Yixiang Deng

Professional Experience

10/2022– present **Postdoc Fellow**, *Ragon Institute of MGH, MIT and Harvard.*
Advisor: Daniel Lingwood

11/2021– present **Visiting Scientist**, *MIT.*
Advisor: Douglas A. Lauffenburger

10/2021– 09/2022 **Postdoc Fellow**, *Ragon Institute of MGH, MIT and Harvard.*
Advisor: Galit Alter

01/2022- 05/2022 **Teaching Assistant**, Department of Biological Engineering, MIT.
20.260/20.460: Computational Analysis of Biological Data

08/2020– 06/2021 **Visiting Graduate Research Student**, *Beth Israel Deaconess Medical Center (BIDMC).*
Advisor: Christos S. Mantzoros

05/2018– 08/2018 **Summer Graduate Research Intern**, *Pacific Northwest National Laboratory.*
Advisor: Xiu Yang

09/2017– 05/2018 **Teaching Assistant**, School of Engineering, Brown University.
- ENGN0030: Introduction to Engineering
- ENGN0040: Dynamics and Vibrations

Education

09/2016– 09/2021 **Ph.D. in School of Engineering**, *Brown University.*
Advisor: George Em Karniadakis

09/2017– 05/2019 **M.S. in Division of Applied Mathematics**, *Brown University.*

09/2015– 05/2017 **M.S. in School of Engineering**, *Brown University.*

09/2011– 06/2015 **B.Eng. in Department of Engineering Mechanics**, *Shanghai Jiao Tong University.*
Thesis Advisor: Jiasong Wang

Publications

***Equal contribution**.

2022 C. Berry, V. Pavot, N. Anosova, M. Kishko, D. Huang, T. Tibbitts, A. Raillard, S. Gautheron, S. Cummings, D. Bangari, S. Kar, C. Atyeo, **Y. Deng**, G. Alter, C. Gutzeit, M. Koutsoukos, R. Chicz, V. Lecouturier, A Beta-containing bivalent SARS-CoV-2 spike protein vaccine candidate with AS03 elicits durable and broad neutralization of variants including Omicron in macaques and confers protection in hamsters. *Under review*.

2022 P. Kaplonek*, **Y. Deng***, J. Lee, H. Zar, D. Zavadska, M. Johnson, D. Lauffenburger, D. Goldblatt, G. Alter, Hybrid immunity expands the functional humoral footprint of both mRNA and vector-based SARS-CoV-2 vaccines. *Under review*.

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2022 Q. Zhang, K. Sampani, M. Xu, S. Cai, **Y. Deng**, H. Li, J. Sun, G. Karniadakis, AOSLO-net: A deep learning-based method for automatic segmentation of retinal microaneurysms from adaptive optics scanning laser ophthalmoscope images. *Translational Vision Science & Technology*.

2022 **Y. Deng**, H. Chang, H. Li, Recent Advances in Computational Modeling of Biomechanics and Biorheology of Red Blood Cells in Diabetes. *Biomimetics* (**Cover Article**).

2022 H. Li*, **Y. Deng***, Z. Li, C. Mantzoros, G. Frydman, A. Gallastegi, G. Karniadakis, Multi-physics and multiscale modeling of microthrombosis in COVID-19. *PLOS Computational Biology*.

2022 H. Li, **Y. Deng**, K. Sampani, S. Cai, Z. Li, J. Sun, G. Karniadakis, Computational investigation of blood cell transport in retinal microaneurysms. *PLOS Computational Biology* (**Cover Article**).

2021 **Y. Deng***, L. Lu*, L. Aponte, A. Angelidi, V. Novak, G. Karniadakis, C. Mantzoros, Deep transfer learning and data augmentation improve early prediction of abnormal glucose levels in patients with type 2 diabetes. *npj Digital Medicine*.

2021 E. Javadi, **Y. Deng**, G. Karniadakis, S. Jamali, *In silico* biophysics and hemorheology of blood hyperviscosity syndrome. *Biophysical Journal*.

2021 A. Yazdani*, **Y. Deng***, H. Li*, E. Javadi, Z. Li, S. Jamali, J. Humphrey, C. Mantzoros, and G. Karniadakis, Integration of blood cell mechanics and platelet adhesive dynamics with coagulation cascade: application to normal and diabetic blood. *Journal of Royal Society Interface*.

2020 **Y. Deng**, G. Lin, X. Yang, Multifidelity data fusion via gradient-enhanced Gaussian process regression. *Communications in Computational Physics*.

2020 **Y. Deng***, D. Papageorgiou*, X. Li, N. Perakakis, C. S. Mantzoros, M. Dao, G. Karniadakis, Quantifying fibrinogen-dependent aggregation of red blood cells in type 2 diabetes mellitus. *Biophysical Journal*.

2019 **Y. Deng***, D. Papageorgiou*, H. Chang, S. Abidi, X. Li, M. Dao, G. Karniadakis, Quantifying shear-induced deformation and detachment of individual adherent sickle red blood cells. *Biophysical Journal*.

2018 L. Lu*, **Y. Deng***, X. Li, H. Li, G. Karniadakis, Understanding the twisted structure of amyloid fibrils via molecular simulations. *The Journal of Physical Chemistry B*.

2018 H. Li, D. Papageorgiou, H. Chang, L. Lu, J. Yang, **Y. Deng**, Synergistic integration of laboratory and numerical approaches in studies of the biomechanics of diseased red blood cells. *Biosensors*.

Honor and Awards

2022 **Traveling Award**, 4th Annual Immune Modulation and Engineering Symposium.

2022 **Mark and Lisa Schwartz AI/ML/Immunology Initiative Fellowship**, Ragon Institute & MIT.

2021 **Traveling Award**, The Rising Stars in Mechanical Engineering Workshop.

2019-2020 **Corinna Borden Keen Research Fellowship**, Brown University.

2019 **Traveling Award**, The US National Congress on Computational Mechanics (USNCCM15).

2019 **Traveling Award**, The Applied Mathematics: The Next 50 Years, the Data Science and Optimization Workshop.

2019 **Traveling Award**, Workshop on Recent Developments on Mathematical/Statistical approaches in DAta Science (MSDAS).

2018-2019 **George Irving Hopkins Fellowship**, Brown University.

2018 **Recipient of (7th Cohort) Open Graduate Education Program**, Brown University Graduate School.

2015 **Outstanding Graduate**, Shanghai Jiao Tong University.

2014 **The Third Prize Scholarship**, Shanghai Jiao Tong University.

Conferences and Workshops

2022 **4th Annual Immune Modulation and Engineering Symposium**, Drexel University.

2022 **Biomedical Engineering Society Annual Meting (BMES 2022)**, San Antonio.

2021 **The Rising Stars in Mechanical Engineering Workshop**, MIT.

2020 **Red Cell Club Meeting**, Virtual.

2020 **VPH2020**, Inria, Paris, France (virtual).

2020 **SIAM MDS20: Machine Learning for Physical Systems**, SIAM (virtual).

2019 **Red Cell Club Meeting**, University of Rochester, Rochester.

2019 **The Applied Mathematics: The Next 50 Years, the Data Science and Optimization Workshop**, University of Washington, Seattle.

2019 **The US National Congress on Computational Mechanics (USNCCM15)** , University of Texas, Austin.

2019 **Workshop on Recent Developments on Mathematical/Statistical approaches in DAta Science (MSDAS)**, University of Texas, Dallas.

2018 **Algorithms for Modern Power Systems (AMPS) Annual Workshop**, American University, Washington, DC.

Services and Certificates

2022 **Session co-chair & reviewer**, Biomedical Engineering Society Annual Meting (BMES 2022), San Antonio.

2022-present **Committee member**, Ragon WISE (Women in STEM Empowerment).

2020-present **Member-at-large**, U.S. Association for Computational Mechanics-Female Research Group (USACM-FRG).

2018 **Sheridan Teaching Seminar Program (Certificate I)**, The Sheridan Center for Teaching and Learning, Brown University.