# Kagurazaka Ritsuka (晏雲杉)

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| LinkedIn | : https://www.linkedin.com/in/kagurazaka-ritsuka-58a2a617a/ |

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**Research interests**

discrete-event systems (supervisory control)
cybersecurity (detectabily, opacity and detectabily of DES)
computer assisted and verified proofs (Isabelle/HOL)

**Programming Languages and Tools**

C, C++ Java, Scala, Python, Lua
JavaScript/TypeScript, PHP
Prolog, Txl, REST APIs
Git, Linux, Docker, SQL

**Teaching experience**

Data Structures; Computer Architecture; Microprocessor Interfacing and Embedded Systems; Discrete Mathematics; Semantics of Programming Language; Electric Circuits.

**Teaching awards**

2021 Dean's Teaching Assistant Award (DTA)
as exceptional Teaching Assistant nominated by the department.

Teaching Assistant of the Year for Excellence in Education and Exceptional Teaching as voted by students of the department, for the academic year of 2016/2017.

**Position**

**Engineer**
Heterogeneous Compiler Lab
Huawei Technologies Canada Co., Ltd.
    Nov. 2024–Present

**Post-doctoral Research Fellow**
Department of Electrical Engineering and Computer Science
University of Michigan
    Principal Investigator: Prof. Stéphane Lafortune
    Feb. 2024–Oct. 2025

**Education**

**Doctor of Philosophy**
Department of Electrical and Computer Engineering
Queen's University, Canada
    Supervisor: Prof. Karen Rudie
    Awarded: 2023 Nov.

**Master of Engineering**
Department of Electrical and Computer Engineering
Queen's University, Canada
    Awarded: 2019 June
    GPA: 4.04/4.3

**Bachelor of Applied Science**
Department of Electrical and Computer Engineering
Queen's University, Canada
    Awarded: 2018 June

with First Class Honours
        Dean's Scholar in all four years
core GPA: 3.97/4.3

**Publications**    See also https://ritsuka.moe/bibpage.html.

## Thesis

**K. Ritsuka**
*Decentralized Problems of Discrete-Event Systems: Epistemic Reasoning and Graph Representation*
Ph.D. thesis

## Peer-Reviewed Publications

**K. Ritsuka**, K. Rudie
"A Uniform Approach to Compare Architectures in Decentralized Discrete-Event Systems",
*Automatica*, Volume 165, Article 111683 (2024)
DOI:10.1016/j.automatica.2024.111683

**K. Ritsuka**, K. Rudie
"Do What You Know: Coupling Knowledge with Action in Discrete-Event Systems",
*Discrete Event Dynamic Systems*, Volume 33, Pages 257-277 (2023)
DOI:10.1007/s10626-023-00381-z

**K. Ritsuka**, K. Rudie
"Epistemic Interpretations of Decentralized Discrete-Event System Problems",
*Discrete Event Dynamic Systems*, Volume 32, Pages 359-398 (2022)
DOI:10.1007/s10626-022-00363-7

**K. Ritsuka**, K. Rudie
"A Visualization of Inference-Based Supervisory Control in Discrete-Event Systems",
*Proceedings of the 60th IEEE Conference on Decision and Control (CDC)*, Pages 1062-1068 (2021)
DOI:10.1109/CDC45484.2021.9683210

J. Kulchyk, B. Schonewille, **K. Ritsuka**, K. Rudie
"Communication-Free Multi-Agent Coordination in an Unknown Environment",
*Proceedings of the 15th IFAC International Workshop on Discrete Event Systems (WODES)*,
Volume 53, Issue 4, Pages 159-165 (2020)
DOI:10.1016/j.ifacol.2021.04.062

## Technical Reports

**K. Ritsuka**, K. Rudie
"Equivalence of Decentralized Observation, Diagnosis, and Control Problems in Discrete-

event Systems", 2023
Preprint available as arXiv:2204.10792.

N. Mertin, **K. Ritsuka**, K. Rudie
"A Framework for the High-Level Specification and Verification of Synchronous Digital
Logic Systems", 2022
Preprint available as arXiv:2201.10632.

**Teaching**

**Graduate Teaching Assistant**

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    CISC 465/865-2023W: Semantics of Programming Languages (ongoing)
    ELEC 274-2023W: Computer Architecture (ongoing)
    ELEC 371-2022F: Microprocessor Interfacing and Embedded Systems
 *  ELEC 270-2022W: Discrete Mathematics
**  ELEC 270-2021W: Discrete Mathematics
    ELEC 371-2020F: Microprocessor Interfacing and Embedded Systems
    ELEC 270-2020W: Discrete Mathematics
    ELEC 278-2019F: Data Structures
    ELEC 278-2018F: Data Structures

 *  Head TA
**  Recipient of the 2021 Dean's Teaching Assistant Award (DTA)\\
    as exceptional Teaching Assistant nominated by the department. With a
       monetary award.
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**Undergraduate Teaching Assistant**

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    ELEC 274-2018W: Computer Architecture
    ELEC 278-2017F: Data Structures
 *  ELEC 274-2017W: Computer Architecture
    ELEC 221-2016F: Electric Circuits

 *  Awarded as Teaching Assistant of the Year for Excellence in Education and
     Exceptional Teaching
    as voted by students of the department, for the academic year of 2016/2017.
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**Awards**
- Dean's Teaching Assistant Award, 2021
- Students' Choice: The Best Engineering Capstone Project, 2018
- Teaching Assistant of the Year, 2017
- Ho Ming Tai Memorial Scholarship, 2015, 2016, 2017
- Dean's Scholar, 2015, 2016, 2017, 2018
- Queen's University Excellence Scholarship, 2014