

YUDAI URABE
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<https://yudaiurabe.github.io/>

EDUCATION

Institute of Science Tokyo

(renamed from Tokyo Institute of Technology on October 1, 2024)

Graduate Research Student in the Department of Mathematical and Computing Science

Tokyo, Japan
2024 -

Waseda University

Bachelor of Human Sciences

Tokyo, Japan
2020 - 2024

Major in History and Philosophy of Science, Minor in Computer Science

GPA: 3.9/4.0 (Valedictorian)

RESEARCH EXPERIENCE

Research Project

Academic advisor: Guannan Wei(Tufts University), Youyou Cong(Science Tokyo)

Hybrid
October 2024- present

- Program Analysis(Abstract Interpretation), Effects
- Analyze program with effect handlers using Abstract Abstract Machines approach. (planned).

History and Philosophy of Science Lab,

Waseda University, Thesis Student

Academic advisor: Shigeo Kato

Saitama, Japan
April 2021- March 2024

- History of Computing, History of Theoretical Computer Science (Mainly in 1960s)
- Shed light on the origins of what is now considered foundational research in Computer Science based on historical records. Historical analysis of 1960s work to address software bugs. How C.A.R. Hoare's original ideas are conceived.
- Thesis: "C.A.R. Hoare's Research in the 1960s and the Emergence of Computer Science as a Discipline"

Research Project (Derivatives of Regular Expressions),

University of California, Davis

Academic advisor: Caleb Stanford

Online
August 2023-December 2023

- Programming Languages, Formal Language Theory
- Aiming to bridge the gap between the theory and practice of regular expressions. Reading papers carefully on derivatives of regular expressions, such as Brzozowski's "Derivatives of Regular Expressions" (1964) and Antimirov's "Partial derivatives of regular expressions and finite automata construction" (1996). Also, studied various languages classes like Visibly Pushdown Languages and implemented a pattern matching program using the Brzozowski derivatives in OCaml (<https://github.com/YudaiUrabe/Brzozowski-derivative-and-Pattern-Matching-in-OCaml>).

Uno Takeaki Lab,

National Institute of Information, Principles of Informatics Research Division

Tokyo, Japan

Academic advisor: Kazuki Maeyama, Towa Suda

November 2022-April 2023

- Natural Language Processing, Digital Humanities
- Created a network using words appearing in a philosophy book, calculated centralities, and visualized semantic connections between words over natural language. Presented the results at the National Convention of IPSJ, 2023

PRESENTATION

[1] "Analysis of the Vocabulary Distribution of Chapters and the Relationship between Chapters in Russell's *The History of Western Philosophy*" The 85th National Convention of Information Processing Society of Japan. March 2023, Tokyo, Japan.

[2] "C.A.R. Hoare's Research in the 1960s and the Emergence of Computer Science as a Discipline: Exploring the Application of Historical Studies to Theoretical Computer Science" Workshop on the History of Science, History of Technology, and Science, Technology, and Society(STS), April 2024, Tokyo, Japan.

SCHOLARSHIP

Okuma Memorial Scholarship

Awarded to the top 2 students in a grade (out of 560 students)

2020-2021, 2021-2022, 2023-2024

Azusa Ono Memorial Scholarship

Awarded to the students with high GPA

2021-2022

SKILLS, SERVICE, AND INTERESTS

Student Volunteer

ICFP Student Volunteer

September 2023

The History of Science Society of Japan, 70th Annual General Meeting

May 2023

Natural Language

Japanese (native), English (fluent, C1), Chinese (reading knowledge, B2)

Programming

Python, OCaml, Isabelle/HOL, Scala, C, Java

Activities and Interests

Mathematics club, Programming club, Philosophy club, Reading (all genre), Othello (2nd kyu)