQL  
**Databases:** MySQL, PostgreSQL, MongoDB  
**Frameworks:** React, Node.js, Flask, PySpark, LangChain,

**& Libraries** PyTorch, NumPy, Pandas  
**DevOps & Tools:** CI/CD, Git, Docker, AWS  
**Key Expertise:** Full-stack development, LLM pretraining/finetuning, Agentic AI

## Experience

- Virginia Tech — ISERC — Pamplin College of Business**  
*Research Assistant (Advisor: Dr. Joseph Simpson)*  
**Jan 2025 – May 2025**  
*Blacksburg, VA*
  - Implemented ML pipelines using BERT to analyze cybersecurity breaches, identifying failure patterns and weaknesses.
  - Designed automated workflows for incident trend detection, improving the reliability of breach monitoring.
- James Cook University, Macquarie University**  
*Research Engineer (Advisor: Dr. Usman Naseem)*  
**Oct 2023 – Jan 2025**  
*Remote*
  - Built and evaluated multimodal ML models (text, vision, speech) for medical and social science tasks.
  - Developed preprocessing pipelines for large datasets, including low-resource languages and climate discourse data.
  - Applied LLMs and multimodal approaches to real-world tasks in computational social science and content analysis with projects leading to multiple publications.
- Cloutflow**  
*Software Development Intern*  
**Jun 2022 – Nov 2022**  
*Delhi, India*
  - Developed and deployed React Native and web applications, improving mobile accessibility and scalability.
  - Automated CI/CD pipelines and optimized backend configurations, reducing deployment errors by 20+%.
- Global Governance Initiative**  
*Technology Intern*  
**Aug 2021 – Mar 2022**  
*Remote*
  - Designed and launched full-stack platforms, including an LMS and a video streaming application.
  - Integrated backend services with AWS cloud deployments, enabling secure and scalable multi-user access.
  - Built secure authentication workflows and maintained documentation to support multi-user adoption.

## Projects

- E-commerce Application (Next.js, Node.js, PostgreSQL, JWT, Stripe)**
  - Built a full-stack e-commerce platform with user authentication, product search, cart/order management, and payment integration.
  - Designed REST APIs and database schema, ensuring secure transactions and scalable backend performance.
- PySpark Node-RED Workflow Builder (Flask, Spark, Node-RED)**
  - Developed a drag-and-drop workflow builder for Apache Spark RDD pipelines with a Node-RED frontend and Flask backend.
  - Enabled interactive construction and execution of distributed data flows, improving usability and lowering the barrier to distributed computing.
- PlotPact (Next.js, LLMs)**
  - Created an AI-assisted creative writing platform that integrates LLMs to provide constraint-based story generation.
  - Engineered a full-stack system enabling real-time user interaction with AI, showcasing applied use of LLMs in product design.

## Select Publications(Full List: [Google Scholar](#))

Shiwakoti S., Thapa S., Rauniyar K., Shah A., Bhandari A., Naseem U. [Analyzing the Dynamics of Climate Change Discourse on Twitter: A New Annotated Corpus and Multi-Aspect Classification](#) in *LREC-COLING 2024*.

Thapa S., Shiwakoti S., Shah S.B., Adhikari S., Veeraman H., Nasim M., Naseem U. [Large Language Models \(LLM\) in Computational Social Science: Prospects, Current State, and Challenges](#) in *Social Network Analysis and Mining Journal*, 2025.

## Education

- Virginia Tech**  
*Master of Engineering in Computer Science & Applications*  
**Jan 2025 – Present**
- Delhi Technological University**  
*Bachelor of Technology in Software Engineering*  
*CGPA: 8.56/10*  
**2019 – 2023**