PUBLICATIONS

1. Peer-Reviewed Journal Papers:

2015:

1) Toshiyuki Nakata, Hao Liu, Richard Bomphrey. A CFD-informed quasi-steady model of flapping wing aerodynamics. *Journal f Fluid Mechanics*, 2015. (IF=2.383) (*accepted*)
2) 菅原路子, 狩野達也, 劉浩, 武居昌宏, " テンプレート・マッチング法による異なる基質上の集団細胞遊走解析": (別添2), ライフサポート, 2015, 掲載決定
3) 菅原路子, 小倉章裕, 劉浩, 武居昌宏, "マウス線維芽細胞の方向転換遊走時における定性的 4 ステップの体系化": (別添 3), ライフサポート, 2015, 掲載決定
4) Fuyou Liang, Marie Oshima, Huaxiong Huang, Hao Liu, Shu Takagi. Numerical study of cerebroarterial hemodynamic changes following carotid artery operation: a comparison between multi-scale modeling and stand-alone 3-D modeling. *ASME Journal of Biomechanical Engineering*, 2015. (IF=2.085)
5) H. Tanaka, H. Okada, Y. Shimasue and H. Liu. Flexible flapping wings with self-organised microwrinkles. *Bioinspiration & Biomimetics*, 2015. (IF=2.534)
6) Koichi Sughimoto, Ken-ichi Tsubota, Kazuki Okauchi, Christian Brizard, Fuyou Liang and Hao Liu. Total Cavopulmonary Connection is Superior to Atriopulmonary Connection Fontan in Preventing Thrombus Formation: Computer Simulation of Flow-Related Blood Coagulation. *Pediatric Cardiology*, 2015. (IF=1.55)
7) Takashi Fujiwara, Fuyou Liang, Ken-ichi Tsubota, Michiko Sugawara, Yu-qi Fan and Hao Liu. Effects of vessel dynamics and compliance on human right coronary artery hemodynamics with / without stenosis. *Journal of Biomechanical Science and Engineering (JBSE).* DOI:10.1299/jbse.15-00015. 2015.
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9) H. Liu, F.Y. Liang, J. Wong, T. Fujiwara, W.J. Ye, K. Tsubota, M. Sugawara. Multi-scale Modeling of Hemodynamics in the Cardiovascular System. *Acta Mechanica Sinica (AMS)*, DOI: 10.1007/s10409-015-0460-3. 2015. (*invited*)

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11) G. Li, U. K. Müller, J. L. van Leeuwen and H. Liu. Escape trajectories are deflected when fish larvae intercept their own C-start wake. *Journal of the Royal Society Interface*, 11: 20140848.2014. (IF=4.875)
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2. INIVITED LECTURES & SEMINARS:

1) H. Liu, Bio-inspired Mechanical System and Biomimetic Design in Wind Turbines. *Seminar at University of Strathclyde*, Glasgow, UK June 23, 2015.
2) H. Liu, Bioinspiration and biomimetics: from bio-inspired flight system to the cardiovascular system. *Seminar at University College of London (UCL)*, London, UK June 26, 2015.
3) H. Liu, Bio-inspired mechanical system: from animal locomotion to the cardiovascular system, *Seminar at The Hong Kong Polytechnic University*, Hong Kong, January 23, 2015.
4) H. Liu, Learn From Nature: Bio-inspired Flight System and Biomimetic Micro Air Vehicles. *Plenary Lecture at Shen Zhen-Hong Kong Workshop on Robotics*, Shen Zhen, January 22-24, 2015. (invited plenary)
5) H. Liu, Computational Biomechanics and Biomimetics of Bio-inspired flight system. *Lecture* at *IAS Focused Program on Bio-inspired Flight System and Bio-inspired Autonomous System*, HKUST Jockey Club Institute for Advanced Study (IAS). Hong Kong Nov 24 - Dec 3 2014.
6) H. Liu, Bio-inspired flight system: integration of biology, computing, mechanical, and aeronautical engineering. *Short Course at The Hong Kong University of Science and Technology* (HKUST). Hong Kong, Nov 24-28, 2014.
7) H. Liu, Flexible wing-and body-based strategies for bio-inspired flight system: aerodynamics and flight control *Lecture* at *IAS Focused Program on Neural Engineering*, HKUST Jockey Club Institute for Advanced Study (IAS). Hong Kong, Nov 3-7, 2014.
8) H. Liu, Bio-inspired Engineering of Flight and Mechanical System. *Seminar at The Hong Kong University of Science and Technology* (HKUST). Hong Kong, Oct 23, 2014.
9) H. Liu, M. Maeda, R. Noda, C. Rao and H. Tanaka, Flexible wings can enhance aerodynamic performance and dynamic stability in flapping-wing flights, *World Congress of Biomechanics (WCB2014) 2014/7*, Boston, USA, 2014/7. *(invited*)
10) H. Liu, Patient-specific modeling–based assessment of cardiovascular function, *4th International Conference on Engineering Frontiers in Pediatric and Congenital Heart Disease*, Paris, France, 2014/5. (*invited*)
11) H. Liu, Bio-inspired Mechanical Systems and Biomimetics in Bio-flights, *The 15th International Conference on Biomedical Engineering (ICBME2013)*, Singapore, 2013/12.

(*keynote*)

12) H. Liu, H. Tanaka, T. Nakata, M. Maeda, R. Noda, Bio-inspired Flight Systems and Micro Air Vehicles: Aerodynamics and Flight Stability. *Proceedings of The 7th World Congress on Biomimetics, Artificial Muscles and Nano-Bio (BAMN2013),* August 26-30, Jeju Island, South Korea. (*invited*)

13) H. Liu, Lessons from Insect and Bird Flights, *Seminar at Hong Kong University of Science and Technology (HKUST),* November 15, 2013.

14) H. Liu, Computational Biomechanics in Bio-inspired Flights: Aerodynamics, Flight Dynamics & Maneuvering Stability, *Seminar at McGill University (MU), Canada,* May 27, 2013.

15) H. Liu, Flexible Wing Biomechanics: Aerodynamics, Flight Dynamics and Maneuvering Stability. *Joint Scientific Symposium of The Hong Kong University of Science and Technology, Shanghai Jiao Tong University and Chiba University (JSSHSC2013)* (Hong Kong, April 25-26, 2013/4). (*keynote*)

16) H. Liu, T. Nakata, N. Gao, M. Maeda and R. Noda, Biomechanics in Bio-inspired Flights: Aerodynamics, Flight Dynamics and Maneuvering Stability, *Proceedings of Advances in Computational Mechanics,* San Diego, USA, Feb. 25-28, 2013. (*invited*)

17) H. Liu, Multi-scale Biomechanical Modeling and its Application in Predictive Medicine, *Proceedings of the HKUST International Conference on Biomedical Engineering (USTBME) 2013*, Hong Kong, January 8-10, 2013. (*keynote*)

18) H. Liu, Towards Simulation-based Predictive Medicine: A Multi-scale Biomechanical Modeling and Evaluation of Aortic Aneurysm, *Proceedings of 10th National Congress of Biomechanics*, Chengdu, Sihuan, China, October 11-15, 2012. (*keynote*)

19) H. Liu, X. Wang, T. Nakata and K. Yoshida, Aerodynamics and Flight Stability of A Prototype Flapping Micro Air Vehicle, *Proceedings of 2012 International Conference on Complex Medical Engineering (ICME 2012), Kobe, Japan, July 1-4, 2012. (invited)*

20) H. Liu, T. Nakata, N. Gao and M. Maeda, Biomechanics in Bio-flights and its Application to Bio-inspired Robots, Mining Smartness from Nature, CIMETC2012 – *4th International Conference on Smart Materials, Structures and Systems, Montecatini Terme,* Italy, June 10-15, 2012. (*invited*)

21) H. Liu, Towards Systems Biomechanics and Biomimetics in Animal Locomotion and the Cardiovascular System**,** *Seminar at Department of Biomedical Engineering, College of Engineering, Beijing University (BU),* March 21, 2012.

22) H. Liu, Towards Systems Biomechanics and Biomimetics in Animal Locomotion and the Cardiovascular System**,** Seminar at Institute of Biomechanics and Medical Engineering, School of Aerospace, *Tsinghua University (TU),* March 21, 2012.

23) H. Liu, Towards Systems Biomechanics and Biomimetics in Animal Locomotion and the Cardiovascular System**,** *Seminar at School of Biological Science and Medical Engineering, Beihang University (BUAA),* March 20, 2012.

24) H. Liu, Towards Systems Biomechanics and Biomimetics in Animal Locomotion and the Cardiovascular System**,** *Seminar at The Faculty of Vehicle Engineering and Mechanics, Dalian University of Technology (DUT),* March 19, 2012.

25) H. Liu, Flexible Wing Aerodynamics in Insect Flight and Bio-inspired Micro Air Vehicles, *LNM Conference in Beijing*, Institute of Mechanics, Chinese Academy of Sciences, Beijing, China, Dec 17-18, 2011. (*invited*)

26) H. Liu, Computational Biomechanics in Cardiovascular System - *An Integrated Simulation Approach of Systems Circulation* -, *Seminar at Hong Kong University of Science and Technology*, September 18, 2011.

27) H. Liu, Coupling the Flexible Wing Aerodynamics and Structural Dynamics in Insect Flapping Flight, *Coupled Problems for Biomimetics* 2011, Kos Island, Greece. (*invited*)

28) H. Liu, Computational biomechanics in bio-flights and bio-inspired Micro Air Vehicles, *Workshop on Biomimetics Aero-/Hydro-dynamic Applications 2011*, Glasgow, UK. (*keynote*)

29) H. Liu, Computational Biomechanics and Biomimetics: From Micro Air Vehicle-motivated Bioflights to the Cardiovascular System, Sir David Anderson Bequest Seminar 2011, Glasgow, UK. (Sir David Anderson Professorship)

30) H. Liu, T. Nakata, N. Gao and M. Maeda, Micro air vehicle –motivated computational biomechanics in bio-flights and insect-inspired biomimetics, *Bio-Inspired Robots Workshop 2011*, Nantes, France. (*keynote*)

31) H. Liu, Computational biomechanics in bio-flight: aerodynamics, flight dynamics and maneuvering stability, *Animal Flight Mechanics & Muscle Performance: a symposium in honour of Prof. Charlie Ellington FRS*, The University of Cambridge, Oct. 20-21, 2010. (*invited*)

32) H. Liu, Y. Katumata, U. K. Müller and J. L. van Leeuwen, Trade-off between thrust production and propulsive efficiency in a burst of larval zebrafish, *Proc. 6th WCB*, Singapore, 2010/8. (*invited*)

33) H. Liu, Y. Tanaka, N. Gao, and M. Maeda, Nonlinear behavior in flying biomechanics: flexible wing aerodynamics, flight dynamics and dynamic stability, *Proc. 6th WCB*, Singapore, 2010/8. (*invited*)

34) H. Liu, Micro Air Vehicle-Motivated Biomechanics and Biomimetics in Insect Flight, *Seminar at CNRS and Aix-Marseille University*, France, April 28th, 2010.

35) H. Liu, Bio-flights and Micro Air Vehicle-Motivated Aerodynamics, *Workshop on Micr33Fluid Dynamics*, Nihon Bunri University, Oida, 24th Oct. 2009. (*keynote*)

36) H. Liu, Y. Nakata, N. Gao, and M. Maeda, FLYING BIOMECHANICS AND INSECT-INSPIRED BIOMIMETICS, *1st Joint Symposium of Kogakuin University and Institute of Chemistry, Chinese Academy of Science*, Hachioji City, Tokyo, *Japan*, 8th-12th, Dec. 2009. (*invited*)

37) H. Liu, H. Aono, Y. Nakata, N. Gao and M. Maeda, Biomechanics and Biomimetics of Insect Flight, *International Symposium on Engineering Neo-Biomimetics*, AIST Tokyo Waterfront, *Japan*, 1st-3rd, Oct. 2009. (*invited*)

38) H. Liu, Computational biomechanics: from bioflights, micro air vehicles to the cardiovascular system, *Seminar at Department of Mechanical Engineering, National University of Singapore (NUS)*, May 5th, 2009.

39) H. Liu, Simulation-based biomechanics: from animal locomotion to the cardiovascular

system, *Seminar at Med-X, Shanghai Jiao-Tong University (SJTU)*, March 25th, 2009.

40) H. Liu, Integrated Modeling of Bio-flights for MAV Applications: Aerodynamics, Maneuverability and Optimization, *Seminar at Department of Aerospace Engineering, University of Michigan (UM)*, June 16th, 2009.

41) H. Liu, Simulation-based biomechanics: from animal locomotion to the cardiovascular system, *Seminar at MOX, Department of Mathematics, Politecnico di Milano, Italy*, June 8th, 2008.

42) H. Liu, Computer Simulation of fluid dynamics in fish locomotion, *Biomimetic Flow Control in Aquatic Systems and its Application to Bioinspired Autonomous Underwater Systems, CIMETC2008 – 3rd International Conference on Smart Materials, Structures and Systems*, Acireale, Sicily, Italy, June 8-13, 2008. (*invited*)

43) H. Liu and H. Aono, Integrated modeling of insect flight: morphology, kinematics and aerodynamics. *Mini-symposium: Computational biomechanics: from animal locomotion to the cardiovascular system, APCOPM'07/EPMESC XI*, Kyoto, Japan, Dec. 25th, 2007. (*invited*)

44) Fuyou Liang and H. Liu, Multi-scale computational biomechanics in the cardiovascular system. *Mini-symposium: Computational biomechanics: from animal locomotion to the cardiovascular system, APCOPM'07/EPMESC XI*, Kyoto, Japan, Dec 25th, 2007. *(invited*)

45) H. Liu, Simulation-based biomechanics: from animal locomotion to the cardiovascular system, *Seminar at Department of Mechanical and Biomedical Engineering, University of Texas at San Antonio (UTSA)*, Sept. 25th, 2007.

46) H. Liu, Computational biomechanics: from animal locomotion to the cardiovascular system, *Seminar at Dalian University of Science and Technology, China*, August 8th, 2007.

47) H. Liu, Novel Mechanisms in Insect Flight and MAV, *The Sendai Symposium on Insect Mimetics and Nano-Materials*, Sendai, Japan, June 20-21, 2007. (*invited*)

48) H. Liu, Simulation-based biomechanics: from insect flight to the cardiovascular system, *Seminar at Department of Ecology and Evolutionary Biology, University of California, Los Angles (UCLA)*, March 21st, 2007.

49) H. Liu, K. Oka, T. Taniguchi, Fuyou, Liang, T. Koyama, H. Yokota, and R. Himeno, Multi-scale and multi-physics simulation in cardiovascular system, *The 5th Symposium on Integrated Volume-CAD System Research (RIKEN)*, Wako, Japan, Mach 7-8, 2007. (*invited*)

50) H. Liu, Fuyou, Liang, and T. Koyama, Towards multi-scale and multi-physics simulation in cardiovascular system, *The RIKEN Symposium on Computational Biomechanics Research (RIKEN)*, Wako, Japan, 11-12, Nov. 2007. (*invited*)

51) H. Liu, Toward Multi-scale, Multi-physics, Computational Biomechanics in Cardiovascular System, *Japan-Korea Joint-Symposium on Biomedical Engineering, World Congress of Biomedical Engineering 2006*, Seoul, 2006. (*keynote*)

52) H. Liu, What Can A Biology-inspired Dynamic Flight Simulator Tell about Insect Flight? *The 3rd ISABMEC*, Okinawa, Japan, 2006. (*keynote*)

53) H. Liu, H. Aono, Y. Inada, and W. Shyy, Size effect in insect flight: leading-edgevortex, trailing-edge vortex and tip vortex, *The 5th World Congress of Biomechanic*s, Munich,

German, 2006. (*invited*)

54) H. Liu, Multi-scale, Multi-physics, Computational Biomechanics in Cardiovascular System, *B-J-K Symposium on Biomechanics*, 2006. (*keynote*)

55) H. Liu, Novel mechanisms in biological flight and applications to Micro Air Vehicle, *The workshop on Smart Material System, JSME annual meeting*, 2005. (*keynote*)

56) H. Liu, Towards the 'in vivo' Multi-scale, Computational Biomechanics in Cardiovascular System, *B-J-K Symposium on Biomechanics*, Kanazawa, 2005. (*keynote*)

57) H. Liu, An integrated approach on free flight mechanisms in insects and birds, *Annual meeting of American Physical Society*, Chicago, USA, 2005. *(invited)*

58) H. Liu, Recent developments in computational biological fluid dynamics, *Annual Meeting of the Society for Experimental Biology*, Edinburgh (UK), 2004. (*keynote*)

59) H. Liu, Simulation-Based Biological Fluid Dynamics in Fish Swimming, *ICVM-7*, Miami (USA), 2004. (*invited*)

60) H. Liu, Recent developments in computational biological fluid dynamics, *Annual Meeting of the Society for Experimental Biology*, Southampton, UK, March, 2003. (*keynote*)

61) H. Liu, Computational Biological Fluid Dynamics: towards the digitizing animal swimming and flying, *The Second International Symposium on Aqua Bio-Mechanisms (ISABMEC2003)*, Hawaii, 2003. (*keynote)*

62) H. Liu, Computational biological fluid dynamics: digitizing and visualizing swimming and flying, *SICB symposium on Dynamics and Energetics of Animal Swimming and Flying*, Anaheim, CA, 2002. (*invited*)

63) H. Liu, H. Iwase, T. Hayasaka, Y. He, N. Matsunaga, T. Shigetani and R. Himeno, Image-based simulation of cardiovascular blood flow and its clinical application, *National CFD Conference*, Taiwan, 2002. (*keynote*)

64) H. Liu and R. Himeno, Global computational modeling of cardiovascular blood flow - Analysis of hemodynamics in left ventricle and aorta -,*The 6th US National Congress on Computational Mechanics*, Dearborn, MI, 2001. *(invited)*

65) H. Liu, Computational biological fluid dynamics, *Symposium on Advances in Biomechanics*, Beijing, 2001/8. *(invited)*

66) H. Liu, Computational fluid dynamics in insect flight, *Seminar at Department of Applied Mathematics & Theoretical Physics (DAMTP), University of Cambridge*, Cambridge, UK, 2001/9.

3. BOOKS:

1) W. Shyy, H. Aono, C. Kang, and H. Liu, An Introduction to Flapping Wing Aerodynamics, Cambridge University Press, 2013.

2) S. Sunada, H. Liu, H. Tokutake, and D. Kubo, Handbook of Unmanned Aerial Vehicles, (edited by K. P. Valavanis and G. J. Vachtsevanos), Springer, 2013.

3) H. Liu, X. Wang, T. Nakata and K. Yoshida, Autonomous Control Systems and Vehicles,

(edited by K. Nonami), Springer, 2012.

4) H. Liu, Biological Fluid Dynamics, Editors : K. Tanishita, T. Yamaguchi, Asakura Publisher, 2012.

5) H. Liu, Micro Air Vehicles (MAVs), *Encyclopedia of Aerospace Engineering,* John Wiley & Sons, 2010. (MAV section editor)

6) H. Liu, *Flight control of insects*, Insect Biomimetics, NTS Publisher, 2008.

7) H. Aono and H. Liu, *Simulation-based biomechanics in insect flight*, Insect Biomimetics, NTS Publisher, 2008.

8) W. Shyy, Y.S. Lian, J. Tang, D. Viieru, and H. Liu, *Aerodynamics of low Reynolds Number Flyers*. Cambridge University Press, 2007.

9) H. Liu and S. Sunada, *Micro-Machine Design of Animal*, Chapter 5, JSME Publisher, 2000. (in Japanese)

10) R. Himeno and H. Liu (editor), Focused on High Performance Computing in RIKEN 2000, *RIKEN REVIEW* No. 40, 2001.

11) R. Himeno and H. Liu (editor), Focused on High Performance Computing in RIKEN 2001, *RIKEN REVIEW* No. 48, 2002.

12) H. Liu, Dictionary of Flow: Blood Flow, MARUZEN, 2003. (In Japanese)

13) H. Liu, Dictionary of Flow: Blood Flow in Heart, MARUZEN, 2003. (In Japanese)