ANUPAMA CHINGACHAM, Ph.D.

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SUMMARY

Researcher with 6+ years of experience designing, implementing, and evaluating machine learning and Large Language Model (LLM) systems for **real-world human use case**. Ph.D. in Natural Language Processing with deep expertise in **human-centered evaluation, experimental design, data quality analysis, and human-in-the-loop research.** Proven ability to design scalable research and evaluation frameworks, generate synthetic data, grounded on human-centered metrics. **Award-winning researcher** with strong technical fluency in Python.

TECHNICAL SKILLS

Research: Human experiment design, annotation protocol development, data quality assessment, statistical analysis.
Programming Tools: Python, PyTorch, scikit-learn, Pandas, NumPy, Hugging Face, Shell scripting.
Machine Learning & NLP: Regression, Classification, SVMRank, Deep Learning, LLMs.
Data & Experimentation: Synthetic data generation, reproducible training pipelines, dataset creation.

EXPERIENCE

Family Care Leave — Full-time Caregiver Jan 2025 – Apr 2026

Saarland University, Germany — Ph.D. Research Scholar Oct 2018 – Dec 2024

- Led **cross-disciplinary research** at the intersection of speech, language, and human perception, **combining psycholinguistic experiments with machine learning** to explain the differences in users mishearing in noise.
- Designed and executed **large-scale speech perception studies** with 200+ native English speakers, including experimental design, annotation guidelines, and statistical analysis of user responses, resulting 2 new datasets.
- Analyzed perception data using **regression and statistical modeling**, resulting in pioneering evidence on how user benefits from paraphrasing vary by different noise settings.
- Investigated **user-facing failure modes of Large Language Models** under multi-modal prompting, and developed a multi-dimensional evaluation framework to capture perceptual quality and noise-robustness trade-offs.
- Designed a 2-step Large Language Model prompting and **evaluation framework grounded in human-centered metrics**, improving user intelligibility by 40%, validated through controlled speech perception experiments.

Inria / Loria, France — Research Intern Feb 2018 – Jul 2018

- Developed and evaluated semantic relation embedding models, improving classification accuracy by **10 percentage points** over baselines.
- Conducted systematic error analysis and benchmarking across models, identifying representation weaknesses and guiding model improvements. Proposed two modeling approaches outperforming baselines by **6–13% accuracy**.

Cisco Systems, India — Network Consulting Engineer Jun 2014 – Jul 2017

- Automated large-scale data analysis for device discovery, reducing manual analysis effort by **25%**. Performed risk analysis and mitigation planning for enterprise system migrations, improving robustness and deployment reliability.

PUBLICATIONS & HONORS

- **Best Student Paper Award**, Interspeech 2021.
- Publications at ACL Workshops (2024), IEEE SLT (2022), Interspeech (2021).
- Multiple invited talks at research institutes in Germany, France, the UK, and India.

EDUCATION

Ph.D. in Natural Language Processing — Saarland University, Germany
Thesis: *Paraphrasing for Enhancing Human Speech Perception in Noise*
M.S. in Natural Language Processing — Université de Lorraine, France
M.S. in Software Engineering — Vellore Institute of Technology, India