

Taehyung Kim (Joseph)

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Research Interests

Control of autonomous systems in Urban Air Mobility:

- Large-scale vehicle coordination & trajectory optimization, airspace integration/ air traffic control with automated decision making under uncertainties, emergency safety path planning

Keywords: UAM, decision making, path planning, safety planning, C/C++, Python, Simulink

EDUCATION

The University of Michigan

Ann Arbor, Michigan, USA

Master of Science in Engineering in Aerospace Engineering

Aug. 2018 ~ (expected) Dec. 2019

- GPA: 3.83/ 4.00
- Study of safety factors in Urban Air Mobility (supervised by Prof. Ella M. Atkins)
 - Akshay Mathur, Karanvir Panesar, Joseph Kim, Ella Atkins, Nadine Sarter, "Paths to Autonomous Vehicle Operations for Urban Air Mobility," AIAA Aviation 2019, June 14th, 2019
- Autonomous quadrotor with automatic path planning algorithm on predefined obstacle locations:
<https://drive.google.com/open?id=171CUCqXqe1teN5oTKYjwlxkGOvGXxVaa>

The University of Texas at Austin

Austin, Texas, USA

Bachelor of Science in Aerospace Engineering

Aug. 2010 ~ May 2014

- GPA: 3.76/ 4.00 (graduation with *Honors*)

PAST RESEARCH & PROJECT EXPERIENCE

The University of Texas at Austin

Austin, Texas

Senior UAV Design project I & II

Aug., 2013 ~ May, 2014

- System concept design and demonstration of UAV system - intelligent reconnaissance and precision guided expendable (PGE) release mission (phase I: program manager, phase II: CO, ASI team)

Microfluidics Research, Dr. Deinert's Group (Mechanical Engineering)

June, 2012 ~ Aug., 2013

- Study of interface motion in PDMS channel using syringe pump
- Experimental/ analytical dynamic contact angle measurement

Institut National des Sciences Appliquées de Toulouse

Toulouse, France

Hydraulics and Microfluidics Research, Dr. Magaud's Group, Institut Clément Ader

May, 2013 ~ July, 2013

- A numerical analysis & image processing of particle focalization in square micro-channels and bi-dispersed particle microfiltration in low Reynolds number

TEACHING EXPERIENCE

The University of Texas at Austin

Austin, Texas, USA

- Tutor/ TA administrator in ASE & EM Tutoring center
- Proctor, Learning Resource Center (LRC) in ASE department

Aug., 2013 ~ May, 2014

Aug., 2011 ~ May, 2014

- Academic Assistant at Institute National des Sciences Appliquées de Toulouse *May, 2013 ~ July, 2013*
- Grader/ Undergraduate TA for ASE 311 Engineering Computation *Jan., 2013 ~ May, 2013*
- Tutor for Calculus, Vector Calculus, Dynamics *Jan., 2012 ~ Dec., 2012*

FELLOWSHIP & SCHOLARSHIP

- Aly Salim Khawaja Endowed Scholarship for Excellence in Aerospace Engineering *Aug., 2013*
- Dream Hope Future (DHF) Foundation Fellowship, Korea *Jan., 2011*

AWARDS & HONORS

- AF Chief of Staff Most Distinguished Company Officer Award (O-2, OTS #134) *May, 2018*
- AF Outstanding Achievement Award *Dec., 2016*
- Degree Honors, The University of Texas at Austin *May, 2014*
- *Tau Beta Pi*, The Engineering Honor Society *(inducted) Sept., 2013*
- The Honor Society of Phi Kappa Phi *(inducted) Mar., 2013*
- *Sigma Gamma Tau*, National Honor Society in Aerospace Engineering *(inducted) Sept., 2011*

SKILLS

Programming Language

- C/C++, Python (libraries: OpenCV, NumPy), MATLAB, Simulink

LEADERSHIP EXPERIENCE

Studies, Analyses, and Assessments (SAA) Wing, ROKAF HQ Gyeryong, Chungcheongnam-do, KR

Space officer & Interpreting officer (O-2), KSpOC *Feb. ~ May 2018*

- Collect/ analyze the conjunction avoidance data of space objects in Korea airspace, by using space surveillance observation data provided by Joint Space Operations Center (JSpOC), Vandenberg Air Force base, CA
- Coordinate and interpret Space Working Group meetings between U.S. Air Force and ROK Air Force.
- Interpret meetings between SAA Wing Commander and foreign dignitaries, and organize protocols of foreign VIPs, attending the 20th Int'l Aerospace Symposium and Air Force Chiefs of Staff Talks

Test Support Squadron, 52nd Test & Evaluation Group, ROKAF Sacheon, Gyeongsangnam-do, KR

Commander (O-2), Maintenance Support Ground Flight *April, 2016 ~ Jan, 2017*

- Commanded the ground flight crew, and oversaw the maintenance support and safety of T-50/ FA-50 and its variants for 281st Test Flight Squadron
- Led the Lean 6 Sigma project, "Sustainable Test Pilot recruitment and successful KF-X program," for analyzing, and solving systematic recruitment problems in decreasing number of ROKAF test pilots

Operations Section Chief (O-1) *July, 2015 ~ April, 2016*

- Oversaw management activities like personnel management, security, finance, Base Defense Exercise, CBR (Chemical, Biological and Radiological) Exercise, etc.

Korea Aerospace Industries LTD. Sacheon, Gyeongsangnam-do, KR

Intern Research Engineer, Structure Integration team *July, 2014 ~ February, 2015*

- Performed FEM analysis (using Abaqus) to simulate: Superplastic Forming of titanium nozzle fairing, fuel tube plastic deformation due to mandrel, etc
- Conducted Non-Destructive Investigation (NDI) of damaged honeycomb in T-50 rudder assembly
- Analyzed fractured KT-1 pylon, using Scanning Electron Microscope (SEM)