

# Masashi Sode

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## EDUCATION

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### TOHOKU UNIVERSITY

Miyagi, Japan

**Master of Engineering in Aerospace Engineering**, GPA 4.00

**expected March 2019**

**Bachelor of Science in Engineering**, GPA 3.58

**March 2017**

## RESEARCH EXPERIENCE

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### Leader of Aircraft Design Software Development Team

**April 2015 – present**

- Created a new method of designing composite aircraft.
- Conducting multi-objective optimization aircraft design research under supervision of Professor Okabe (research topic of bachelor and master theses).
- Taking a lead in collaborative research with Kawasaki Heavy Industries, Toray Industries, and three aerospace engineering laboratories.

## SKILLS

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### Research Skills:

- Multi-objective optimization software integration
  - Integrated Genetic Algorithm, Kriging-based Optimization, Finite Element Method (FEM), Computational Fluid Dynamics (CFD), and Fluid-Structure Interaction into a Python library to create aircraft design method.
- Four years Python programming
  - Object-oriented programming.
  - Python package development.
  - Science package user experience: Numpy, Pandas, Scipy, Matplotlib, scikit-learn, pyNastran, PyGMO, sphinx.
- Two years C and four years Fortran programming
  - In-house software development of FEM (C) and CFD (Fortran).
- High performance computation experience in Linux environment.

### Language:

- Native: Japanese. Fluent: English, German.

## TEACHING EXPERIENCE

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### Mathematics for Engineering Class Tutor

April - August 2017

- Tutored freshman students in math for engineering using math exercises.

### Aircraft Design Class Tutor

April - August 2016

- Tutored freshman students in general knowledge of aircraft design.

## VOLUNTEERING

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### AFS Intercultural Program Volunteer

April 2013 – present

- American Field Service (AFS) (<https://www.afsusa.org/study-abroad/>) is a non-profit organization that provides intercultural learning opportunities (through high school student exchange programs) to help people understand different cultures.
- I studied abroad in Germany when I was in high school for a year (February 2011 – January 2012) through this organization.
- Supporting the international exchange students and Japanese high school students by organizing the exchange program.

### Program Head of AFS International Camp

January - August 2018

- Organized the international camp of AFS for high school student and exchange student.

### IPLANET Tutor

April 2014 - March 2017

- Supported exchange student in Tohoku University.

## AWARDED FUNDING INFORMATION

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Boeing Higher Education Program 2016: *Development of an Aero-Structural Optimization Tool for Aircraft*

## CONFERENCE PRESENTATIONS

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1. **M. Sode**, N. Ishiura, Y. Nagumo, T. Okabe, Aero-Structural Optimization of a Regional Jet Wing with Failure Criterion, 33rd New Materials Engineering Conference, Fukushima, Japan, 5 - 7 Sep. 2017
2. **M. Sode**, N. Ishiura, Y. Nagumo, T. Okabe, Aero-Structural Optimization of an Aircraft Wing with Failure Criterion, 42nd Composite Material Symposium, Miyagi, Japan, 14 – 15. Sep. 2017
3. **M. Sode**, N. Ishiura, Y. Nagumo, T. Okabe, Multidisciplinary Optimization of Regional Jet Wing, 55th Aircraft Symposium, Shimane, Japan, 20 - 22. Nov. 2017