Sumit Srivastava

Curriculum Vitae

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Professional Summary

- A passionate computer scientist with 4 years of academic research experience in Artificial Intelligence, focusing on Natural Language Processing (NLP) and Human Computer Interaction (HCI).
- Experience in defining research goals and executing them.
- 7 years of experience in building high-traffic, large-scale enterprise software applications.
- Proven ability to lead cross-functional teams and continuous interaction with global stakeholders.

Work Experience

BrainBite.ai, The Netherlands

December 2024 – Present

Chief Technology Officer (part-time).

- Responsible for defining the technology goals for the company.
- Responsible for architecture decisions for the Artificial Intelligence vertical.
- Led the improvement of the reliability of various content generation modules.
- Established evaluation methodologies (automatic and manual) for the AI systems.

Main skills and technologies: Team leading, technology goals, Artificial Intelligence (LLMs, RAG, LLM-as-a-judge, Red Teaming)

Career Break

September 2024 – November 2024

Higher Education - Research.

I moved to pursue an M.Sc. in Artificial Intelligence, followed by doctoral research (PhD) in Computer Science focusing on NLP and HCI. Please check /textitEducation section for more details.

MiQ Digital, India

2017 – 2019

Team manager and technical lead.

- Led and mentored a team of seven passionate software engineers.
- Led the development and maintenance of a cluster of seven software services.
- Overlooked the revamp of a real-time advertisements bidding service handling 1.5 million requests per second.
  - Migration to an event-driven architecture backed by an appropriate HTTP server.
  - Achieved a latency of 2 ms and 1 ms for 99% and 95% of the requests, respectively.
  - Migrated a component responsible for real-time lookups from files to PostgreSQL.
  - Set up a low-latency and high throughput distributed system of PostgreSQL servers.
  - I contributed to the improvement in performance of an open-source library to fetch data from PostgreSQL.
- Devised code and wiki documentation standards and overlooked its execution across the company.

Main technologies: Java, Amazon Web Services, Appnexus cloud, MySQL, PostgreSQL, Apache Camel, Java Mission Control, Perf-top, Docker, Vert.x, Google DV360

MiQ Digital, India

2015 – 2016 ***Senior Software Engineer***.

- Part of a team responsible for the development of a 'Real Time Bid Modifier' service handling up to 1.5 million requests per second.
- Revamped almost 70% of an interface service (back end and front end), updating the coding standards and upgrading to the latest libraries, and modularisation to improve efficiency and reduce redundancy.
- Designed and implemented a horizontally scalable service (Master-Slave) that compressed and transported logs up to 90 TB daily from the servers to AWS S3.

MiQ Digital, India

September 2013 – 2014 ***Software Engineer***.

- Designed and implemented a service for fetching/locating data through different protocols, processing and storing them on AWS S3 and Redshift database.
  - For 12+ different protocols.
  - For 30+ data sources with different data types and custom processing.
- Mentored new contributors throughout my service at MiQ Digital after moving to other roles.

Main technologies: Java, Apache Camel, AWS S3, AWS Redshift

Apostek Softwares Pvt. Ltd., India

July 2012 – August 2013 ***Software Engineer*** / ***Associate Software Engineer***.

Topic: A mobile advertising platform and central point currency system where users earn points to watch ads and redeem them for various rewards.
Main activities: Critical enhancements, bug fixes, and addition of new features across different portals concerned with the project using Ruby on Rails as the core development framework integrated with Cassandra, MySQL for handling database activities and HTML, CSS, JavaScript for UI enhancements.

Education

2020–2024 **Doctor of Philosophy (defense pending), Computer Science**, *University of Twente*, The Netherlands.

Topic: Personalization of explanations interactively by conversational agents (chatbots).
Main activities:

- Researched conversation personalization for chatbots using *Lexical Alignment*.
- Design and implement textual conversational agents that offer interactive and personalized explanations.
- Investigated the effects of lexical alignment in conversational agents on understandability, persuasiveness, trust, cognitive load, and information uptake.
- Researched a dialogue generation method using Large Language Models (LLM) for controllable lexical alignment in conversational agents.
- Supervised five MSc and BSc students during my tenure as a Doctoral Researcher.
- Published one paper each at ACM IUI, ACM UMAP, and Computer Speech & Language (journal). One journal paper is under review at Cognitive Science (journal). Also, contributed to three research publications (posters and papers) as a result of supervision efforts.

Natural Language Generation, eXplainable Artificial Intelligence, Conversational agents, personalization, Cognitive Science, Psycholinguistics, Human Computer Interaction, User studies.

2019–2020 **Master of Science, Artificial Intelligence**, *Katholieke Universiteit Leuven*, Belgium.
Grade: Cum Laude
Topic: Metaphor interpretation (NLU) using Theory of Mind at scale.
Main activities:
- Researched the automatic interpretation of simple metaphors.
- Used Bayesian inference (Rational Speech Act model) and a large-scale concept map **ConceptNet**.
- Proposed and developed the research topic independently.

Advisor:
Dr. Walter Schaeken, *Full Professor, Brain and Cognition, Faculty of Psychology and Educational Sciences*, KU Leuven (*Personal Web-page*)
Courses taken: Machine learning, Uncertainty in Artificial Intelligence, Cognitive Science, Computer Vision, Artificial Neural Networks and Deep Learning, Knowledge Representation (First Order Logic), Support Vector Machines, Fundamentals of Artificial Intelligence, Neural Computing

2010–2012 **Master of Technology, Information Technology**, *Indian Institute of Information Technology, Allahabad*, India.
Computational Intelligence, Computer Vision
CGPA: 9.2/10

2006–2010 **Bachelor of Technology, Computer Science**, *Uttar Pradesh Technical University, Lucknow*, India.
Operating Systems, Database Management Systems, Networks, Digital Signal Processing, Digital Image Processing, Finite State Automata
Percentage: 71/100

Fellowships, Awards, & Achievements

2020 – present ***Marie Skłodowska-Curie fellowship*** as part of the EU-funded project Interaction Natural Language Technology for Explainable Artificial Intelligence (NL4XAI).

2010 ***Graduate Aptitude Test Examination*** (GATE, India) rank 3623

Skills

Research skills:	Scientific Writing, Quantitative Research, Data Interpretation, Research design, Qualitative Research, Statistical analysis, Research Planning, Research presentation
Programming Languages:	Java, Python
Artificial Intelligence:	Artificial Neural Networks, etc.
Artificial Intelligence Tools:	Rasa (chatbot), Google DialogFlow, PyTorch, Keras, spaCy, NTLK
Web servers:	Nginx, Apache Tomcat, Vert.x
Cloud:	AWS, Appnexus(Xandr), Google Cloud
Databases:	MySQL, PostgreSQL, MongoDB, AWS Redshift
CVS:	Git
Operating System:	Linux

Research Publications

Journal Articles

2025 **Sumit Srivastava,** Mariët Theune, Alejandro Catala, and Chris Reed., *2025*, Your Word Against Mine: Lexical Alignment in Argumentative Dialogues with a Conversational Agent **(Under Review)**, *Cognitive Science*.

2024 **Sumit Srivastava,** Suzanna Wentzel, Mariët Theune, and Alejandro Catala., *2024*, Measuring and Implementing Lexical Alignment: A Systematic Literature Review, *Computer Speech & Language*, 101731, Elsevier.

In Conference Proceedings

2024 Zhenqi Zhao, Mariët Theune, **Sumit Srivastava**, and Daniel Braun. Exploring lexical alignment in a price bargain chatbot. In *ACM Conversational User Interfaces 2024 (CUI '24), July 8–10, 2024, Luxembourg, Luxembourg. ACM, New York, NY, USA, 12 pages.* ACM, 2024.

2024 **Sumit Srivastava**, Mariët Theune, Alejandro Catala, and Chris Reed. Trust in a human-computer collaborative task with or without lexical alignment. In *Adjunct Proceedings of the 32nd ACM Conference on User Modeling, Adaptation and Personalization (UMAP Adjunct '24), July 1–4, 2024, Cagliari, Italy. ACM, New York, NY, USA, 9 pages.* ACM, 2024.

2023 Boxuan Wang, Mariët Theune, and **Sumit Srivastava**. Examining lexical alignment in human-agent conversations with gpt-3.5 and gpt-4 models. In *International Workshop on Chatbot Research and Design*, pages 94–114. Springer, 2023.

2023 **Sumit Srivastava**, Mariët Theune, and Alejandro Catala. The role of lexical alignment in human understanding of explanations by conversational agents. In *Proceedings of the 28th International Conference on Intelligent User Interfaces*, pages 423–435, 2023.

2013 **Sumit Srivastava** and Ramesh Chandra Tripathi. Real time mono-vision based customizable virtual keyboard using finger tip speed analysis. In *Human-Computer Interaction. Interaction Modalities and Techniques: 15th International Conference, HCI International 2013, Las Vegas, NV, USA, July 21-26, 2013, Proceedings, Part IV 15*, pages 497–505. Springer, 2013.