

## Interdisciplinary Publications Organized By Theme

The full list of publications below is presented in reverse chronological order. Given the interdisciplinary nature of these works, we propose a thematic index on next page (some publications appear under multiple labels).

### Complex Systems

#### ↳ Multi-Agent Systems

- ↳ Swarm Intelligence & Agent-Based Modeling ..... [1], [5], [8], [10], [13], [27], [35], [36], [41], [42], [47], [52], [58], [59], [65], [92], [96], [99], [105], [111], [112]
- ↳ Consensus Dynamics ..... [1], [8], [9], [19], [22], [24], [35], [58], [59]
- ↳ Networked Control Systems & Distributed Optimization [16], [19], [65], [87], [98], [100], [103], [104], [114-116], [119]
- ↳ AI & Reinforcement Learning ..... [12], [25], [29], [34], [97], [110]

#### ↳ Computational Social Science

- ↳ Collective Decision-Making & Collective Learning ..... [5], [9], [24], [41], [47], [52], [90], [92], [93]
- ↳ Social Contagion ..... [9], [24], [26], [41], [52], [92], [126], [130]
- ↳ Social Networks ..... [15], [20], [24], [33], [47], [131]
- ↳ AI & Data Science ..... [12], [15], [20], [26], [33], [90], [92], [125], [134], [138]

#### ↳ Complex Urban Systems

- ↳ Sensor Network Analysis ..... [3], [4], [11], [18], [21], [88], [95], [137], [139]
- ↳ Human Dynamics ..... [11], [18], [20], [21], [89], [94], [133], [136]
- ↳ AI & Big Data Analytics ..... [3], [4], [11], [20], [91], [94], [108], [127-130]

### Computational Science (others)

- ↳ Nonlinear Systems ..... [6], [7], [14], [17], [23], [30-32], [37-40], [43-46], [48-51], [53], [55-57], [60-64], [66-86], [117], [120-124]

### Books

- [1] *Design and Control of Swarm Dynamics*  
R. Bouffanais, Springer, Complexity Series ISBN 978-9812877505, 118 pages, DOI: [10.1007/978-981-287-751-2](https://doi.org/10.1007/978-981-287-751-2) (2016). [[web](#)], [[pdf](#)]
- [2] *Thermodynamique*  
R. Bouffanais, Prepamath Edition (In French), ISBN 2-910350-30-4, 192 pages (1999). [[web](#)], [[pdf](#)]

### Book Chapters

- [3] *Artificial Intelligence in Urban Planning and Design*  
A. D. S. Srikanth, W. C. B. Chin, R. Bouffanais, T. Schroepfer, Chapter 3: Complexity Science for Urban Solutions (Eds. I. As and P. Basu and P. Talwar), Elsevier, Pages 39–58, Print ISBN: 978-0-12-823941-4, DOI: [10.1016/B978-0-12-823941-4.00017-2](https://doi.org/10.1016/B978-0-12-823941-4.00017-2) (2022). [[pdf](#)]
- [4] *Artificial Intelligence in Urban Planning and Design*  
A. D. S. Srikanth, W. C. B. Chin, R. Bouffanais, T. Schroepfer, Chapter 12: Complexity Science-based Spatial Performance Analyses of UNStudio/DP Architects' SUTD Campus and WOHA's Kampung Admiralty (Eds. I. As and P. Basu and P. Talwar), Elsevier, Pages 217–244, Print ISBN: 978-0-12-823941-4, DOI: [10.1016/B978-0-12-823941-4.00019-6](https://doi.org/10.1016/B978-0-12-823941-4.00019-6) (2022). [[pdf](#)]

- [5] *Complex Systems: Theory and Applications*  
D. Mateo & R. Bouffanais, Chapter 18: Excess of social activity reduces the responsiveness of swarms (Eds. G. Rzesveski and C.A. Brebbia), WIT Press, Pages 172–180, Print ISBN: 978-1-78466-235-6, eBook ISBN: 978-1-78466-236-3 (2017). [[web](#)], [[pdf](#)]
- [6] *Graphene Science Handbook Nanostructure and Atomic Arrangement*  
M. B. Belonenko, N. N. Konobeeva, A. V. Zhukov & R. Bouffanais, Chapter 22: Tunneling current of the contact of the curved graphene nanoribbon with metal and quantum dots (Eds. M. Aliofkhaezraei, N. Ali, W. I. Milne, C. S. Ozkan, S. Mitura, and J. L. Gervasoni), CRC Press, Pages 327–339, Print ISBN: 978-1-4665-9137-0, eBook ISBN: 978-1-4665-9138-7, DOI: [10.1201/b19461](#) (2016). [[pdf](#)]
- [7] *High-Performance Computing of Industrial Flows*  
R. Bouffanais, N. Fiétier, J. Lätt, M. O. Deville, Chapter 7: High performance computing with spectral element methods. In VKI Lecture Series (Eds. J.-M. Buchlin, P. Rambaud, Ph. Planquart), ISBN 978-2-930389-93-1, von Kármán Institute for Fluid Dynamics (2009). [[web](#)], [[pdf](#)]

## Refereed Journal Articles

- [8] Adapting the Exploration-Exploitation Balance in Heterogeneous Swarms: Tracking Evasive Targets  
H. L. Kwa, V. Babineau, J. Philippot & R. Bouffanais, *Artificial Life*, In Press, (**28**), MIT Press (2022). [[arxiv](#)]
- [9] Transition from Simple to Complex Contagion in Collective Decision-Making  
N. Horsevad, D. Mateo, R.E. Kooij, A. Barrat & R. Bouffanais, *Nature Communications*, (**13**), 1442, DOI: [10.1038/s41467-022-28958-6](#) (2022). [[pdf](#)]
- [10] Beyond Bio-Inspired Robotics: How Multi-Robot Systems Can Support Research on Collective Behavior  
N. Horsevad, H. L. Kwa R. Bouffanais, *Frontiers in Robotics and AI*, (**9**), 865414, DOI: [10.3389/frobt.2022.865414](#) (2022). [[pdf](#)]
- [11] A Framework for the Identification of Human Vertical Displacement Activity Based on Multi-Sensor Data  
A. Manivannan, E. J. Willemse, Balamurali B. T., W. C. B. Chin, Y. Zhou, B. Tunçer, A. Barrat & R. Bouffanais, *IEEE Sensors J.*, (**22**):8, 8011–8029, DOI: [10.1109/JSEN.2022.3157806](#) (2022). [[pdf](#)]
- [12] ‘Data dregs’ and its Implications for AI Ethics: Revelations From the Pandemic  
S. S. Lim & R. Bouffanais, *AI and Ethics* (Springer), (**1**), In Press, DOI: [10.1007/s43681-021-00130-8](#) (2022). [[pdf](#)]
- [13] Balancing Collective Exploration and Exploitation in Multi-Agent and Multi-Robot Systems: A Review  
H. L. Kwa, J. L. Kit & R. Bouffanais, *Frontiers in Robotics and AI*, (**8**), 771520, DOI: [10.3389/frobt.2021.771520](#) (2022). [[pdf](#)]
- [14] Entropy Changes in Crystalline Material Under Phase Transition and Symmetry Breaking  
D. Sinha & R. Bouffanais, *Physica A: Statistical Mechanics and Its Applications*, (**588**), 126525, DOI: [10.1016/j.physa.2021.126525](#) (2022). [[pdf](#)]
- [15] Interplay Between Success and Patterns of Human Collaboration: Case Study of a Thai Research Institute  
A. M. Fiscarelli, M. R. Brust, R. Bouffanais, A. Piyatumrong, G. Danois & P. Bouvry, *Scientific Reports*, (**11**), 318, DOI: [10.1038/s41598-020-79447-z](#) (2021). [[pdf](#)]
- [16] Tuning the Clustering Coefficient of Generalized Circulant Networks  
R. E. Kooij, N. Horsevad & R. Bouffanais, *Physica A: Statistical Mechanics and Its Applications*, (**578**), 126088, DOI: [10.1016/j.physa.2021.126088](#) (2021). [[pdf](#)]
- [17] External Light Control of Three-dimensional Pulses in an Array of Carbon Nanotubes  
E. G. Fedorov, A. V. Zhukov, R. Bouffanais, N. N. Konobeeva, E. V. Boroznina, B. A. Malomed, H. Leblond, D. Mihalache, M. B. Belonenko, N. N. Rosanov & T. F. George, *Phys. Rev. B*, (**103**), 085111, DOI: [10.1103/PhysRevB.103.085111](#) (2021). [[pdf](#)]
- [18] Cities – Try to Predict Superspreading Hotspots for COVID-19  
R. Bouffanais & S. S. Lim, *Nature*, (**583**), 352–355, DOI: [10.1038/d41586-020-02072-3](#) (2020). [[pdf](#)]
- [19] Randomized Constraints Consensus for Distributed Robust Mixed-Integer Programming  
M. Chamanbaz, G. Notarstefano, F. Sasso & R. Bouffanais, *IEEE Trans. Control Network Systems*, (**8**), 295–306, DOI: [10.1109/TCNS.2020.3024483](#) (2020). [[pdf](#)]
- [20] Spatial Super-spreaders and Super-susceptibles in Human Movement Networks  
W. C. B. Chin & R. Bouffanais, *Scientific Reports*, (**10**), 18642, DOI: [10.1038/s41598-020-75697-z](#) (2020). [[pdf](#)]

- [21] On the Challenges and Potential of Using Barometric Sensors to Track Human Activity  
A. Manivannan, W. C. B. Chin, A. Barrat & R. Bouffanais, *Sensors*, (**20**), 6786, DOI: [10.3390/s20236786](https://doi.org/10.3390/s20236786) (2020). [[pdf](#)]
- [22] Robust Stabilization of a Class of Nonlinear Systems via Aperiodic Sensing and Actuation  
N. S. Tripathy, I. N. Kar, M. Chamanbaz & R. Bouffanais, *IEEE Access*, (**8**), 157403, DOI: [10.1109/ACCESS.2020.3018733](https://doi.org/10.1109/ACCESS.2020.3018733) (2020). [[pdf](#)]
- [23] Viscoelastic Laminar Drag Bounds in Pipe Flow  
M. Malik, R. Bouffanais & M. Skote, *Phys. Fluids*, (**32**), 031702, DOI: [10.1063/5.0002122](https://doi.org/10.1063/5.0002122) (2020). [[pdf](#)]
- [24] Optimal Network Topology for Responsive Collective Behavior  
D. Mateo, N. Horsevad, V. Hassani, M. Chamanbaz & R. Bouffanais, *Science Advances*, (**5**):eaau0999, DOI: [10.1126/sciadv.aau0999](https://doi.org/10.1126/sciadv.aau0999) (2019). [[pdf](#)]
- [25] Self-Organizing Maps for Storage and Transfer of Knowledge in Reinforcement Learning  
T. G. Karimpanal & R. Bouffanais, *Adaptive Behavior*, (**27**):2, 111–126, DOI: [10.1177/1059712318818568](https://doi.org/10.1177/1059712318818568) (2019). [[pdf](#)]
- [26] From Senseless Swarms to Smart Mobs: Tuning Networks for Prosocial Behavior  
S. S. Lim & R. Bouffanais, *IEEE Technology and Society Magazine*, (**38**):4, 17–19, DOI: [10.1109/MTS.2019.2948437](https://doi.org/10.1109/MTS.2019.2948437) (2019). [[pdf](#)]
- [27] Design Innovation of Mesoscale Robotic Swarms: Applications to Cooperative Urban Sensing and Mapping  
A. G. Dharmawan, G. S. Soh, S. Foong, R. Bouffanais & K. L. Wood, *Front. Inform. Technol. Electron. Eng.*, (**20**), 1618–1631, DOI: [10.1631/FITEE.1900384](https://doi.org/10.1631/FITEE.1900384) (2019). [[pdf](#)]
- [28] Design, Modeling and Experimentation of a Bio-Inspired Miniature Climbing Robot with Bilayer Dry Adhesives  
A. G. Dharmawan, P. Xavier, H. H. Hariri, G. S. Soh, A. Baji, R. Bouffanais S. Foong, H. Y. Low & K. L. Wood, *J. Mech. Rob.*, (**11**):2, 020902, DOI: [10.1115/1.4042457](https://doi.org/10.1115/1.4042457) (2019). [[pdf](#)]
- [29] Data Assimilation Method to De-noise and De-filter PIV Data  
J. J. J. Gillissen, R. Bouffanais & D. K. P. Yue, *J. Fluid Mech.*, (**877**), 196–213, DOI: [10.1017/jfm.2019.602](https://doi.org/10.1017/jfm.2019.602) (2019). [[pdf](#)]
- [30] Hydrodynamic Object Identification using Artificial Neural Networks  
S. Lakkam, B. T. Balamurali, R. Bouffanais, *Scientific Reports*, (**9**), 11242, DOI: [10.1038/s41598-019-47747-8](https://doi.org/10.1038/s41598-019-47747-8) (2019). [[pdf](#)]
- [31] Stabilization of Ultrashort Pulses by External Pumping in an Array of Carbon Nanotubes Subject to Piezoelectric Effects  
N. N. Konobeeva, E. G. Fedorov, N. N. Rosanov, A. V. Zhukov, R. Bouffanais & M. B. Belonenko, *J. Appl. Phys.*, (**126**), 203103, DOI: [10.1063/1.5128365](https://doi.org/10.1063/1.5128365) (2019). [[pdf](#)]
- [32] Asymptotic Dynamics of Three-dimensional Bipolar Ultrashort Electromagnetic Pulses in an Array of Semiconductor Carbon Nanotubes  
E. G. Fedorov, A. V. Zhukov, R. Bouffanais, B. A. Malomed, H. Leblond, D. Mihalache, N. N. Rosanov & M. B. Belonenko, *Opt. Exp.*, (**27**), 27592, DOI: [10.1364/OE.27.027592](https://doi.org/10.1364/OE.27.027592) (2019). [[pdf](#)]
- [33] Are the Different Layers of a Social Network Conveying the Same Information?  
A. Manivannan, W. Q. Yow, R. Bouffanais & A. Barrat, *EPJ Data Science*, (**7**), 34, DOI: [10.1140/epjds/s13688-018-0161-9](https://doi.org/10.1140/epjds/s13688-018-0161-9) (2018). [[pdf](#)]
- [34] Experience Replay Using Transition Sequences  
T. G. Karimpanal & R. Bouffanais, *Frontiers in Neurobotics*, (**12**), 32, DOI: [10.3389/fnbot.2018.00032](https://doi.org/10.3389/fnbot.2018.00032) (2018). [[pdf](#)]
- [35] Consensus in Networked Multiagent Systems under Communication Constraints and Dynamically Changing Topologies  
M. Komareji, Y. Shang & R. Bouffanais, *Nonlinear Dynamics*, (**93**), 1287–1300, DOI: [10.1007/s11071-018-4259-1](https://doi.org/10.1007/s11071-018-4259-1) (2018). [[pdf](#)]
- [36] Distributed System of Autonomous Buoys for Scalable Deployment and Monitoring of Large Waterbodies  
B. M. Zoss, D. Mateo, Y. K. Kuan, G. Tokić, M. Chamanbaz, L. Goh, F. Vallegra, R. Bouffanais, & Dick K. P. Yue, *Autonomous Robots*, (**42**), 1669–1689, DOI: [10.1007/s10514-018-9702-0](https://doi.org/10.1007/s10514-018-9702-0) (2018). [[pdf](#)]
- [37] A Space-Time Integral Minimization Method for Reconstructing Velocity Fields from Scalar Fields  
J. J. J. Gillissen, A. Vilquin, H. Kellay, R. Bouffanais & D. K. P. Yue, *J. Fluid Mech.*, (**854**), 348–366, DOI: [10.1017/jfm.2018.559](https://doi.org/10.1017/jfm.2018.559) (2018). [[pdf](#)]

- [38] Growth Mechanisms of Perturbations in Boundary Layers over a Compliant Wall  
M. Malik, M. Skote & R. Bouffanais, *Phys. Rev. Fluids*, **(3)**, 013903, DOI: [10.1103/PhysRevFluids.3.013903](https://doi.org/10.1103/PhysRevFluids.3.013903) (2018). [[pdf](#)]
- [39] Propagation of Three-dimensional Bipolar Ultrashort Electromagnetic Pulses in an Inhomogeneous Array of Carbon Nanotubes  
E. G. Fedorov, A. V. Zhukov, R. Bouffanais, A. P. Timashkov, B. A. Malomed, H. Leblond, D. Mihalache, N. N. Rosanov & M. B. Belonenko, *Phys. Rev. A*, **(97)**, 043814, DOI: [10.1103/PhysRevA.97.043814](https://doi.org/10.1103/PhysRevA.97.043814) (2018). [[pdf](#)]
- [40] Two-dimensional Electroacoustic Waves in Silicene  
A. V. Zhukov, R. Bouffanais, N. N. Konobeeva & M. B. Belonenko, *Appl. Phys. B*, **(124)**, 10, DOI: [10.1007/s00340-017-6879-4](https://doi.org/10.1007/s00340-017-6879-4) (2018). [[pdf](#)]
- [41] Effect of Correlations in Swarms on Collective Response  
D. Mateo, Y. K. Kuan & R. Bouffanais, *Scientific Reports*, **(7)**, 10388 DOI: [10.1038/s41598-017-09830-w](https://doi.org/10.1038/s41598-017-09830-w) (2017). [[pdf](#)]
- [42] Swarm-Enabling Technology for Multi-Robot Systems  
M. Chamanbaz, D. Mateo, B. M. Zoss, G. Tokić, E. Wilhelm, R. Bouffanais & Dick K. P. Yue, *Frontiers in Robotics and AI* (Multi-Robot Systems Section) **(4)**, 0012, DOI: [10.3389/frobt.2017.00012](https://doi.org/10.3389/frobt.2017.00012) (2017). [[pdf](#)]
- [43] Nonequilibrium Dielectric Noise in Solids in the Presence of Modulation of Electrical Permittivity and Spectral Symmetry Breaking Under Feedback  
D. Sinha, R. Bouffanais & S. Huang, *New J. Phys.*, **(19)**, 113050, DOI: [10.1088/1367-2630/aa8ff1](https://doi.org/10.1088/1367-2630/aa8ff1) (2017). [[pdf](#)]
- [44] Three-dimensional Light Bullets in a Bragg Medium with Carbon Nanotubes  
A. V. Zhukov, R. Bouffanais, M. B. Belonenko, I. S. Dvuzhilov & Y. V. Nevzorova, *Appl. Phys. B*, **(123)**, 196, DOI: [10.1007/s00340-017-6767-y](https://doi.org/10.1007/s00340-017-6767-y) (2017). [[pdf](#)]
- [45] Influence of the Order Parameter on the Dynamics of Ultrashort Pulses in an Environment with Carbon Nanotubes  
A. V. Zhukov, R. Bouffanais, N. N. Konobeeva & M. B. Belonenko, *J. Appl. Phys.* **(121)**, 084301, DOI: [10.1063/1.4977011](https://doi.org/10.1063/1.4977011) (2017). [[pdf](#)]
- [46] Three-dimensional Ultrashort Optical Airy Beams in an Inhomogeneous Medium with Carbon Nanotubes  
A. V. Zhukov, R. Bouffanais, M. B. Belonenko & I. S. Dvuzhilov, *Phys. Lett. A* **(381)**, 931, DOI: [10.1016/j.physleta.2017.01.008](https://doi.org/10.1016/j.physleta.2017.01.008) (2017). [[pdf](#)]
- [47] Interplay Between Signaling Network Design and Swarm Dynamics  
A. Sekunda, M. Komareji & R. Bouffanais, *Network Science* **(4)**, 244–265, DOI: [10.1017/nws.2016.5](https://doi.org/10.1017/nws.2016.5) (2016). [[pdf](#)]
- [48] Opto-acoustics Effects in an Array of Carbon Nanotubes  
A. V. Zhukov, R. Bouffanais, N. N. Konobeeva & M. B. Belonenko, *J. Appl. Phys.* **(120)**, 134307, DOI: [10.1063/1.4964445](https://doi.org/10.1063/1.4964445) (2016). [[pdf](#)]
- [49] Peculiarities of the Propagation of Multidimensional Extremely Short Optical Pulses in Germanene  
A. V. Zhukov, R. Bouffanais, N. N. Konobeeva & M. B. Belonenko, *Phys. Lett. A* **(380)**, 3117–3120, DOI: [10.1016/j.physleta.2016.07.021](https://doi.org/10.1016/j.physleta.2016.07.021) (2016). [[pdf](#)]
- [50] Zitterbewegung near a Schwarzschild-type Black Hole  
A. V. Zhukov, R. Bouffanais, N. N. Konobeeva & M. B. Belonenko, *Mod. Phys. Lett. A* **(31)**, 1650168, DOI: [10.1142/S0217732316501686](https://doi.org/10.1142/S0217732316501686) (2016). [[pdf](#)]
- [51] Three-dimensional Extremely-short Optical Pulses in Carbon Nanotube Arrays in the Presence of an External Magnetic Field  
A. V. Zhukov, R. Bouffanais, M. B. Belonenko & E. N. Galkina, *Mod. Phys. Lett. B* **(30)**, 1650405, DOI: [10.1142/S0217984916504054](https://doi.org/10.1142/S0217984916504054) (2016). [[pdf](#)]
- [52] Excess of Social Activity Reduces the Responsiveness of Swarms  
D. Mateo & R. Bouffanais, *Int. J. Des. Nat. Ecodyn.* **(11)**, 654–662, DOI: [10.2495/DNE-V11-N4-654-662](https://doi.org/10.2495/DNE-V11-N4-654-662) (2016). [[pdf](#)]
- [53] Collisions of Three-dimensional Bipolar Optical Solitons in an Array of Carbon Nanotubes  
A. V. Zhukov, R. Bouffanais, B. A. Malomed, H. Leblond, D. Mihalache, E. G. Fedorov, N. N. Rosanov & M. B. Belonenko, *Phys. Rev. A* **(94)**, 053823, DOI: [10.1103/PhysRevA.94.053823](https://doi.org/10.1103/PhysRevA.94.053823) (2016). [[pdf](#)]
- [54] Interplay Between Motility and Cell-Substratum Adhesion in Amoeboid Cells  
X. Zhu, R. Bouffanais & D. K. P. Yue, *Biomicrofluidics* **(9)**, 054112, DOI: [10.1063/1.4931762](https://doi.org/10.1063/1.4931762) (2015). [[pdf](#)]

- [55] Interaction of a Two-dimensional Electromagnetic Pulse with an Electron Inhomogeneity in an Array of Carbon Nanotubes in the Presence of Field Inhomogeneity  
A. V. Zhukov, R. Bouffanais, H. Leblond, D. Mihalache, E. G. Fedorov & M. B. Belonenko, *Eur. Phys. J. D* (**69**), 242, DOI: [10.1140/epjd/e2015-60256-7](https://doi.org/10.1140/epjd/e2015-60256-7) (2015). [[pdf](#)]
- [56] Study of the Indirect Interaction in a Non-Fermi Liquid within the AdS/CFT Correspondence Framework  
A. V. Zhukov, R. Bouffanais, A. V. Pak & M. B. Belonenko, *Mod. Phys. Lett. B* (**29**), 1550181, DOI: [10.1142/S0217984915500815](https://doi.org/10.1142/S0217984915500815) (2015). [[pdf](#)]
- [57] Two-dimensional Extremely Short Electromagnetic Pulses in a Bragg Medium with Carbon Nanotubes  
A. V. Zhukov, R. Bouffanais, M. B. Belonenko, N. N. Konobeeva, Y. V. Nevzorova & T. F. George, *Eur. Phys. J. D* (**69**), 129, DOI: [10.1140/epjd/e2015-50895-y](https://doi.org/10.1140/epjd/e2015-50895-y) (2015). [[pdf](#)]
- [58] Consensus Reaching in Swarms Ruled by a Hybrid Metric-Topological Distance  
Y. Shang & R. Bouffanais, *Eur. Phys. J. B* (**87**), 294 DOI: [10.1140/epjb/e2014-50094-4](https://doi.org/10.1140/epjb/e2014-50094-4) (2014). [[pdf](#)]
- [59] Influence of the Number of Topologically Interacting Neighbors on Swarm Dynamics  
Y. Shang & R. Bouffanais, *Scientific Reports* (**4**), 04184, DOI: [10.1038/srep04184](https://doi.org/10.1038/srep04184) (2014). [[pdf](#)]
- [60] Interaction of a Two-dimensional Electromagnetic Breather with an Electron Inhomogeneity in an Array of Carbon Nanotubes  
A. V. Zhukov, R. Bouffanais, E. G. Fedorov & M. B. Belonenko, *J. Appl. Phys.* (**115**), 203109, DOI: [10.1063/1.487990](https://doi.org/10.1063/1.487990) (2014). [[pdf](#)]
- [61] Influence of Multi-level Impurities on the Dynamics of Ultrashort Electromagnetic Pulses in CNTs  
A. V. Zhukov, R. Bouffanais, N. N. Konobeeva, M. B. Belonenko & T. F. George, *Europhys. Lett.* (**106**), 37005, DOI: [10.1209/0295-5075/106/37005](https://doi.org/10.1209/0295-5075/106/37005) (2014). [[pdf](#)]
- [62] Persistent Cellular Motion Control and Trapping Using Mechanotactic Signaling  
X. Zhu, R. Bouffanais & D. K. P. Yue, *PLoS one* (**9**), e105406, DOI: [10.1371/journal.pone.0105406](https://doi.org/10.1371/journal.pone.0105406) (2014). [[pdf](#)]
- [63] Few-cycle Optical Pulses in a Thin Film of a Topological Insulator  
A. V. Zhukov, R. Bouffanais, M. B. Belonenko, N. N. Konobeeva & T. F. George, *Opt. Commun.* (**329**), 151–153, DOI: [10.1016/j.optcom.2014.05.018](https://doi.org/10.1016/j.optcom.2014.05.018) (2014). [[pdf](#)]
- [64] Tunneling Characteristics of a Contact Between a Superlattice and non-Fermi Liquid using the AdS/CFT Correspondence  
M. B. Belonenko, N. N. Konobeeva, D. M. Smovzh, A. V. Zhukov & R. Bouffanais, *Mod. Phys. Lett. B* (**28**), 1450170, DOI: [10.1142/S021798491450170X](https://doi.org/10.1142/S021798491450170X) (2014). [[pdf](#)]
- [65] Resilience and Controllability of Dynamic Collective Behaviors  
M. Komareji & R. Bouffanais, *PLoS one* (**8**), e82578, DOI: [10.1371/journal.pone.0082578](https://doi.org/10.1371/journal.pone.0082578) (2013). [[pdf](#)]
- [66] Three-dimensional Electromagnetic Breathers in Carbon Nanotubes with the Field Inhomogeneity Along their Axes  
A. V. Zhukov, R. Bouffanais, E. G. Fedorov & M. B. Belonenko, *J. Appl. Phys.* (**114**), 143106 DOI: [10.1063/1.482437](https://doi.org/10.1063/1.482437) (2013). [[pdf](#)]
- [67] On the Electronic Spectrum in Curved Graphene Nanoribbons  
A. V. Zhukov, R. Bouffanais, N. N. Konobeeva & M. B. Belonenko, *JETP Lett.* (**97**), 400–403, DOI: [10.1134/S0021364013070126](https://doi.org/10.1134/S0021364013070126) (2013). [[pdf](#)]
- [68] Study of the Indirect Exchange Interaction in a Strained Graphene Nanoribbon  
A. V. Zhukov, R. Bouffanais, A. V. Pak & M. B. Belonenko, *Physica B* (**419**), 62–65, DOI: [10.1016/j.physb.2013.03.022](https://doi.org/10.1016/j.physb.2013.03.022) (2013). [[pdf](#)]
- [69] Propagation of Extremely Short Pulses in a Graphene-Boron Nitride Bilayer  
A. V. Zhukov, R. Bouffanais, A. V. Pak & M. B. Belonenko, *Phys. Lett. A* (**377**), 564–566, DOI: [10.1016/j.physleta.2012.12.027](https://doi.org/10.1016/j.physleta.2012.12.027) (2013). [[pdf](#)]
- [70] Physical Limits on Cellular Directional Mechanosensing  
R. Bouffanais, J. Sun & D. K. P. Yue, *Phys. Rev. E* (**87**), 052716, DOI: [10.1103/PhysRevE.87.052716](https://doi.org/10.1103/PhysRevE.87.052716) (2013). [[pdf](#)]
- [71] Computational Fluid Dynamics for Architectural Design  
S. Kaijima, R. Bouffanais, S. Naidu & K. Willcox, *Architectural Design* (**83**), Issue 2, 118–123, DOI: [10.1002/ad.1566](https://doi.org/10.1002/ad.1566) (2013). [[pdf](#)]
- [72] Propagation of Laser Beams in an Array of Semiconductor Carbon Nanotubes  
A. V. Zhukov, R. Bouffanais, M. B. Belonenko & E. G. Fedorov, *Mod. Phys. Lett. B* (**27**), 1350045, DOI: [10.1142/S0217984913500450](https://doi.org/10.1142/S0217984913500450) (2013). [[pdf](#)]

- [73] The Hall Conductivity of a Doped Graphene in a Quantizing Magnetic Field  
M. B. Belonenko, A. V. Pak, A. V. Zhukov & R. Bouffanais, *Mod. Phys. Lett. B* (**26**), 125088, DOI: [10.1142/S0217984912501886](https://doi.org/10.1142/S0217984912501886) (2012). [[pdf](#)]
- [74] Hydrodynamic Object Recognition Using Pressure Sensing  
R. Bouffanais, G. D. Weymouth & D. K. P. Yue, *Proc. Roy. Soc. A* (**467**), 19–38, DOI: [10.1098/rspa.2010.0095](https://doi.org/10.1098/rspa.2010.0095) (2011). [[pdf](#)]
- [75] Time-Scale Joint Representation of DNS and LES Numerical Data  
G. Courbebaisse, R. Bouffanais, L. Navarro, E. Leriche & M. O. Deville, *Computers & Fluids* (**43**), 38–45, DOI: [10.1016/j.compfluid.2010.09.004](https://doi.org/10.1016/j.compfluid.2010.09.004) (2011). [[pdf](#)]
- [76] Computational Performance of a Parallelized Three-dimensional High-order Spectral Element Toolbox  
C. Bosshard, R. Bouffanais, M. O. Deville, R. Gruber & J. Lätt, *Computers & Fluids* (**44**), 1–8, DOI: [10.1016/j.compfluid.2010.11.014](https://doi.org/10.1016/j.compfluid.2010.11.014) (2011). [[pdf](#)]
- [77] Hydrodynamics of Cell-Cell Mechanical Signaling in the Initial Stages of Aggregation  
R. Bouffanais & D. K. P. Yue, *Phys. Rev. E* (**81**), 041920, DOI: [10.1103/PhysRevE.81.041920](https://doi.org/10.1103/PhysRevE.81.041920) (2010). [[pdf](#)].
- [78] Advances and Challenges of Applied Large-Eddy Simulation  
R. Bouffanais, *Computers & Fluids* (**39**), 735–738, DOI: [10.1016/j.compfluid.2009.12.003](https://doi.org/10.1016/j.compfluid.2009.12.003) (2010). [[pdf](#)]
- [79] Unsteady Transitional Swirling Flow in the Presence of a Moving Free Surface  
R. Bouffanais & D. Lo Jacono, *Phys. Fluids* (**21**), 064107, DOI: [10.1063/1.3156010](https://doi.org/10.1063/1.3156010) (2009). [[pdf](#)]
- [80] Transitional Cylindrical Swirling Flow in Presence of a Flat Free Surface  
R. Bouffanais & D. Lo Jacono, *Computers & Fluids* (**38**), 1651–1673, DOI: [10.1016/j.compfluid.2009.02.002](https://doi.org/10.1016/j.compfluid.2009.02.002) (2009). [[pdf](#)]
- [81] Solution of Moving Boundary Problems by the Spectral Element Method  
N. Bodard, R. Bouffanais & M. O. Deville, *App. Num. Math.* (**58**), 968–984, DOI: [10.1016/j.apnum.2007.04.009](https://doi.org/10.1016/j.apnum.2007.04.009) (2008). [[pdf](#)]
- [82] A Coupled Approximate Deconvolution and Dynamic Mixed Scale Model for Large-Eddy Simulation  
M. A. Habisreutinger, R. Bouffanais, E. Leriche & M. O. Deville, *J. Comput. Phys.* (**224**), 241–266, DOI: [10.1016/j.jcp.2007.02.010](https://doi.org/10.1016/j.jcp.2007.02.010) (2007). [[pdf](#)]
- [83] Large-Eddy Simulation of the Flow in a Lid-Driven Cubical Cavity  
R. Bouffanais, M. O. Deville & E. Leriche, *Phys. Fluids*. (**19**), 055108, DOI: [10.1063/1.2723153](https://doi.org/10.1063/1.2723153) (2007). [[pdf](#)]
- [84] Mesh Update Techniques for Free-Surface Flow Solvers using Spectral Element Method  
R. Bouffanais & M. O. Deville, *J. Sci. Comput.* (**27**), 137–149, DOI: [10.1007/s10915-005-9050-z](https://doi.org/10.1007/s10915-005-9050-z) (2006). [[pdf](#)]
- [85] Large-Eddy Simulation of the Lid-Driven Cubic Cavity Flow by the Spectral Element Method  
R. Bouffanais, M. O. Deville, P. F. Fischer, E. Leriche & D. Weill, *J. Sci. Comput.* (**27**), 151–162, DOI: [10.1007/s10915-005-9039-7](https://doi.org/10.1007/s10915-005-9039-7) (2006). [[pdf](#)]
- [86] Nonequilibrium Electron Interactions in Metal Films  
N. Del Fatti, R. Bouffanais, F. Vallée & C. Flytzanis, *Phys. Rev. Lett.* (**81**), 922–925, DOI: [10.1103/PhysRevLett.81.922](https://doi.org/10.1103/PhysRevLett.81.922) (1998). [[pdf](#)]

## Refereed Conference Proceedings & Patents

- [87] Finite-time Event-triggered Control for a Class of Nonlinear Systems  
N. S. Tripathy, M. Chamanbaz & R. Bouffanais, *CDC 2022, 61st IEEE Conf. Decision Control*, December 6–9, 2022, Cancún, Mexico, Accepted for Publication, (2022).
- [88] Connect or Adapt: Analytic Framework for the Planning and Design of Resilient Spatial Networks  
D. Wong, W. C. B. Chin, R. Bouffanais & T. Schroeffer, *Proceedings of the International Conference ARCC-EAAE 2022*, pp. 225–233, March 2–5, Miami, FL, USA, (2022). [[web](#)], [[pdf](#)]
- [89] Evaluation of Spatial Performance in Vertically Integrated Developments Using a Network Science-Based Approach  
S. Golapakrishnan, C. Hablani, D. Wong, A. D. Srikanth, A. Manivannan, R. Bouffanais & T. Schroeffer, *Proceedings of the International Conference ARCC-EAAE 2022*, pp. 391–398, March 2–5, Miami, FL, USA, (2022). [[web](#)], [[pdf](#)]

- [90] The Effect of Network Connectivity on Exploration and Exploitation During Decentralized Collective Learning  
H. L. Kwa & R. Bouffanais, *4th International Workshop on Agent-Based Modelling of Human Behaviour (ABMHuB'22)*, online (2022). [web], [pdf]
- [91] Probabilistic Modelling of Demographic Changes in Singapore's Neighbourhoods  
M. M. Barakatullah, E. J. Willemse, B. Tunçer & R. Bouffanais, *WMCAUS 2021, 6th World Multidisciplinary Civil Engineering, Architecture: Urban Planning Symposium*, June 14-18, Prague, Czech Republic, (1203), 032032 (2021). DOI: [10.1088/1757-899X/1203/3/032032](https://doi.org/10.1088/1757-899X/1203/3/032032) (2021). [pdf]
- [92] Tracking Multiple Fast Targets With Swarms: Interplay Between Social Interaction and Agent Memory  
H. L. Kwa, J. L. Kit & R. Bouffanais, *Proceedings of the ALIFE 2021: The 2021 Conference on Artificial Life*, July 19-23, 2021, online, pp. 62–71, ASME, DOI: [10.1162/isal.a.00376](https://doi.org/10.1162/isal.a.00376) (2021). [pdf]
- [93] Tailoring Exploration and Exploitation in Multi-Agent Systems with Short-Term Memory and Limited Social Interaction  
H. L. Kwa, J. L. Kit & R. Bouffanais, *3rd International Workshop on Agent-Based Modelling of Human Behaviour (ABMHuB'21)*, July 19-23, online (2021). [web], [pdf]
- [94] User-Driven Emergent Patterns of Space Use in Vertically Integrated Urban Environments  
S. Gopalakrishnan, D. Wong, A. Manivannan, R. Bouffanais & T. Schroepfer, *Proceedings of the International Conference ARCC 2021*, pp. 215–222, April 7–10, Tucson, AZ, USA, (2021). [web], [pdf]
- [95] Mapping Emergent Patterns of Movement and Space Use in Vertically Integrated Urban Developments  
S. Gopalakrishnan, D. Wong, A. Manivannan, R. Bouffanais & T. Schroepfer, *Int. Symposium for Architecture + Urban Design simAUD 2021*, pp. 1–4, April 15–17, online, (2021). [web], [pdf]
- [96] Heterogeneous Swarms for Maritime Dynamic Target Search and Tracking  
H. L. Kwa, G. Tokić, R. Bouffanais & Dick K. P. Yue, *IEEE/MTS Global Oceans 2020: Singapore – U.S. Gulf Coast*, Oct 5-30, 2020, online, pp. 1–8, DOI: [10.1109/IEEECONF38699.2020.9389145](https://doi.org/10.1109/IEEECONF38699.2020.9389145) (2020). [pdf]
- [97] Multi-Agent Reinforcement Learning for Dynamic Ocean Monitoring by a Swarm of Buoys  
M. Kouzehgar, M. Meghjani & R. Bouffanais, *IEEE/MTS Global Oceans 2020: Singapore – U.S. Gulf Coast*, October 5-30, 2020, online, pp. 9–17, DOI: [10.1109/IEEECONF38699.2020.9389128](https://doi.org/10.1109/IEEECONF38699.2020.9389128) (2020). [pdf]
- [98] Robust Stabilization of a Class of Networked Nonlinear Systems via Parsimonious Communication and Actuation  
N. S. Tripathy, I. N. Kar, M. Chamanbaz & R. Bouffanais, *IECON 2020, The 46th Annual Conference of the IEEE Industrial Electronics Society*, October 18-21, Singapore, pp. 4919–4926, DOI: [10.1109/IECON43393.2020.9255064](https://doi.org/10.1109/IECON43393.2020.9255064) (2020). [pdf]
- [99] Optimal Swarm Strategy for Dynamic Target Search and Tracking  
H. L. Kwa, J. L. Kit & R. Bouffanais, *AAMAS 2020, 19th International Conference on Autonomous Agents and Multiagent Systems*, May 9-13, 2020, Auckland NZ, pp. 672–680, B. An, N. Yorke-Smith, A. El Fallah Seghrouchni, G. Sukthankar (eds.) (2020). [web], [pdf]
- [100] A Sequential Algorithm for Sampled Mixed-integer Optimization Problems  
M. Chamanbaz & R. Bouffanais, *IFAC 2020, 21th IFAC World Congress*, July 11-17, 2020, Berlin, Germany, pp. 6749–6755, DOI: [10.1016/j.ifacol.2020.12.317](https://doi.org/10.1016/j.ifacol.2020.12.317) (2020). [pdf]
- [101] Device and Method for Analysing and Controlling Cell Motility  
R. Bouffanais, X. Zhu & D. K. P. Yue, *Patent US 10,705,012 B2*, Jul. 7 (2020). [web], [pdf]
- [102] Climbing Robot  
G. S. Soh, R. Bouffanais, S. Foong, A. G. Dharmawan, D. C. Y. Koh & K. L. Wood, *PCT Patent Application WO 2020/214099 A1*, PCT/SG2020/050242, Patent Pending, April 17 (2020). [web], [pdf]
- [103] Robust Stabilization of Resource Limited Networked Control Systems Under Denial-of-Service Attack  
N. S. Tripathy, M. Chamanbaz & R. Bouffanais, *CDC 2019, 58th IEEE Conf. Decision Control*, December 11-12, 2019, Nice, France, pp. 7683–7689, DOI: [10.1109/CDC40024.2019.9030027](https://doi.org/10.1109/CDC40024.2019.9030027) (2019). [pdf]
- [104] A Physics-Based Attack Detection Technique in Cyber-Physical Systems: A Model Predictive Control Co-Design Approach  
M. Chamanbaz, F. Dabbene & R. Bouffanais, *ANZCC 2019, IEEE Australian & New Zealand Control Conf.*, November 27-29, 2019, Auckland, New Zealand, pp. 18–23, DOI: [10.1109/ANZCC47194.2019.8945588](https://doi.org/10.1109/ANZCC47194.2019.8945588) (2019). [pdf]
- [105] Decentralized Multi-Floor Exploration by a Swarm of Miniature Robots Teaming with Wall-Climbing Units  
J. Leong Kit, A. G. Dharmawan, D. Mateo, S. Foong, G. S. Soh, R. Bouffanais & K. L. Wood, *MRS 2019, IEEE International Symposium on Multi-Robot and Multi-Agent Systems*, August 22-23, 2019, New

- Brunswick, NJ, pp. 195–201, DOI: [10.1109/MRS.2019.8901058](https://doi.org/10.1109/MRS.2019.8901058) (2019). [[pdf](#)]  
 ↪ Received “Outstanding Paper Award”
- [106] Design and Analysis of A Miniature Two-Wheg Climbing Robot with Robust Internal and External Transitioning Capabilities  
 D. C. Y. Koh, A. G. Dharmawan, H. H. Hariri, G. S. Soh, S. Foong, [R. Bouffanais](#), H. Y. Low & K. L. Wood, *ICRA 2019, IEEE International Conference on Robotics and Automation*, May 20-24, 2019, Montréal, QC, pp. 9740–9746, DOI: [10.1109/ICRA.2019.8793910](https://doi.org/10.1109/ICRA.2019.8793910) (2019). [[pdf](#)]
- [107] Tail Design of A Miniature Two-Wheg Climbing Robot for External Transitioning  
 A. G. Dharmawan, D. C. Y. Koh, G. S. Soh, S. Foong, [R. Bouffanais](#) & K. L. Wood, *IFTOMM 2019, World Congress on Mechanism and Machine Science*, July 15-18, 2019, Krakow, Poland, in *T. Uhl (ed.), Advances in Mechanism and Machine Science*, Mechanisms and Machine Science (**73**), pp. 2139–2148, DOI: [10.1007/978-3-030-20131-9\\_212](https://doi.org/10.1007/978-3-030-20131-9_212) (2019). [[pdf](#)]
- [108] Identifying Highly Dense Areas from Raw Location Data  
 E. J. Willemse, B. Tunçer & [R. Bouffanais](#), *CAADRIA 2019, 24th Int. Conf. of the Association for Computer-Aided Architectural Design Research in Asia*, April 15-18, Wellington, New Zealand, in *Intelligent & Informed, Proc. of the 24th International CAADRIA*, (**2**), pp. 805–814 (2019). [[web](#)], [[pdf](#)]
- [109] A Bio-Inspired Miniature Climbing Robot with Bilayer Dry Adhesives: Design, Modeling, and Experimentation  
 A. G. Dharmawan, P. Xavier, D. Anderson, K. B. Perez, H. H. Hariri, G. S. Soh, A. Baji, [R. Bouffanais](#), S. Foong, H. Y. Low, K. L. Wood, *IDETC 2018, ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, August 26-29, 2019, Québec City, QC, DETC2018-85294, V05BT07A036, DOI: [10.1115/DETC2018-85294](https://doi.org/10.1115/DETC2018-85294) (2018). [[pdf](#)]  
 ↪ Received “Best Paper Award”
- [110] Self-Organizing Maps as a Storage and Transfer Mechanism in Reinforcement Learning  
 T. G. Karimpanal & [R. Bouffanais](#), *ALA 2018, Federated AI Meeting, Adaptive and Learning Agents Workshop*, July 14-15, 2018, Stockholm, Sweden, pp. 1–7, (2018). [[web](#)], [[pdf](#)]
- [111] Gradual Collective Upgrade of a Swarm of Autonomous Buoys for Dynamic Ocean Monitoring  
 F. Vallegra, D. Mateo, G. Tokić, [R. Bouffanais](#) & Dick K. P. Yue, *OCEANS 2018, MTS/IEEE Oceans Charleston*, Charleston, SC, pp. 1–7, DOI: [10.1109/OCEANS.2018.8604642](https://doi.org/10.1109/OCEANS.2018.8604642) (2018). [[pdf](#)]
- [112] Development of a Miniature Robot for Multi-Robot Occupancy Grid Mapping  
 J. Sundram, D. Van Nguyen, G. S. Soh, [R. Bouffanais](#) & K. L. Wood, *ICARM 2018, 3rd IEEE International Conference on Advanced Robotics and Mechatronics*, July 18-20, 2018, Singapore, pp. 414–419, DOI: [10.1109/ICARM.2018.8610745](https://doi.org/10.1109/ICARM.2018.8610745) (2018). [[pdf](#)]
- [113] ORION-II: A Miniature Climbing Robot with Bilayer Compliant Tape for Autonomous Intelligent Surveillance and Reconnaissance  
 H. H. Hariri, D. Koh C. Y., H. C. Lim, A. G. Dharmawan, V. D. Nguyen, G. S. Soh, S. Foong, [R. Bouffanais](#), H. Y. Low & K. L. Wood, *ICARCV 2018, 15th IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, November 18-21, 2018, Singapore, pp. 1621–1626, DOI: [10.1109/ICARCV.2018.8581287](https://doi.org/10.1109/ICARCV.2018.8581287) (2018). [[pdf](#)]
- [114] A Decentralized Mobile Computing Network for Multi-Robot Systems Operations  
 J. Leong Kit, D. Mateo & [R. Bouffanais](#), *UEMCON 2018, 9th IEEE Annual Ubiquitous Computing, Electronics & Mobile Communication Conference*, November 8-10, 2018, New York City, NY, pp. 309–314, DOI: [10.1109/UEMCON.2018.8796753](https://doi.org/10.1109/UEMCON.2018.8796753) (2018). [[pdf](#)]
- [115] A Randomized Distributed Ellipsoid Algorithm for Uncertain Feasibility Problems  
 M. Chamanbaz, G. Notarstefano & [R. Bouffanais](#), *CDC 2017, IEEE 56th Annual Conference on Decision and Control*, December 12-15, 2017, Melbourne, Vic., pp. 1305–1310, DOI: [10.1109/CDC.2017.8263835](https://doi.org/10.1109/CDC.2017.8263835) (2017). [[pdf](#)]
- [116] Randomized Constraints Consensus for Distributed Robust Linear Programming  
 M. Chamanbaz, G. Notarstefano & [R. Bouffanais](#), *IFAC 2017, 20th IFAC World Congress*, July 9-14, Toulouse, France, *IFAC PapersOnLine* (**50**), 4973–4978, DOI: [10.1016/j.ifacol.2017.08.763](https://doi.org/10.1016/j.ifacol.2017.08.763) (2017). [[pdf](#)]
- [117] Collision of 3D Bipolar Light Pulses in an Array of Carbon Nanotubes  
 A. V. Zhukov, [R. Bouffanais](#), B. A. Malomed, H. Leblond, D. Mihalache, E. G. Fedorov, N. N. Rosanov & M. B. Belonenko, *LO 2016, IEEE Intl. Conf. Laser Optics*, June 27-July 1, 2016, St. Petersburg, Russia, pp. R8-69, DOI: [10.1109/LO.2016.7549900](https://doi.org/10.1109/LO.2016.7549900) (2016). [[pdf](#)]
- [118] Integrated 2D Design in the Curriculum: Effectiveness of Early Cross-Subject Engineering Challenges  
 K. Otto, B. A. Camburn, K. L. Wood, G. Nannicini, [R. Bouffanais](#), E. Kyoseva, J. W. H. Yong, D. Poletti,



- R. E. Simpson & A. P. Mathur, *121st ASEE Conference & Exhibition*, June 15-18, Indianapolis, IN, pp. 24.763.1–24.763.18, DOI: [10.18260/1-2-20655](https://doi.org/10.18260/1-2-20655) (2014). [[web](#)], [[pdf](#)]
- [119] Controllability of a Swarm of Topologically Interacting Autonomous Agents  
M. Komareji & [R. Bouffanais](#), *Int. J. Complex Systems in Science* (**3**), 11–19, (2013). [[web](#)], [[pdf](#)]
- [120] Computational Fluid Dynamics for Architectural Design  
S. Kaijima, [R. Bouffanais](#) & K. Willcox, In *Open Systems: Proceedings of the 18th International Conference of the Association of Computer-Aided Architectural Design Research in Asia CAADRRIA*, (Eds. R. Stouffs, P. H. T. Janssen, S. Roudavski, B. Tunçer), Hong Kong, 169–178, (2013). [[pdf](#)]
- [121] Grid Filter Modeling for Large-Eddy Simulation  
M.A. Habisreutinger, [R. Bouffanais](#) & M. O. Deville, In *Notes Num. Fluid Mech. and Multidisciplinary Design* (**110**), 159–165, DOI: [10.1007/978-3-642-14139-3\\_19](https://doi.org/10.1007/978-3-642-14139-3_19) (2010). [[pdf](#)]
- [122] Wavelet Analysis of Turbulent LES Data of the Lid-driven Cavity Flow  
[R. Bouffanais](#), G. Courbebaisse, L. Navarro & M. O. Deville, In *Notes Num. Fluid Mech. and Multidisciplinary Design* (**110**), 87–94, DOI: [10.1007/978-3-642-14139-3\\_10](https://doi.org/10.1007/978-3-642-14139-3_10) (2010). [[pdf](#)]
- [123] Computational Performance of a Parallelized 3D High-order Spectral Element Toolbox  
C. Bosshard, [R. Bouffanais](#), C. Cléménçon, M. O. Deville, N. Fiétier, R. Gruber, S. Kehtari, V. Keller & J. Lätt, In *Lect. Notes in Computer Sci.* (**5737**), 323–329, DOI: [10.1007/978-3-642-03644-6\\_25](https://doi.org/10.1007/978-3-642-03644-6_25) (2009). [[pdf](#)]
- [124] Grid Filter Models for Large-Eddy Simulation  
[R. Bouffanais](#), M. A. Habisreutinger & M. O. Deville, *ICIAM'07, 6th International Congress on Industrial Applied Mathematics and GAMM Annual Meeting*, July 5-7, Zürich, Switzerland, In *Proc. Appl. Math. Mech.* (**7**), 1101203–1101204, DOI: [10.1002/pamm.200700255](https://doi.org/10.1002/pamm.200700255) (2007). [[pdf](#)]

## Opinion Editorials

- [125] Fighting for Data Dregs – And Losing the Fight Against Digital Violence  
S. S. Lim & [R. Bouffanais](#), *Asia Global* (Hong Kong), May 26, (2022). [[web](#)], [[pdf](#)]
- [126] When the Mob Rallies: The Gamestop Stock Rush and Complex Contagions  
[R. Bouffanais](#) & S. S. Lim, *Asia Global* (Hong Kong), March 3, (2021). [[web](#)], [[pdf](#)]
- [127] A Sustainable Alternative to Blanket Lockdowns  
S. S. Lim & [R. Bouffanais](#), *Scientific American* (U.S.), Computing Opinion, Oct 22, (2020). [[web](#)], [[pdf](#)]
- [128] How Cities Can Avoid Costly Lockdowns with Smart Use of Big Data  
S. S. Lim & [R. Bouffanais](#), *South China Morning Post* (Hong Kong), September 11, (2020). [[web](#)], [[pdf](#)]
- [129] Confronting Viral Resurgences: Are Lockdowns the Only Solution?  
[R. Bouffanais](#) & S. S. Lim, *Asia Global* (Hong Kong), September 3, (2020). [[web](#)], [[pdf](#)]
- [130] Hoarding Toilet Paper: The Mystery of Such Panic Buying Explained  
[R. Bouffanais](#) & S. S. Lim, *The Straits Times* (Singapore), February 14, (2020). [[web](#)], [[pdf](#)]
- [131] How to Fight Fake News: Tech Has the Answers  
S. S. Lim & [R. Bouffanais](#), *The Straits Times* (Singapore), July 9, (2019). [[web](#)], [[pdf](#)]
- [132] Let's Get Poetic About the Wonders of an Engineering Education  
S. S. Lim & [R. Bouffanais](#), *The Straits Times* (Singapore), February 15, (2019). [[web](#)], [[pdf](#)]
- [133] The Rise of *Homo verticalis*  
[R. Bouffanais](#) & S. S. Lim, *Scientific American* (United States), January 16, (2019). [[web](#)], [[pdf](#)]
- [134] IA, Big Data, IoT... Plaidoyer pour la Création de Conseils Nationaux d'Éthique Numérique  
[R. Bouffanais](#) & S. S. Lim, *La Tribune* (France), January 13, (2019). [[web](#)], [[pdf](#)]
- [135] Engineering Education Must Also Focus on Social Aspects  
S. S. Lim & [R. Bouffanais](#), *The Business Times* (Singapore), December 18, (2018). [[web](#)], [[pdf](#)]
- [136] When High-rise Living Gets a Lift  
S. S. Lim & [R. Bouffanais](#), *The Straits Times* (Singapore), December 6, (2018). [[web](#)], [[pdf](#)]
- [137] The Science and Sensibilities of Smart Cities  
S. S. Lim & [R. Bouffanais](#), *Asia Global* (Hong Kong), August 9, (2018). [[web](#)], [[pdf](#)]
- [138] Keep an eye on AI and Big Data  
[R. Bouffanais](#) & S. S. Lim, *The Business Times* (Singapore), July 3, (2018). [[web](#)], [[pdf](#)]
- [139] Smart Rules Needed to Govern Smart Lamp Posts  
S. S. Lim & [R. Bouffanais](#), *The Straits Times* (Singapore), April 19, (2018). [[web](#)], [[pdf](#)]