

# JEFFREY CHENG

609-356-9078 • [jeffrey.cheng132@gmail.com](mailto:jeffrey.cheng132@gmail.com) • [linkedin.com/in/jeffrey-cheng-nx7](https://www.linkedin.com/in/jeffrey-cheng-nx7) • [github.com/nexync](https://github.com/nexync)

## EDUCATION

---

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

**Duke University** **Aug 2019 - May 2023**  
*Bachelor of Science - 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 [1]
- 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 [2]

**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) [3]

**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 - Present**  
*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 teaching 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

---

### 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)

## PUBLICATIONS

---

- [1] Cheng, J., Van Durme, B. *Compressed Chain of Thought: Efficient and Adaptive Reasoning through Dense Representations*, *preprint*, 2024.
- [2] Cheng, J., Marone, M., Weller, O., Lawrie, D., Khashabi, D., & Van Durme, B. *Dated Data: Tracing Knowledge Cutoffs in Large Language Models*, in *COLM*, 2024. **Outstanding Paper Award (0.4%)**
- [3] Cheng, J, Elgindi, T. *Mixing and Enhanced Dissipation in Measure Preserving Dynamical Systems*. Honors thesis, Duke University, 2023.