

Steven Yueh Jen Lai (賴悅仁)

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National Cheng Kung University, Taiwan

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Degrees

PhD, Civil Engineering, National Taiwan University, 2010

MS, Civil Engineering, National Taiwan University, 2006

BS, Hydraulic and Ocean Engineering, National Cheng Kung University, 2004

Employment

2013 – Assistant Professor
Hydraulic and Ocean Engineering, National Cheng Kung University
2012–2013 Postdoctoral Fellow, Institute of Oceanography, National Taiwan University
2011–2012 Postdoctoral Fellow, Civil Engineering, National Taiwan University

Awards and Honors

Excellent Teaching Award, Dept. of Hydraulic and Ocean Engineering, 2015

Student Awards (Advisor)

2015	碩士生	吳松晏	第 22 屆水利工程研討會，學生海報競賽	第 1 名
2015	大學生	黃莉雅、蕭郁、康雅涵、童懷意、林宗漢、劉芷昂、	第 1 屆水利工程創意競賽	佳作
2014	大學生	陳學寬、林翔遠、邱鼎鈞、楊超翔、杜潤江	土環創新實作課程，期末成果發表競賽	第 1 名

Research Interests

I am a sediment experimentalist and like to use micro-scaled experiments, simplified mathematics, and field data to explore morphodynamic problems. I believe scale independent and devote myself to find natural rules that show multiscale similarities. I use digital image processing to acquire high-quality data. Currently, my research focuses are river morphodynamics, hyperpycnal deltas, submarine canyons and submarine braided channels. In a broader context, I am interested in hydraulics, geomorphology, and sedimentation.

Journal Publications

Google Scholar: Total citations = 92, H-index = 4, i10-index = 3.

(<http://scholar.google.com.tw/citations?user=IXvGH9QAAAAJ&hl=zh-TW>)

(* Corresponding author)

In Preparation

Lai, S. Y. J.*, S. S. C. Hung, B. Z. Foreman, A. Limaye, J. L. Grimaud and C. Paola, Discharge variations control the braiding intensity of submarine channels similar to rivers, *in prep.*

Lai, S. Y. J.*, Y. T. Hsiao and F.- C. Wu, Asymmetric effects of fluvial and subaqueous bedrock slopes on Gilbert delta, *in prep.*

In Print or published

6. Lai, S. Y. J.*, T. P. Gerber and D. Amblas (2016), An experimental approach to submarine canyon evolution, *Geophysical Research Letters*, 42, GRL54140, doi:10.1002/2015GL067376. (SCI, *IF* = 4.212, Rank: 13/184 in Geosciences, Multidisciplinary, times cited = 0)
5. 周峻暉、賴悅仁*、林芳宇、黃進坤，2015，「不同孔隙比透水圓柱之定床流場實驗研究」，*台灣水利*，第63卷，第4期，46-56。
4. Foreman, B. Z.* , S. Y. J. Lai, Y. Komatsu and C. Paola (2015), Braiding of submarine channels controlled by aspect ratio similar to rivers, *Nature Geoscience*, 8(9), 700-703, doi:10.1038/NNGEO2505. (SCI, *IF* = 12.508, Rank: 1/184 in Geoscience, Multidisciplinary, times cited = 2)
3. Capart, H.* , J. P. C. Hsu, S. Y. J. Lai and M.L. Hsieh (2010), Formation and decay of a tributary-dammed lake, Laonong River, Taiwan, *Water Resources Research*, 46, W11522, doi:10.1029/2010WR009159. (SCI, *IF* = 3.792, Rank: 5/85 in Water Resources, times cited = 2)
2. Lai, S. Y. J., and H. Capart* (2009), Reservoir infill by hyperpycnal deltas over bedrock, *Geophysical Research Letters*, 36, L08402, doi:10.1029/2008GL037139. (SCI, *IF* = 4.212, Rank: 13/184 in Geosciences, Multidisciplinary, times cited = 14)
1. Lai, S. Y. J., and H. Capart* (2007), Two-diffusion description of hyperpycnal deltas, *Journal of Geophysical Research*, 112, F03005, doi:10.1029/2006JF000617. (SCI, *IF* = 3.318, Rank: 27/184 in Geosciences, Multidisciplinary, times cited = 15)

Conferences and Workshops

16. Capart, H.* , W. T. Ke and S. Y. J. Lai (2016) Diffusion modeling of the distribution of sediment infill in hyperpycnal mountain reservoirs, 2nd International Workshop on Sediment Bypass Tunnels, Kyoto, Japan.
15. Chou, A. C. C., S. Y. J. Lai* and C. K. Huang (2016), Experimental study of porous cylinder affected topographic evolution, 12th International Conference on Hydroscience & Engineering (ICHE), Tainan, Taiwan.

14. Amblas, D.*, T. P. Gerber, S. Y. J. Lai, M. Canals and J. A. Dowdeswell (2016), Towards an understanding of the long-term evolution of submarine canyons, 3rd INCISE International Submarine Canyon Symposium, Victoria, Canada.
13. Foreman, B. Z.*, S. Y. J. Lai, Y. Komatsu and C. Paola (2015), Braided submarine channels produced with experiments suggest scale independent controls on planform morphology similar to rivers, American Geophysical Union – Fall Meeting, San Francisco, California, USA.
12. 周峻暉、賴悅仁*、黃進坤、郭為濬，2015，「不同直徑與孔隙比之圓柱型筐網對沖積河川影響之試驗研究」，第 22 屆水利工程研討會論文集，110-114。
11. 吳松晏、賴悅仁*，2015，「水庫三角洲受異重流及抬升水位影響之實驗研究」，第 22 屆水利工程研討會論文集，374-380。
10. Lai, S. Y. J.*, S. S. C. Hung, B. Z. Foreman, Y. Komatsu and C. Paola (2015), Experiments of submarine braided channels driven by density currents, the 46th Binghamton Geomorphology Symposium on “Laboratory Experiments in Geomorphology”.
9. Hung, S. S. C. and S. Y. J. Lai* (2014), Experimental investigation on submarine braided channels, *Geodynamics and Environment in East Asia International Conference & 7th Taiwan-France Earth Science Symposium*, Hualien, Taiwan.
8. Lai, S. Y. J. * and H. Capart (2014), Evolution of river deltas and submarine canyons driven by hyperpycnal flows: a sandbox experiment, *Earth History of Asia II*, Niigata, Japan.
7. Lai, S. Y. J. *, T. P. Gerber and D. Amblas (2013), An experimental study of submarine canyon evolution on continental slopes, *American Geophysical Union - Fall Meeting*, San Francisco, California, USA.
6. Lai, S. Y. J. * (2012), Evolution of submarine canyons in sandbox experiments, in *Proceeding of the 1st USA-Spain-Taiwan Workshop on Seascapes Evolution*, Department of Civil Engineering, National Taiwan University, Taipei, Taiwan.
5. Lai, S. Y. J. (2009), Morphodynamics of Mountain Reservoirs, in *Proceeding of the 1st Belgium – Taiwan Workshop on River Hydraulics*, Department of Civil Engineering, National Taiwan University, Taipei, Taiwan.
4. Lai, S. Y. J., and H. Capart* (2008), Flow field around a vertically saltating sphere, in *The American Physical Society - the 61st Annual Meeting of the Division of Fluid Dynamics, Gallery of Fluid Motion - posters*, San Antonio, Texas.
3. Lai, S. Y. J. *, and H. Capart (2007), Diffusive morphodynamics of hyperpycnal deltas, in *Proceedings of the 3rd Taiwan-Japan Workshop on Mechanism of Sediment-Laden Flow*, Academia Sinica, Taipei, Taiwan.
2. Lai, S. Y. J., and H. Capart* (2007), Response of hyperpycnal deltas to a steady rise in base level, in *Proceedings of the 5th IAHR Symposium on River, Coastal and Estuarine Morphodynamics*, edited by C. Marjolein Dohmen-Janssen and Suzanne J.M.H. Hulscher, p. 57-62, Taylor and Francis, London.

1. Lai, S. Y. J., P. C. Hsu, C. Y. Hou, Willy Wang, and H. Capart* (2005), Self-similar build-up of subaerial and subaqueous deltas over bedrock basements. *Geodynamics and Environment in East Asia International Conference & 5th Taiwan-France Earth Science Symposium*, Taitung, Taiwan, p.72-73.

Theses

6. 邱詩婷, 2016, 「以實驗方法探究一維海底峽谷演化」, 碩士論文, 國立成功大學, 台灣。
5. 吳松晏, 2016, 「水庫三角洲受異重流及抬升水位影響之研究」, 碩士論文, 國立成功大學, 台灣。
4. 江駿豐, 2016, 「以實驗方法探究海底峽谷發展過程與形貌分析」, 碩士論文, 國立成功大學, 台灣。
3. 洪世哲, 2015, 「以實驗方法探究海下受異重流影響之瓣狀河道」, 碩士論文, 國立成功大學, 台灣。
2. Lai, S. Y. J. (2010), *Morphodynamics of coevolving fluvial and hyperpycnal valleys*, PhD dissertation, Graduate Institute of Civil Engineering, National Taiwan University, Taiwan.
1. Lai, S. Y. J. (2006), *Self-similar delta formation by hyperpycnal flows: theory and experiments*, M.S. thesis, Graduate Institute of Civil Engineering, National Taiwan University, Taiwan.

Research Visits

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| 2015 | College of Engineering, The Hong Kong Polytechnic University, Hong Kong |
| 2015 | Center for Engineering Education Innovation (E ² I), The Hong Kong University of Science & Technology, Hong Kong. |
| 2014 | Prof. Hajime Naruse, Kyoto University, Japan |
| 2014 | Prof. Tetsuji Muto, Nagasaki University, Japan |
| 2013 | Dr. Thomas Gerber, Statoil, Research Center Austin, Austin, Texas, J. J. Pickle Research Campus, University of Texas at Austin, USA |
| 2013 | Dept. of Civil and Environmental Engineering, University of Washington, Seattle, USA |
| 2013 | Dept. of Civil and Environmental Engineering, UC Berkeley, San Francisco, USA |
| 2012 | Thomas Gerber, Geoscience, Indiana University of Pennsylvania, USA, Visit at National Taiwan University, Taiwan |
| 2012 | David Amblas, Stratigraphy Paleontology and Marine Geosciences, University of Barcelona, Visit at National Taiwan University, Taiwan |
| 2008 | Chris Paola, Vaughan Voller and John Swenson, University of Minnesota, St. Anthony Falls Laboratory (SAFL) |
| 2007 | Jeff Peakall, Earth and Environment, University of Leeds, The Sorby Environmental |
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 Fluid Dynamics Laboratory (SEFDL)

NCKU Service

- Committees 105 學年度成大水利系，研究所專題演講召集人
 105 學年度大學個人申請入學，書面審查及口試委員
 105 學年成大水利系研究所海組推薦甄試，書面審查及口試委員
 成大水利系，海工教學大樓新建案，公共藝術委員會，委員
 104 學年成大水利系研究所入學筆試，流體力學，出題委員
 102 學年度大學個人申請入學，書面審查及口試委員
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External Service

- Journal reviews *Visualization in Engineering*
 中華水土保持學報
Marine Geology
Geology
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- Conference Japan Geoscience Union (JpGU) Meeting, Session convener, 2017
 Committees (with Prof. Hajime Naruse, Prof. Wonsuck Kim and Prof. Tetsuji Muto)
 The 12th International Conference on Hydrosience & Engineering (ICHE), Local organizing committee (LOC), Secretary member, 2016
 The 22nd Hydraulic Engineering Conference, Secretary member, 2015
 The 1st USA-Spain-Taiwan Workshop on Seascapes Evolution, Taipei, Taiwan, 2012
 The 1st Belgium-Taiwan Workshop on River Hydraulics, Taipei, Taiwan, 2009
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Invited Seminar

- 2016 Institute of Hydrological and Oceanic Sciences, National Central University
 National Chung Hsing University, Taiwan, Dept. of Soil and Water Conservation
 National Kaohsiung Marine University – Qijin, Taiwan
 Dept. of Maritime Information and Technology
 Exploration & Development Research Institute, CPC
 National Taiwan University, Institute of Oceanography
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- 2015 National Cheng Kung University, Center for Creativity in Engineering Education
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- 2014 National Chiao Tung University, Dept. of Civil Engineering
 Niigata University, Japan, Symposium on Earth History of Asia II
 National Kaohsiung Marine University – Nanzi, Taiwan
 Dept. of Naval Architecture and Ocean Engineering
 Kyoto University, Division of Earth and Planetary Sciences
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2013	Southern Region Water Resources Office, WRA, MOEA, Agongdian Reservoir National Central University, Graduate Institute of Hydrological & Oceanic Sciences National Cheng Kung University, NCKUion National Cheng Kung University, Dept. of Hydraulic and Ocean Engineering
2012	National Taiwan University, Institute of Oceanography

Teaching

Experimental Hydraulics, N881300	Spring, 2016
Fluid Mechanics Laboratory, E830601	Fall, 2015, Fall 2016
Assignment on Experimental Hydraulics, N851600	Fall 2013, Fall 2014
River Hydraulics, N861000	Spring, 2015
Environmental Hydraulics, N871500	Spring 2013, Spring 2014
Engineering Graphics, E811500	Fall 2013, Fall 2014, Fall 2015, Fall 2016
Hydraulic Engineering Drawing, E823300	Spring 2013, Spring 2014, Spring 2015
Creativity in Civil Engineering, E020100	Spring, 2014
Seminar (4), N880140	Spring 2014, Spring 2015, Spring, 2016
Seminar (2), N880120	Spring 2013, Spring 2014, Spring 2015, Spring, 2016
Special Topics (1), E831910	Spring, 2015, Spring, 2016
Special Topics (2), E831910	Fall, 2015

Student Supervised

Graduate Students	Master	Shih-Che Hong (洪世哲)	2013 – 2015
	Master	Szu-Ting Chiu (邱詩婷)	2014 – 2016
	Master	Jyun-Fong Jiang (江駿豐)	2014 – 2016
	Master	Song-Yen Wu (吳松晏)	2014 – 2016
	PhD	Chun-Wei Chou (周峻暉)	2014 –
	Master	Chia-Chi Chang (張家齊)	2015 –
	Master	Yung-Tai Hsiao (蕭詠泰)	2015 –
<i>Undergraduate Students</i>		黃莉雅	2015 – 2016
		蕭郁	2015 – 2016
		康雅涵	2015 – 2016
		林宗漢	2015 – 2016
		黃啟豪	2016 – 2017
		張崇羽	2016 – 2017
		陳奕凱	2016 – 2017

Projects Supervised and Participated

6	智慧聯網融入跨領域人才培育(「跨領域工程教育人才培育與研究」計畫)-以跨領域與實作培育整合思維之水環境人才(「跨領域工程教育人才培育與研究」計畫)	2016/12/01 – 2019/11/30	105-2511-S-006- 023-MY3
5	氣候變遷下高濃度異重流對水庫三角洲淤積之研究與災害分析 (Study and disaster analysis of climate-induced density currents to reservoir deltas)	2016/08/01 – 2017/07/31	MOST 105-2625-M- 006-008 -
4	創造力教學融入土木工程設計課程實驗計畫 (Embedding creativity in the civil engineering curriculum)	2016/01 –	NSC 102-2511-S- 006-013-MY3
3	水庫週期性砂丘之形貌動力學 (Morphodynamics of cyclic steps in a reservoir) – 林宗漢-大學生專題研究計畫	2015/07/01 – 2016/02/28	MOST 104-2815-C- 006-132-E
2	雷射掃描與多視角攝影三維成像技術於實驗河相學之應用 (Laser scanning and multi-camera photogrammetric 3D imaging applied on experimental fluvial geomorphology)	2014/08/01 – 2015/09/30	MOST 103-2221-E- 006-215-
1	陸上及海下受異重流影響之地貌變化 (Density currents induced terrestrial and submarine geomorphic change)	2013/08/01 – 2014/07/31	NSC 102-2218-E- 006-010-