

## PROFESSIONAL EXPERIENCE

- 08/2024–present **Assistant Professor**, Department of Computer and Information Sciences, University of Delaware.
- 10/2022–08/2024 **Postdoc Fellow**, *Ragon Institute of Mass General, MIT and Harvard*.  
Advisor: Daniel Lingwood
- 11/2021–08/2024 **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.

- 2025 X. Tan, N. Zeng, **Y. Deng**, S. Sun, B. Rui, J. Xu, Early-cycle prediction of battery aging onset across chemistries. *Journal of Energy Chemistry*.
- 2024 M. Agraz, **Y. Deng**, G. Karniadakis, C. Mantzoros, Enhancing severe hypoglycemia prediction in type 2 diabetes mellitus through multi-view co-training machine learning model for imbalanced dataset. *Scientific Report*.
- 2024 N. Nziza\*, **Y. Deng\***, L. Wood\*, T. Chen, R. McNamara, L. Yonker, G. Alter, Humoral profiles of toddlers and young children following SARS-CoV-2 mRNA vaccination. *Nature Communications*.

- 2024 X. Tong\*, **Y. Deng\***, D. Cizmeci, L. Fontana, M. A. Carlock, H. B. Hanley, D. Lingwood, T. M. Ross, and G. Alter, Distinct functional humoral immune responses are induced after live attenuated and inactivated seasonal influenza vaccination. *Journal of Immunology*.
- 2023 **Y. Deng\***, C. Atyeo\*, D. Yuan, T. Chiciz, T. Tibbitts, M. Gorman, S. Taylor, V. Lecouturier, D. Lauffenburger, R. Chiciz, R. McNamara, G. Alter, Beta variant containing booster vaccines induce robust and functional antibody responses against SARS-CoV-2 in macaques primed with distinct vaccines. *Cell Reports*.
- 2023 M. Kouvari, L. Valenzuela-Vallejo, V. Guatibonza-Garcia, S. A. Polyzos, **Y. Deng**, ... & C. S. Mantzoros, Liver biopsy-based validation, confirmation and comparison of the diagnostic performance of established and novel non-invasive steatotic liver disease indexes: Results from a large multi-center study. *Metabolism*.
- 2023 M. Spatola, N. Nziza, W Jung, **Y. Deng**, D. Yuan, A. Dinoto, S. Bozzetti, V. Chiodega, S. Ferrari, D. A. Lauffenburger, S. Mariotto, G. Alter, Neurologic sequelae of COVID-19 are determined by immunologic imprinting from previous coronaviruses antibody signatures in serum and CSF. *Brain*.
- 2023 **Y. Deng**, H. Li, Deep learning for few-shot white blood cell image classification and feature learning. *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*.
- 2023 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. Chiciz, V. Lecouturier, Beta-containing bivalent SARS-CoV-2 protein vaccine elicits durable broad neutralization in macaques and protection in hamsters. *Communications Medicine*.
- 2023 P. Kaplonek\*, **Y. Deng\***, J. Lee, H. Zar, D. Zavadzka, 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. *Cell Reports Medicine*.
- 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*.

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- 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*.

## PREPRINTS

- 2024 **Y. Deng\***, M. Tang\*, T. M. Ross, A. G. Schmidt, A. K. Chakraborty, D. Lingwood, Repeated vaccination with homologous influenza hemagglutinin broadens human antibody responses to unmatched flu viruses. <https://www.medrxiv.org/content/10.1101/2024.03.27.24303943v1>.
- 2024 D. Y. Zhu, D. P. Maurer, C. Castrillon, **Y. Deng**, F. A. N. Mohamed, M. Ma, A. G. Schmidt, D. Lingwood, M. C. Carroll, Lupus-associated innate receptors drive extrafollicular evolution of autoreactive B cells. <https://www.biorxiv.org/content/10.1101/2024.01.09.574739v1>.
- 2022 **Y. Deng**, K. Arao, C. Mantzoros, G. Karniadakis, Patient-specific deep offline artificial pancreas for blood glucose regulation in type 1 diabetes. <https://www.biorxiv.org/content/10.1101/2022.10.21.513303v1.abstract>.

## INVITED TALKS

- 2025 **Carry the Two (Link)**, IMSI, University of Chicago.
- 2025 **NA & PDE Seminar Talk**, University of Delaware.
- 2025 **Guest lecture: PHYS638 Turbulent Flows**, University of Delaware.
- 2025 **TechTalk at ChristianaCare**, DE CTR ACCEL grant program.
- 2025 **Bioinformatics Data Science Seminar**, University of Delaware.
- 2025 **FinTech Lunch & Learn**, University of Delaware.
- 2025 **Junior Investigators Network (JIN) Touch Base Session**, Nemours Children's Hospital.
- 2024 **Department of Mathematics and Statistics**, University of Massachusetts Amherst.
- 2024 **Data Sciences for Mesoscale and Macroscale Materials Models**, University of Chicago, IMSI.
- 2024 **Department of Biomedical Engineering**, University at Buffalo.
- 2024 **Department of Biomedical Engineering**, Duke University.
- 2024 **Department of Computer and Information Sciences**, University of Delaware.
- 2024 **Department of Molecular, Cell and Systems Biology**, University of California Riverside.
- 2024 **Department of Mechanical Engineering**, Michigan State University.
- 2024 **Department of Biomedical Engineering**, University of Southern California.
- 2024 **Department of Biomedical Engineering**, University of Mississippi.

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## HONOR AND AWARDS

- 2025 **DE-INBRE Research Project Grant**, NIH NIGMS (\$160k direct cost).
- 2025 **Traveling grant for SOFC'25**, Association of Chinese Scholars in Computing.
- 2025 **Traveling grant for Computing Futures Symposium**, Computing Research Association's Computing Community Consortium.
- 2024 **UDRF-SI**, University of Delaware (\$55k direct cost).
- 2024 **NRT-MIDAS mentor**, University of Delaware.
- 2024 **SISMID Halloran Scholarship**, Emory University.
- 2023 **Duke Engineering Future Faculty of Innovation and Excellence (DEFINE) Program**, Duke University.
- 2023 **Traveling Award**, Clinical and Single-Cell Transcriptomics for Pneumonia Codeathon at *Northwestern University*.
- 2022 **Traveling Award**, 4th Annual Immune Modulation and Engineering Symposium at *Drexel University*.
- 2022-2024 **Mark and Lisa Schwartz AI/ML/Immunology Initiative Fellowship**, Ragon Institute & MIT (\$200k).
- 2021 **The Rising Stars in Mechanical Engineering**, MIT.
- 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 at *University of Washington*.
- 2019 **Traveling Award**, Workshop on Recent Developments on Mathematical/Statistical approaches in DATA Science (MSDAS) at *University of Texas, Dallas*.
- 2018-2019 **George Irving Hopkins Fellowship**, Brown University.
- 2018 **Recipient of (7th Cohort) Open Graduate Education Program**, Brown University Graduate School (\$220k).
- 2015 **Outstanding Graduate**, Shanghai Jiao Tong University.
- 2014 **The Third Prize Scholarship**, Shanghai Jiao Tong University.

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## CONFERENCE AND WORKSHOP PRESENTATIONS

- 2025 **AI4Health Industry Day**, University of Delaware.
- 2024 **MIT Microbiome Symposium**, Cambridge.
- 2023 **Biomedical Engineering Society Annual Meeting (BMES 2023)**, Seattle.
- 2023 **Systems Biology Annual Meeting Code-a-thon**, Chicago.
- 2023 **Post-COVID AI symposium**, MGB, Boston.
- 2022 **4th Annual Immune Modulation and Engineering Symposium**, Drexel University.
- 2022 **Biomedical Engineering Society Annual Meeting (BMES 2022)**, San Antonio.
- 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.

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- 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.

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## SERVICES AND CERTIFICATES

- 2025 **Bioinformatics Data Science Symposium Co-chair**, University of Delaware.
- 2025 **CIS Physical Intelligence Initiative Workshop Co-chair**, University of Delaware.
- 2025 **CIS HenHack committee**, University of Delaware.
- 2025 **CIS Department Sig New Grad committee**, University of Delaware.
- 2025 **CIS Department MS & PhD admission committee**, University of Delaware.
- 2024 **CIS Doctoral Fellowship for Excellence committee**, University of Delaware.
- 2024 **CIS Department PhD admission committee**, University of Delaware.
- 2024 **Thesis committee member**, University of Delaware.
  - Bander Yahia H Almalki, PhD thesis (Advisor: Dr. Li Liao)
  - Ziyi Zhou, Undergrad thesis
- 2024 **Session co-chair & reviewer**, Biomedical Engineering Society Annual Meeting (BMES 2024), Baltimore.
- 2024 **Panel speaker**, Innovation Summit: the Future of Healthcare, ChristianaCare.
- 2023 **Cambridge science carnival**, Ragon Institute booth volunteer.
- 2022 **Session co-chair & reviewer**, Biomedical Engineering Society Annual Meeting (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.