

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

EDUCATION

Tokyo Institute of Technology Tokyo, Japan
Research Student in the Department of Mathematical and Computing Science 2024 -
Automata Theory, Software Verification

Waseda University Tokyo, Japan
Bachelor of Human Sciences,
Major in History and Philosophy of Science, Minor in Computer Science 2020 - 2024
GPA: 3.9/4.0 (Valedictorian)

Selected Coursework

Algorithms and Data Structures, Formal Language Theory, Mathematical Logic, Programming Languages, Discrete Mathematics, History of Mathematics, History and Philosophy of Science, etc.

RESEARCH EXPERIENCE

History and Philosophy of Science Lab,
Waseda University Saitama, Japan
Thesis Student April 2021- March 2024
Academic advisor: Shigeo Kato

- History of Computing, History of Theoretical Computer Science (Mainly in 1960s)
- This study is concerned with the structure, system, or formal objects that are seen in many 20th-century disciplines, with a particular focus on the structuring in computer science.
- Thesis: "C.A.R. Hoare's Research in the 1960s and the Emergence of Computer Science as a Discipline"
- Keywords: History of program semantics, prevalence of syntax-oriented research over semantics, the advent of algorithms as a research topic, history of recursion in computer science, problems in computing during the 1960s, etc.

Research Project (Derivatives of Regular Expressions),
University of California, Davis Online
August 2023-December 2023
Academic advisor: Caleb Stanford

- Programming Languages, Formal Language Theory
- Implementation of the Brzowski derivatives in OCaml (<https://github.com/YudaiUrabe/Brzowski-derivative-and-Pattern-Matching-in-OCaml>). Using derivatives of regular expressions appearing in Brzowski's "Derivatives of Regular Expressions" (1964) and Antimirov's "Partial derivatives of regular expressions and finite automata construction" (1996), define the derivatives for Visibly Pushdown Languages (planned)

Uno Takeaki Lab,
National Institute of Information, Principles of Informatics Research Division

Tokyo, Japan
November 2022-April 2023

Academic advisor: Kazuki Maeyama, Towa Suda

- 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, Scala, Java, C, Isabelle/HOL

Activities and Interests

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