

# Rundong Zhou

## Curriculum Vitae

### Contact Information

**Email:** rundongz@chalmers.se

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### Research Interests

Fluid mechanics, Computational physics, Dynamical systems, Numerical and harmonic analysis, Spectral methods, Physical oceanography, and Atmospheric Sciences

## EDUCATION

Candidate for **Master of Science**  
**Chalmers University of Technology**  
Major in Complex Adaptive Systems

expected June 2024  
Gothenburg, Sweden  
cGPA 5/5

**Erasmus+ Exchange Program**  
**University of Twente**

August 2023 - June 2024  
Enschede, Netherlands

Placement in the Physics of Fluids group

*Master's thesis supervisor:* Dr. Chris Howland and Prof. Detlef Lohse

**Bachelor of Applied Science in Engineering Science**  
**University of Toronto**

June 2021  
Toronto, Canada  
cGPA 3.28/4

Major in Engineering Physics

*Bachelor's thesis supervisor:* Prof. Nicolas Grisouard

**Summer School in Mathematics**  
**Université Grenoble Alpes, Institut Fourier**

June 2023  
Grenoble, France

Topics in new trends in mathematical fluid mechanics

## LIST OF PUBLICATION

Zhou, R. and Grisouard, N. *Spectral solver for Cauchy problems in polar coordinates using discrete Hankel transforms*. arXiv preprint, submission pending, 2022. [arXiv:2210.09736](https://arxiv.org/abs/2210.09736)

## HONOURS AND AWARDS

**Avanceez Scholarship**  
**Chalmers University of Technology**

2022 - 2024

75% tuition fee reduction, increased to 85% reduction in the second year for excellency.

**Erasmus+ Exchange Travel Grant**  
**Chalmers University of Technology & University of Twente**

2023 - 2024

**Undergraduate Research Fellowship**  
**Canadian Institute for Theoretical Astrophysics**

2018

C\$ 2000 per month for four months.

**Dean's Honor List**  
**University of Toronto**

2015 Fall, 2016 Fall  
2020 Fall, 2021 Winter

Pass with honor, >80% average.

## RESEARCH EXPERIENCE

**Master's Thesis**  
**Department of Applied Physics, University of Twente**  
*Supervisor:* Dr. Chris Howland and Prof. Detlef Lohse

August 2023 - June 2024  
Enschede, Netherlands

**Bachelor's Thesis**  
**Department of Physics, University of Toronto**  
*Supervisor:* Prof. Nicolas Grisouard

September 2020 - April 2021  
Toronto, Canada

Developing a novel spectral method for solving the Gross-Pitaevskii equation for Bose-Einstein condensates in polar coordinates. Experience with computational physics.

**Research Assistant<sup>1</sup>**

April 2021 - October 2022

**Department of Physics, University of Toronto***Supervisor:* Prof. Nicolas Grisouard

Applying the novel Fourier-Bessel based spectral method using the discrete Hankel transform to more general problems. Error analysis and validation of the method. Experience with numerical analysis and spectral theorems.

**Summer Undergraduate Research Program**

May - September 2018

**Canadian Institute for Theoretical Astrophysics**

Toronto, Canada

*Supervisor:* Prof. Norm Murray

Experience with data analysis on Galactic Legacy Infrared Midplane Survey Extraordinaire (GLIMPSE) database.

**Research Assistant**

January - April 2022

**Department of Mechanical Engineering, University of Ottawa***Supervisor:* Prof. Natalie Baddour

Developing a new type of 2-D discrete Fourier transform in polar coordinates using Dini series. Validating the discrete orthogonality relation with Hankel-Scaffidi integral. Experiences with complex analysis.

**PROFESSIONAL EXPERIENCE****Intern Technical Interpreter**

October - December 2019

**Baoshan Iron & Steel Co., Ltd. & PMC-Colinet Industries**

Shanghai, China

*Supervisor:* Marcello Mameli

Interpretation between English and Mandarin. RPP07-3 CNC pipe finishing machine bearing replacement and refurbishment project at Baoshan Iron & Steel Co., Ltd..

**Featured Courses**

**Toronto:** Continuum Mechanics, Computational Physics, Nonlinear Physics, Statistical Mechanics, Groups and Symmetry

**Chalmers:** Dynamical Systems, Non-equilibrium Processes in Physics Chemistry and Biology, Quantum Field Theory, Artificial Neural Networks

**Twente:** Advanced Fluid Mechanics, Turbulence, Granular Matter, Advanced Colloids and Interfaces

**Programming Skills**

**Python, Matlab, L<sup>A</sup>T<sub>E</sub>X, Mathematica:** Advanced

**C, Dedalus Libraries:** Intermediate

Latest Update: April 8, 2023

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<sup>1</sup>As the continuation of the bachelor's thesis.