Boyuan Yu

E-mail: boyuan.yu@mail.mcgill.ca ✻ *Telephone number:* +1 438-728-8285
Website: Boyuan Yu's homepage

Education

PhD degree in Civil Engineering — *McGill University*
PhD degree program — *September 2020 - May 2024*
CGPA: 4.00/4.00.
Thesis title: TBD.

Master's degree in Civil Engineering — *McGill University*
Master's degree program — *September 2018 - May 2020*
CGPA: 3.96/4.00.
Thesis title: Transverse shear instability in steep open-channel flow, Link.

Bachelor's degree in Water Conservancy and Hydropower Engineering — *Hohai University*
Bachelor's degree program — *September 2014 - May 2018*
CGPA: 4.80/5.00.
Ranking: 1/155.

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.

2. **Boyuan Yu**, and Vincent H. Chu,
   Impact force of roll waves against obstacles,
   J. Fluid Mech., 999, A42 (2023) [25 pages];
   DOI: 10.1017/jfm.2023.580.

3. **Boyuan Yu**, and Vincent H. Chu,
   Impact Force of Roll Waves on Mudflow Modelled as Power-law Fluids,
   In prep.

4. **Boyuan Yu**, and Vincent H. Chu,
   Wave and bed-friction effect on instability of shear flow in shallow waters,
   River Flow 2020 Conference, 2020 [8 pages];
   DOI: 10.1201/b22619-12.

5. **Boyuan Yu**, and Vincent H. Chu,
   Impact force of the roll waves produced by local disturbances,
   the 39th IAHR World Congress, 2022 [10 pages];
   DOI: 10.3850/IAHR-39WC2521711920221273.

6. **Boyuan Yu**, and Vincent H. Chu,
   Roll Waves on a Laminar Sheet Flow produced by Local Disturbance,
   River Flow 2022 Conference, 2022 [8 pages].

7. **Boyuan Yu**, and Vincent H. Chu,
   Impact of Mud Flow Instabilities on Hydraulic Structures,
   River Flow 2022 Conference, 2022 [9 pages].

8. **Boyuan Yu**, and Vincent H. Chu,
   The Impact of Flood Waves on Hydraulic Structures,
   River Flow 2022 Conference, 2022 [8 pages].

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 *September 2019 - May 2024*
McGill University *Montreal, Canada*

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

Research Interests

- Hydrodynamic instabilities.
- Shallow water equations.
- Finite volume method.
- Riemann solvers.
- Roll waves and shear instabilities.
- Multiphase flow.
- Non-Newtonian fluids.
- Open-source CFD.

Technical Skills

Programming Languages/Tools	Matlab, Mathematica, Python, C, Fortran, Julia
Numerical models for CFD	Basilisk, Gerris, OpenFOAM, Clawpack, Centpy
Postprocessing tools for CFD	Tecplot, Paraview, OriginLab
Text processing	LaTeX, Microsoft Word, Markdown & Obsidian
Operating system	Windows, Linux
Video editing	Kdenlive