Sushrita Rakshit
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Education

- **University of Michigan** *August 2021 - May 2025*
  Bachelor's of Engineering (BSE) in Computer Science, Minor in Statistics Ann Arbor, Michigan
  GPA: 3.58/4.00
  Relevant Coursework: Machine Learning, Reinforcement Learning, Computer Vision, Computational Linguistics, Computational Social Science, User Interface Development, Accessibility-Driven Design
- **Pracheen Kala Kendra** *January 2017 - June 2023*
  Degree - Hindustani Classical Music Chandigarh, India
  First distinction in vocals (years 1-5)

Publications

C=Conference, J=Journal, W=Workshop, P=Awaiting Status

Note: superscript represents authorship role (i.e. 1 represents first author). Please note that the process is stochastic, so submitted does not equal accepted.

[C.P.1] Sushrita Rakshit[1], James Anthony Hale[2], Kushal Chawla[3], Jeanne Brett[4], Jonathan Gratch[5] (2024). **Towards Emotionally-Aware Agents for Dispute Resolution**. Manuscript submitted to *AAMAS*.

[C.P.2] James Anthony Hale[1], Sushrita Rakshit[2], Kushal Chawla[3], Jeanne Brett[4], Jonathan Gratch[5] (2024). **KODIS: A Multicultural Dispute Resolution dialogue Corpus**. Manuscript submitted to *NAACL*.

[J.P.1] Hua Shen[1], Tiffany Knearem[2], Reshmi Ghosh[2], Kenan Alkiek[3], Kundan Krishna[3], Yachuan Liu[3], Ziqiao Ma[3], Savvas Petridis[3], Yi-Hao Peng[3], Li Qiwei[3], Sushrita Rakshit[3], Chenglei Si[3], Yutong Xie[3], Jeffrey P. Bigham[4], Frank Bentley[4], Joyce Chai[4], Zachary Lipton[4], Qiaozhu Mei[4], Rada Mihalcea[4], Michael Terry[4], Diyi Yang[4], Meredith Ringel Morris[5], Paul Resnick[5], David Jurgens[5]. (2024). **Towards Bidirectional Human-AI Alignment: A Systematic Review for Clarifications, Framework, and Future Directions**. *arXiv preprint*, arXiv:2406.09264. Manuscript submitted to *ACM CSUR*.

[C.P.3] Jonathan Ivey[1], Shivani Kumar[1], Jiayu Liu[1], Hua Shen[1], Sushrita Rakshit[1], Rohan Raju[1], Haotian Zhang[1], Aparna Ananthasubramaniam[1], Junghwan Kim[1], Bowen Yi[1], Dustin Wright[1], Abraham Israeli[1], Anders Moller[1], Lechen Zhang[1] (2024). **Real or Robotic? Assessing Whether LLMs Accurately Simulate Qualities of Human Responses in Dialogue**. Manuscript Submitted to *NAACL*. *Note: the authorship order is first author randomized.*

[C.P.4] Yinuo Xu[1], Sushrita Rakshit[1], Aparna Ananthasubramaniam[1], Omkar Yadav[1], Mingqian Zheng[1], Michael Jiang[1], Lechen Zhang[1], Bowen Yi[1], Kenan Alkiek[1], Abraham Israeli[1], Bangzhao Shu[1], Hua Shen[1], Jiaxin Pei[1], Haotian Zhang[1], Miriam Schirmer[1], David Jurgens[1] (2024). **Please Reply: Causally Modeling the Linguistic and Social Factors that Predict Email Response**. Manuscript submitted to *NAACL*. *Note: the authorship order is first author randomized.*

Awards, Grants, and Scholarships

- **Computing Research Association Outstanding Undergraduate Research Award - Honorable Mention** *2024*
  Received honorable mention for undergraduate research contributions. Part of select individuals across North America.
- **NSF Research Experiences for Undergraduates Intern** *2024*
  National Science Foundation, The University of Southern California
- **Regional Merit Scholarship** *2021*
  The University of Michigan

Posters and Presentations

- **Statistical Learning and Dispute Modeling** *August 2024*
  Tech Talk Presentation Playa Vista, California
- **Dispute Modeling with Statistical Learning and Large Language Models** *July 2024*
  SoCal Summer Research Symposium Claremont, California
- **Interpreting Spatial Reasoning Capabilities of Large Language Models** *April 2024*
  Midwestern Speech and Language Days Ann Arbor, MI
- **Review of Electric Power Utility Long-Term Plans Under a Changing Climate** *April 2022*
  Undergraduate Research Opportunity Program (UROP) Symposium Ann Arbor, MI

Research Experience/Projects

- **LLMs as Information Seekers** *September 2024 - Present*
  BlablabLAB - Advised by David Jurgens Ann Arbor, MI

  Designed experiment simulating conversations between unimodal Llama-3.1b and multimodal models llava-7b (UM and MM). Prime conversation to focus on common question-asking and personal disclosure techniques by unimodal models. Statistical testing if certain question-asking techniques correspond to disclosural personas (e.g., journalists, friends, therapists).

- **University of Southern California - Affective Computing Lab** *May 2024 - August 2024*
  Dispute Resolution Agents - Advised by Jonathan Gratch Playa Vista, CA
  - Developed effective labeling techniques for emotion recognition using LLMs using dialogue context and psychologically-backed labels. Pilot tested several prompts and labels for consistent annotations. Ran homogeneity and multi-collinear tests to ensure no confounding variables in final models. First author of published results in C.P.1 to prove emotion recognition is capable of predicting culturally subjective and objective outcomes.
  - Formatted dispute dialogues into encodings for conversation matrix using an encoder model. Trained decoder model on sliding window of conversation with labels to mimic masked language modeling. Created synthetic data to boost minority labels. Final model achieved 72% buyer accuracy and 48% seller accuracy in modeling opponent.

- **Spatial Understanding in Large Language Models** *August 2023 - Present*
  BlablabLAB - Advised by David Jurgens Ann Arbor, MI
  - Web Scraping popular platforms like Yelp and Yellow Pages, to generate *55 million* routes around Ann Arbor that were smart-sampled for model training data.
  - Training encoder-decoder and causal models (Llama-3.2b, T5) on routes via Accelerate library scripts. Co-created custom evaluation framework for correct turns, distance heuristics, and model understanding of cardinality.
  - Charted loss across each model layer for trained models using by co-creating several mechanistic probes (cardinal probe, distance probe, and correct turns probe).

- **Cross-Disciplinary Research Group** *March 2024 - August 2024*
  BlablabLAB - Advised by David Jurgens Ann Arbor, MI
  - Co-developed annotation guidelines for email intent classification in C.P.4. Developed taxonomic network visualizations large email network for analysis. Assisted with propensity score matching for email data.
  - Explored LLM simulations to analyze lexical, semantic, stylistic, and linguistic cues that hinder LLMs from responding like humans. Organized independent and dependent variables for large linguistic regressions in C.P.3. Removed multicollinear features and conducted homogeneity tests to ensure proper fit for the regression model.

- **Independent Research - Explainable AI** *January 2024 - August 2024*
  BlablabLAB - Advised by Postdoctorate Hua Shen Ann Arbor, MI
  - Defining computational criteria for human values such as honesty, consistency, scope, and repetition within LLMs.
  - Annotations of validation and test set coordinated by Mechanical Turk. Clearly defined annotation guidelines for Amazon Turk users, resulting in high Cohen's kappa annotations.
  - Creation of fine-tuning pipeline using reinforcement learning from human feedback (RLHF) and training reward model. Separately applied Direct Policy Optimization with Supervised-Finetuning.
  - Evaluated models on metrics such as BERTScore, precision, recall, and human rankings of final model responses. In parallel, invited to co-author 400 paper Human-AI alignment survey paper J.P.1.

- **Advanced Propulsions Concepts Laboratory** *May 2023 - August 2023*
  Research Intern - Natural Language Processing (Summer 2023) Ann Arbor, MI
  - Developed an aerospace student chatbot using historical Piazza data and NLP models (LlaMa, Vicuna) with Langchain and ChromaDB. Improved info retrieval speed by 30% and tailored the RAG retriever backend to domain-specific aerospace papers.
  - Optimized vector search settings for embedding size and retrieval time trade-offs, resulting in a 15% accuracy improvement based on hand evaluations by APCL master students.

Teaching Experience

- **SI 301: Models of Social Information Processing** *August 2024 - Present*
  School of Information - Instructional Aid Ann Arbor, MI
  - Hold weekly office hours for students to explain homework question and coding exercises. Grade weekly assignments for 130 students. Modifying and refining rubric to reflect student point distribution and topic understanding.

Skills

- Technical: Python, C, C++, HTML, CSS, JavaScript, TypeScript, MATLAB, R, SQL, LaTeX, NumPy, Pandas, PyTorch, TensorFlow, Scikit-learn, Seaborn, SPSS, R, Matplotlib

Service

- **Saptak Academy** *April 2021 - January 2024*
  Music Workshop Coordinator Troy, MI
  - Ran free workshops for vocal students in different musical levels with teacher's supervision. Simulated proper practice runs with *tabla* (indian drums) and *tanpura* (a string drone). Gave feedback and quizzed music theory.
- **826 Michigan** *August 2022 - February 2023*
  English tutor (Afterschool Program) and NGO Shop Organizer Ann Arbor, MI
  - Led after-school writing labs with fellow 826 volunteers, revising English homework in children ages 8-14.
  - Restocked non-profit "robot-themed" shop and assisted customers purchasing items. Proceeds went to NGO.
  - Co-facilitated "wee-bot" read-aloud sessions of creative prompts and encouraging students to act/draw stories.
- **HotSoup Mobile App Service Startup** *April 2022 - September 2023*
  Software Engineer Intern Remote
  - Developed a backend platform using Flask API and Google Maps API for homeless to find nearby soup kitchens.
  - Configured a MongoDB database with authentication to track commonly accessed soup kitchens.
  - Collaborated with the front-end team using Yarn and ReactJS to build the user interface.

Activities and Societies

- **Hip-hop and K-pop Dancing** *March 2019 - Present*
  Anywhere we Decide
  - Visiting numerous hip-hop studios around LA, East Lansing, and Detroit with friends to learn from famous choreographers. Explored masculine and feminine dance styles. Had fun recording at every end of practice.
  - Example field trips include Playground studio (LA), RELEASE (Detroit), Motor City Street Dance (Detroit)
- **M-Hacks** *August 2023 - Present*
  University of Michigan
  - Cartesia x M-HACKS - Created voice journalism app for reflection and AI advising for everyday users.
  - Google x M-Hacks - Made AAC device using Gemini (GeminAAC). Used open-source AAC device and integrated multi-threaded calls to Gemini for AAC co-pilit. Intended for those with cerebral palsy and other verbal barriers.