Beverley YEO

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EDUCATION

Nanyang Technological University, Singapore
Master of Engineering (Mechanical & Aerospace Engineering) — *Expected Aug '22*
Bachelor of Engineering (Aerospace Engineering) — *Aug '17 - Jun '21*
CGPA: 4.37/5.00 (Honors with Distinction)

Purdue University, West Lafayette, IN, USA - Study abroad — *Jan '20-May '20*

PUBLICATIONS

Yeo K.W.B., Koh J.Y., Long J., New T.H. (2020). Flow transitions in collisions between vortex-rings and density interfaces. Journal of Visualization 23:783-791. doi:10.1007/s12650-020-00666-7

PRESENTATIONS

"Flow transitions in collisions between vortex-rings and free-surfaces"
17th European Turbulence Conference, Turin, Italy. September 2019.

"Flow transitions in collisions between vortex-rings and density interfaces"
15th Asian Symposium on Visualization, Busan, South Korea. September 2019.

AWARDS

T.H. New Flow Visualization Award	*Jun '21*
Professional Attachment Certificate of Distinction	*Jun '21*
Dean's List, AY19/20	*Oct '20*
CNYSP Research Award (Gold)	*Jul '20*
Purdue University Dean's List & Semester Honors	*May '20*
Best Presentation Student Award, ASV15	*Sep '19*

SCHOLARSHIPS

CN Yang Scholar	*Aug '17 - Jul '21*
Nanyang Scholar	*Aug '17 - Jul '21*

WORK EXPERIENCE

Nanyang Technological University, Singapore
Project Officer, School of MAE — *Jul '21 - present*
- Perform CFD simulation of turbulent flows using OpenFOAM and Ansys Fluent
- Conduct flow visualization and force measurements for validation of CFD

Project Manager Intern, School of MAE — *Sep '20 - Apr '21*
- Communicated and coordinated schedules of researchers and study participants
- Built webapp using Node.js and SQL to automate participant attendance checks
- Automated email communications using Python

Temasek Laboratories @ NUS
Research Intern, Center for Aerodynamics & Propulsion — *Jun '20 - Aug '20*
- Performed CFD analysis and simulation of propellers using ANSYS Fluent
- Generated meshes from SolidWorks CAD model and computed flow properties

Research Projects

Investigating Galilean invariance in CFD *May '21 - present*
Thesis project in fulfilment of Master of Engineering requirement
Supervisors: Dr. Basman Elhadidi, Dr. Chan Wai Lee

- Comparison between flow properties and wakes calculated from CFD simulations of moving body in stationary flow vs stationary body in moving flow
- Implementation of transitional turbulence model with overset mesh in OpenFOAM
- Validation of results with flow visualization and force measurements

On the flow behavior of confined vortex-rings *Dec '20 - Jun '21*
Final-year project in fulfilment of Bachelor of Engineering requirement
Supervisor: Dr. New Tze How Daniel

- CFD simulations of vortex-ring behavior in confined domain
- Experimental validation of CFD simulations using dye flow visualization
- Investigation of wall shear stress and pressure induced by vortex-rings on confinement wall

Fusing engineering knowledge & communication skills *May '20 - Jul '21*
Coteaching program to improve engineering students' communication skills
Supervisor: Dr. Chan Wai Lee

- Statistics analysis in MATLAB from a study of different teaching programs' effects on engineering students to determine usefulness of coteaching program
- Transcription of recorded focus group discussions with participants
- Qualitative analysis of participants' learning outcomes and feedback
- Funded by MOE Tertiary Research Fund (MOE2018TRF005)

System identification of VTOL UAV *Jun '19 - Jun '21*
Supervisor: Dr. Basman Elhadidi

- Investigate possibility to reduce wind tunnel usage in aerodynamic analysis and determine aerodynamic coefficients from dynamic system response
- Develop least-square regression models combined with usage of MATLAB system identification toolbox to determine stability and aerodynamic coefficients

Investigating flow transitions in vortex-ring collisions *Dec '17 - Jul '20*
CN Yang Scholars Programme undergraduate research
Supervisor: Dr. New Tze How Daniel

- Design & conduct of flow visualization experiments (planar laser-induced fluorescence, time-resolved particle-image velocimetry) to investigate vortex-ring collisions with surfaces

Academic Projects

Weird Take-Off and Landing (WTOL) UAV *Jan '21 - Jun '21*
Class project for MA4878 Unmanned Aerial Vehicles

- Unique fixed-wing quadcopter with angled motors that trims at negative angle
- Design, build and test of dynamic pitch response to differential motor thrust inputs

Project Escalator *Jan '20 - May '20*
Purdue University Senior Spacecraft Design
https://engineering.purdue.edu/AAECourses/aae450/2020/Spring 2020

- Numerical simulation and investigation of propellantless space propulsion technologies and cycler vehicle trajectories to and from Mars using MATLAB/Simulink
- Investigate cycler vehicle dynamics and design of controller

Mini delivery quadcopter *May '18 - Aug '18*
Class project for CY2003 Making & Tinkering

- Design and build mini quadcopter for autonomous package delivery
- Project funded by NTU School of Physical & Mathematical Sciences

Professional Affiliation

European Mechanics Society (EUROMECH)
Institution of Engineers Singapore - NTU Student Chapter

Skills

Programming	MATLAB, C, C++, Python, Javascript, NodeJS, SQL, LaTeX
Software	SolidWorks, ANSYS Fluent, OpenFOAM, TECPLOT, Paraview, Pointwise, Photoshop, Illustrator, Excel, Linux
Technical	Arduino, 3D printing, soldering, wind & water tunnel testing
Languages	English (native), Mandarin (fluent), Korean (basic)
Others	Licensed laser operator (NEA N3 license)

– References available on request.