Federica Bologna

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EDUCATION

Cornell University, *Ph.D. in Information Science* **Ithaca, NY**
- GPA: 4.00 / 4.00; Microsoft Azure Cloud Computing Grant ($18,700); Outstanding TA Award; *Expected May 2026*

Cornell University, *M.S. in Information Science* **Ithaca, NY**
- GPA: 4.00 / 4.00 *2024*

RESEARCH & PROFESSIONAL EXPERIENCE

Allen Institute for Artificial Intelligence **Seattle, WA**
PhD Research Intern, Semantic Scholar *June 2025 – Present*
- Discovered that 95% of ScholarQA users engage in query refinement and 48% of queries submitted to ScholarQA are underspecified, leveraging few-shot generation with GPT-4.1.
- Created two datasets of pairs of underspecified and reformulated questions – one based on AstaBench and one on ScholarQA user data to evaluate query reformulation methods in both controlled and real-world settings.
- Developing an agent-based dialogue system that combines system and user agents to generate user-aligned query reformulations and select those that optimize information retrieval.

Cornell University **Ithaca, NY**
LLM & AI Research Scientist *Aug 2021 – Present*
- Determined that endometriosis patients struggle with accessing appointments with specialists by analyzing 15,000+ posts and 300,000+ comments from online communities by fine-tuning DistilBERT.
- Challenged industry assumptions by demonstrating that readers have no strong preference for character gender, using a randomized controlled trial with 3,000 participants and causal inference methods.
- Found that sentence-level annotations improve inter-annotator agreement but decrease efficiency when experts evaluate the quality and safety of long-form clinical answers, compared to answer-level annotations.

Cornell University **Ithaca, NY**
Teaching Assistant, Data Science and Machine Learning *Jan 2024 – Dec 2024*
- Taught weekly sections on data science, machine learning (ML), and natural language processing (NLP).
- Delivered lectures on social media analysis with NLP and statistical techniques for causal effect estimation.
- Curated a class activity on how to answer social science questions starting from a dataset.

NYC Health + Hospitals **New York City, NY**
Technical Consultant *Jun 2023 – Aug 2023*
- Collaborated with hospital leadership and informatics experts to identify unnecessary and frequently overridden alerts
- Demonstrated that revising alert criteria can reduce unnecessary alerts by up to 94%, while improving alert design can decrease overridden alerts by up to 64%, through data analysis and statistical testing
- Communicated results to both hospital leadership and informatics experts, supporting organization-wide routine alert revisions
- Funded by the Siegel Family Endowment PiTech PhD Impact Fellowship

LEADERSHIP EXPERIENCE

Pelvic Pain Association at Cornell (PPAC) **Ithaca, NY**
President *Jan 2024 – July 2024*
- Advocated with Cornell's Vice President Ryan Lombardi and Cornell Health administration to improve the quality of care for students with pelvic pain, leading to the association's current collaboration with the Director of Women's Health
- Presented at numerous panels and events on-campus to raise awareness about pelvic pain conditions
- Managed $1,500 funding to sponsor events and outreach efforts

PUBLICATIONS (selected 2 out of 5 total publications, 4 as first-author)

Federica Bologna, [Rosamond Thalken, Kristen Pepin, Matthew Wilkens], Endometriosis Online Communities: Quantitative Analysis, *Journal of Medical Internet Research*, DOI: 10.2196/57987, 2025

Federica Bologna, [Angelo Di Iorio, Silvio Peroni & Francesco Poggi], Do open citations give insights on the qualitative peer-review evaluation in research assessments?, *Scientometrics*, DOI: 10.1007/s11192-022-04581-6, 2023

SKILLS & INTERESTS

- **Programming Languages:** Python, R, Bash, SQL, Apache Spark

- **Methods:** Large Language Models, Generative AI, Natural Language Processing, Causal Inference, Statistical Testing
- **Interests:** poetry fanatic (*Meadowlands* is my fave); aspiring gym rat; anime binge-watcher (Frieren at the moment);