Mikihisa Yuasa

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EDUCATION

8/2021-Present **University of Illinois Urbana-Champaign,** Champaign, IL
M.S./Ph.D. in Aerospace Engineering, expected May 2026

9/2017-5/2021 **University of Wisconsin-Madison**, Madison, WI
B.S. in Engineering Mechanics, May 2021 (GPA: 3.68)

4/2017-8/2017 **Keio University**, Tokyo, Japan
Studied mechanical engineering at the College of Science and Technology

RESEARCH EXPERIENCE

8/2021-Present **Graduate Research Assistant** *at Dr. Huy Tran's Tran (Reinforcement Learning) Research Group*, Department of Aerospace Engineering, University of Illinois Urbana-Champaign, Champaign, IL

- Developing safe and verifiable deep reinforcement learning using formal methods to actualize real-world safety-critical applications such as connected autonomous vehicles and urban air mobility.

9/2019-5/2021 **Student Research Assistant** *at Dr. Bin Ran's Connected Automated Vehicles and Highways Lab*, Department of Civil Engineering, University of Wisconsin-Madison, Madison, WI.

- Executed macroscopic simulations on mixed traditional and automated traffic under the snow between Madison, WI, and Chicago O'Hare Airport.
- Initiated a project to build a car-following model for automated vehicle platoons with assigned costs.
- Evaluated the network capacity for peak hours on highways in Madison, WI.

5/2018-5/2021 **Student Research Assistant** *at Dr. Jennifer Franck's Computational Fluid Dynamics Lab,* Department of Engineering Physics, University Wisconsin-Madison Madison, WI.

- Built an algorithm to dynamically generate meshes around bioinspired structures for CFD during flow simulation to reduce mesh development time and computational effort.
- Implemented the algorithm above as an open-source software library for a CFD simulation solver in C++.
- Led a project to reduce mesh generation time of a toolbox for conformal structural airfoil meshes.

10/2017-5/2018 **Student Research Assistant** *of Dr. Ralf Kotulla,* Department of Astronomy, University of Wisconsin-Madison Madison, WI

- Improved Python codes for analysis of solar image data.
- Executed data analysis and image processing and discovered candidates of unfound asteroids.

PUBLICATION

Yuasa, M., Lyons, K., & Franck, J. A. Simulations of flow over a bio-inspired undulated cylinders with dynamically morphing topography. *Journal of Fluids and Structures*. (Under Review, submitted 6/2021).

PRESENTATION

Yuasa, M., Lyons, K., & Franck, J. A. (2020). Simulations of bio-inspired undulated cylinders through dynamic morphing of surface topography [Conference presentation]. 73rd Annual Meeting of American Physical Society Division of Fluid Dynamics, Chicago, IL, United States. http://meetings.aps.org

Yuasa, M., Lyons, K., & Franck, J. A. (2020). Flow simulations of bio-inspired undulated cylinders through dynamic morphing of surface topography. Poster presented at Computing in Engineering Forum 2020 of Grainger Institute for Engineering, Madison, WI, United States.

Yuasa, M. (2018). Save the world by discovering new asteroids. Poster presented at the 20th Annual Undergraduate Symposium at the University of Wisconsin-Madison. Madison, WI.

AWARDS & FELLOWSHIP & SCHOLARSHIP

2020	Hilldale Undergraduate/Faculty Research Fellowship. $4,000
2020	Honorable Mention at Computing at Grainger Engineering Forum 2020. $25
2017-Present	Japan Student Services Organization Student Exchange Program (Undergraduate Scholarship for Degree Seeking Students). $134,000 [14,200,000 JPY]
2018-19	Engineering Physics Department Scholarship. $1,000
2018	UW-Madison Undergraduate Scholarship for Summer Study. $1,500

SKILLS

Programming	C++, Python, MATLAB, R, Julia, Rust, EES, C#, JavaScript, TypeScript, CSS, LaTeX
Software	PyTorch, TensorFlow, SOLIDWORKS, ANSYS, OpenFOAM, Tecplot, PTV Vissim, ParaView, Pointwise, Maple, UNIX
Languages	Japanese (Native), French (Business-level for writing, reading, and speaking)