Eylon Caplan

Email: *ecaplan@purdue.edu* Website: eyloncaplan.github.io GitHub:@*eyloncaplan* LinkedIn: @*eyloncaplan*

EDUCATION

Purdue University, West Lafayette, Indiana, USA **(expected)** 2027
Ph.D. in Natural Language Processing, Department of Computer Science **3.8/4.0**

University of Nebraska–Lincoln, Lincoln, Nebraska, USA 2023
B.S. in Computer Science and Mathematics (Minors: Physics, Spanish) **3.99/4.0**

SKILLS

AI, Machine Learning, Natural Language Processing, LLMs, VLMs, Information Retrieval, RAG, Reinforcement Learning, Big Data, Multiprocessing, Benchmarking, Software Engineering, Deep Learning, Generative AI

Python, Jupyter, Pandas, NumPy, PyTorch, HuggingFace, Transformers, LangChain, ColBERT, pyserini, BERTopic, Dask, Docker, FAISS, Flask, Git, Hydra, Kubernetes, lmdeploy, SLURM, Scripting

PUBLICATIONS

CONCEPTCARVE: Dynamic Realization of Evidence
Eylon Caplan and Dan Goldwasser
ACL 2025 Main Conference Poster, Vienna, Austria on July 26–August 2

VIBE: Can a VLM Read the Room?
Tania Chakraborty, Eylon Caplan, and Dan Goldwasser
Findings of EMNLP 2025 Poster, Suzhou, China on November 5–9

SPLITS! Flexible Sociocultural Linguistic Investigation at Scale
Eylon Caplan, Tania Chakraborty, and Dan Goldwasser
Under review

TAIGR: Towards Modeling Influencer Content on Social Media via Structured, Pragmatic Inference
Nishanth Sridhar Nakshatri, Eylon Caplan, Rajkumar Pujari, and Dan Goldwasser
Under review

RESEARCH EXPERIENCE

Graduate Research Assistant, Purdue NLP Lab (Advisor: Dan Goldwasser) 2023–Present
Developing NLP frameworks to model and improve social reasoning in large-scale online communities.

- Built **CONCEPTCARVE**, a framework uniting **LLM reasoning** with **scalable retrieval**, reranking, and clustering to capture abstract concepts manifesting in social communities, achieving a 26.03% relative improvement over LLM keyword expansion.

- Engineered a multiprocessing pipeline to build **SPLITS!**, a 9.7M-post dataset spanning diverse demographic groups, utilizing **LLMs** and **BERT embeddings** for automated hypothesis discovery. Developed a novel semantic **ranking metric** for 23,000+ candidates, reducing manual verification time by 15–18x.

- Exposed the "Visual Social-Pragmatic (VSP) Inference gap" in **VLMs**, where multimodal models misinterpret social visual cues, such as a sad smile. To measure this, created **VIBE**, a 994-instance benchmark dataset of human-annotated video clips that isolate this specific reasoning failure.

INDUSTRY EXPERIENCE

Software Engineering Intern, Hudl 2022– 2023
Developed and deployed a CV pipeline using PyTorch to perform OCR on basketball scoreboards from live video. Integrated the service into production environment, with real-time overlays for live streaming on HudlTV.

TEACHING AND CURRICULUM DESIGN

Course Developer, Purdue University 2023– 2025
- Designed a module and four-part project about the RAG pipeline for the *AI Forge* course. Project included parts teaching model inference, prompting, in-context learning, retrieval, and retrieval augmentation. Also designed an evaluation pipeline of student code on computing cluster.
- Designed assignments and course content for a new course, *Data Structures and Algorithms for AI*. Created four course projects, covering topics like trees, stacks, queues, big data hashing, fuzzy word search, and graphs.

KEY COURSES

Graduate Level: Advanced Topics in Reasoning with LLMs, NLP, Deep Learning, Reasoning about Programs

KEY COURSE PROJECTS

LLM Feedback for Proofs May 2023–Dec 2023
Tested various methods of injecting feedback from an LLM in order to generate correct symbolic proofs in the Isabelle proof solver for competition math problems. Course project for *Adv. Topics in Reasoning with LLMs*.

Math Expression Style Transfer Aug 2024–Dec 2024
Developed an LLM BFS algorithm for converting math expressions into various simplified/expanded forms using only examples, with guaranteed equivalence. Course project for *Reasoning about Programs*.

AWARDS

Corporate Partners Scholarship 2023– 2024
Purdue Science Excellence Scholarship 2023– 2024