

Boyuan Yu

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Education

PhD degree in Civil Engineering

PhD degree program

CGPA: 4.00/4.00.

Thesis title: TBD.

McGill University

September 2020 - October 2024

Master's degree in Civil Engineering

Master's degree program

CGPA: 3.96/4.00.

Thesis title: Transverse shear instability in steep open-channel flow, [Link](#).

McGill University

September 2018 - May 2020

Bachelor's degree in Water Conservancy and Hydropower Engineering

Bachelor's degree program

CGPA: 4.80/5.00.

Ranking: 1/155.

Hohai University

September 2014 - May 2018

Citizenship Status

People's Republic of China

Peer-Reviewed Publications

1. **Boyuan Yu**, and Vincent H. Chu,
The front runner in roll waves produced by local disturbances,
J. Fluid Mech., 932, A42 (2022) [18 pages];
DOI: [10.1017/jfm.2021.1011](https://doi.org/10.1017/jfm.2021.1011).
2. **Boyuan Yu**, and Vincent H. Chu,
Impact force of roll waves against obstacles,
J. Fluid Mech., 969, A31 (2023) [25 pages];
DOI: [10.1017/jfm.2023.580](https://doi.org/10.1017/jfm.2023.580).
3. **Boyuan Yu**, and Vincent H. Chu,
Roll Waves in Mudflow Modelled as Herschel-Bulkley Fluids,
Accepted by J. Eng. Mech. (2024) [17 pages, in two-column pages];
DOI: [10.1061/JENMDT/EMENG-7931](https://doi.org/10.1061/JENMDT/EMENG-7931).
4. **Boyuan Yu**, and Vincent H. Chu,
Roll Waves on Laminar Sheet Flow of Newtonian Fluid with Negligible Surface Tension,
Accepted by J. Fluid Mech. (2024) [30 pages, in print].
5. **Boyuan Yu**, and Vincent H. Chu,
Improved prediction of xxx in roll waves xxx xxx,
Under review by Wave Motion (2024) [32 pages in manuscript].
6. **Boyuan Yu**, and Vincent H. Chu,
Roll Waves on a Laminar xxx xxx,
Under review by Physics of Fluids (2024) [24 two-column pages in manuscript].

7. **Boyuan Yu**, and Vincent H. Chu,
Impact Force of Roll Waves on xxx xxx,
In preparation.
8. **Boyuan Yu**, and Vincent H. Chu,
Improved prediction of the front runner in roll waves produced by localized disturbances,
In preparation.
9. **Boyuan Yu**, and Vincent H. Chu,
Wave and bed-friction effect on instability of shear flow in shallow waters,
the 10th Conference on Fluvial Hydraulics - River Flow 2020: Delft, Netherlands [8 pages];
DOI: [10.1201/b22619-12](https://doi.org/10.1201/b22619-12).
10. **Boyuan Yu**, and Vincent H. Chu,
Impact force of the roll waves produced by local disturbances,
the 39th IAHR World Congress (2022): Granada, Spain [10 pages];
DOI: [10.3850/IAHR-39WC2521711920221273](https://doi.org/10.3850/IAHR-39WC2521711920221273).
11. **Boyuan Yu**, and Vincent H. Chu,
Roll Waves on a Laminar Sheet Flow produced by Local Disturbance,
the 11th International Conference on Fluvial Hydraulics - River Flow 2022: Kingston and Ottawa,
Canada [8 pages].
12. **Boyuan Yu**, and Vincent H. Chu,
Impact of Mud Flow Instabilities on Hydraulic Structures,
the 11th International Conference on Fluvial Hydraulics - River Flow 2022: Kingston and Ottawa,
Canada [9 pages].
13. **Boyuan Yu**, and Vincent H. Chu,
The Impact of Flood Waves on Hydraulic Structures,
the 11th International Conference on Fluvial Hydraulics - River Flow 2022: Kingston and Ottawa,
Canada [8 pages].
14. **Boyuan Yu**, and Vincent H. Chu,
The Front Runner of Roll Wave in Mudflow,
Accepted by Proceedings of the ASME 2024 43rd International Conference on Ocean, Offshore and
Arctic Engineering OMAE2024: Singapore [10 pages].
15. **Boyuan Yu**, and Vincent H. Chu,
Impact of Roll Waves in Mudflow on Hydraulic Structures,
Accepted by Proceedings of the ASME 2024 43rd International Conference on Ocean, Offshore and
Arctic Engineering OMAE2024: Singapore [10 pages].
16. **Boyuan Yu**, and Vincent H. Chu,
The Front Runner of Roll Waves in Jiang-Jia Ravine,
Accepted by the 10th International Symposium on Hydraulic Structures 2024: Zurich, Switzerland
[9 pages, withdrew due to visa reasons].
17. **Boyuan Yu**, and Vincent H. Chu,
Roll Waves on Landslide Mudflow against Structures of Various Shapes and Orientations,
Accepted by the 10th International Symposium on Hydraulic Structures 2024: Zurich, Switzerland
[10 pages, withdrew due to visa reasons].

Talks and Presentations

1. **Boyuan Yu**, and Vincent H. Chu,
The video animation related to the conference paper *Impact of Mud Flow Instabilities on Hydraulic*

Structures,
River Flow 2022 Conference Best Video Contest, 2022.

Teaching and Mentoring

Teaching Assistant

McGill University

September 2019 - May 2024

Montreal, Canada

- CIVE 281: Analytical Mechanics.
- CIVE 327: Fluid Mechanics and Hydraulics.
- CIVE 572: Computational Hydraulics.

Research Interests

- Hydrodynamic instabilities.
- Shallow water equations.
- Hyperbolic conservation laws.
- Finite volume method.
- Riemann solvers.
- Roll waves and shear instabilities.
- Multiphase flow.
- Non-Newtonian fluids.
 - Visco-plastic fluids.
 - Visco-elastic fluids.
 - Granular flow.
- Wave impact forces on structures.
- Open-source CFD.
- Multilayer model.
- Spectral method.
- Stratified flow, internal waves.

Technical Skills

Programming Languages/Tools **Numerical models for CFD**

Matlab, Mathematica, Python, C, Fortran, Julia
Basilisk, Gerris, OpenFOAM, Clawpack, Centpy, Wave-maker

Postprocessing tools for CFD **Text processing** **Operating system** **Video editing**

Tecplot, Paraview, OriginLab, Microsoft Visio, Gnuplot
L^AT_EX, Microsoft Word, Markdown & Obsidian
Windows, Linux
Kdenlive