Jeffrey Cheng

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Education

Princeton University **Aug 2025 - Present**
PhD - Computer Science

Johns Hopkins University **Aug 2023 - Dec 2024**
MS - Computer Science *GPA: 3.85*

Duke University **Aug 2019 - May 2023**
BS - Mathematics, Distinction; Computer Science *GPA: 3.90*

Experience

Johns Hopkins University **Aug 2023 - Present**
Research Assistant under Benjamin Van Durme *Baltimore, MD*

- Proposed new framework to improve LLM efficiency through meaningful pause tokens learned from compressed reasoning chains, showed 9 point improvement of LLaMA models on GSM8K [2]
- Introduced method to estimate effective knowledge cutoffs of LLMs without needing access to training data and showed their effective cutoffs often differ from reported cutoffs by many years [3]

Duke University **May 2022 - May 2023**
Research Assistant under Tarek Elgindi *Durham, NC*

- Designed candidate time-dependent velocity field to solve open problem concerning total fluid mixing and analytically showed desired properties of candidate velocity field (growth of C^1 norm, decay of H^{-1} norm) [4]

IBM **May 2022 - Aug. 2022**
Software Developer Intern *Chapel Hill, NC*

- Developed internal and customer facing web applications using ReactJS and Java Spring Boot
- Created backend Java API to facilitate functionality and streamline application protection process

Duke University **May 2021 - Aug 2021**
Research Assistant under Tarek Elgindi *Durham, NC*

- Used analytic and numerical methods to analyze potential solutions to the Morrey Conjecture and generated functions satisfying previously proposed theoretical bounds.

Research on Image Deghosting **May 2020 - Aug. 2020**
Summer Research Project in Computer Science

- Created machine learning-based solutions to HDR deghosting by designing algorithms to align and merge images of different exposures to preserve full dynamic range

Teaching

Johns Hopkins University **Aug. 2024 - Dec. 2024**
Teaching Assistant for CS671, Natural Language Processing

- Hosted office hours for theoretical and coding homework help, wrote reference solutions for coding homework
- Led weekly recitations for 100+ students to explain course content and review practice problems

Duke University **Dec. 2020 - May. 2023**
Teaching Assistant for CS330, Design and Analysis of Algorithms

- Hosted office hours for homework help and test preparation in capstone proof-based algorithms class
- Contributed to writing homework and exam solutions, graded assignments in weekly grading parties

Community

Johns Hopkins Outdoor Programs **Aug. 2023 - Present**
Routesetter

- Facilitated safe usage of climbing wall by belaying climbers and inspecting equipment and engaged community by organizing and setting routes for local collegiate competitions

Duke Outdoor Adventures **Aug. 2019 - May 2023**
Student Manager and Head Routesetter

- Facilitated safe usage of climbing wall by belaying climbers and inspecting equipment and engaged community by organizing and promoting outdoor trips open to Duke and Durham community
- Led workshops teacing participants climbing techniques and routesetting and managed a team of student routesetters to set for local collegiate competitions

Duke Math Union **Aug 2020 - May 2023**
Treasurer

- Wrote problems and hosted Duke Math Meet for hundreds of high school students and collaborated with other members of Duke Putnam Team to teach competition math strategies
- Scored a 26 on the 81st William Lowell Putnam Mathematics Competition

Awards

Francis Upton Fellowship, Princeton University **Aug, 2025**
Rubenstein Fellowship, Johns Hopkins University **Aug, 2023**

Skills

Programming: Python, bash, C++, Cython, Javascript, HTML/CSS, R
Frameworks: PyTorch, React.js, Node.js, Express.js, Spring Boot, TensorFlow
Other Tools: Microsoft Office, Git, VSCode, LaTeX
Languages: English, Mandarin (fluent), French (working knowledge)

Selected Publications

[1] W. Jurayj, **J. Cheng**, B. Van Durme, Is That Your Final Answer? Test-Time Scaling Improves Selective Question Answering, *preprint*, 2025.

[2] **J. Cheng** & B. Van Durme, Compressed Chain of Thought: Efficient and Adaptive Reasoning through Dense Representations, *preprint*, 2024.

[3] **J. Cheng**, M. Marone, O. Weller, D. Lawrie, D. Khashabi, B. Van Durme, Dated Data: Tracing Knowledge Cutoffs in Large Language Models, in *COLM*, 2024. **Outstanding Paper Award (0.4%)**

[4] **J. Cheng** & T. Elgindi, Mixing and Enhanced Dissipation in Measure Preserving Dynamical Systems. Honors thesis, Duke University, 2023.