SHUJUN HE

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(979)739-7008

EDUCATION

PhD student in Chemical Engineering May 2020 - Current
Texas A&M University, College Station, Texas
Advisor: Dr. Qing Sun
- GPA: 3.67/4.00

Master of Engineering in Chemical Engineering May 2020
Texas A&M University, College Station, Texas

Bachelor of Science in Chemical Engineering December 2017
University of Florida, Gainesville, Florida
- Summa Cum Laude (highest honor)
- GPA: 3.86/4.00

EXPERIENCE

Graduate Research Assistant May 2020 - Current
Dr. Qing Sun' Lab, Texas A&M University, College Station, Texas
Research Focus:
- Research Focus: mRNA degradation/stabilization for thermally stable mRNA vaccine development
- Helped write grants that led to 3 million dollars in funding for mRNA stabilization project

Graduate Research Assistant Aug 2018 - Mar 2020
Dr. Tamamis' Lab, Texas A&M University, College Station, Texas
Research Focus:
- Research Focus: Molecular Dynamics Simulations and Computational Protein Design

Undergraduate Research Assistant Jul 2016 - May 2018
Dr. Jason Butler's Lab, University of Florida, Gainesville, Florida
- Research Focus: Coarse-grained Simulation of DNA

PROJECTS & COMPETITIONS

Feedback Prize - Predicting Effective Arguments May 2022 – Aug 2022
- Machine learning competition to rate the effectiveness of argumentative writing elements from students grade 6-12
- Gold medal 2nd/1557 teams with 13,000 USD prize money awared

Feedback Prize - Evaluating Student Writing Jan 2022 – Mar 2022
- Machine learning competition to analyze argumentative writing elements from students grade 6-12
- Gold medal 3rd/2058 teams with 25,000 USD prize money awared

Google Brain - Ventilator Pressure Prediction Sep 2021 – Nov 2021
- Machine learning competition to simulate a ventilator connected to a sedated patient's lung
- Gold medal 1st/2605 teams with 2500 USD prize money awarded

Hubmap Hacking the Kidney Nov 2020 – May 2021
- Machine learning competition to identify glomeruli in human kidney tissue images
- Gold medal 3rd/1216 teams against top machine learning experts from around the world
- Awarded 4000 USD prize money

Riiid! Answer Correctness Prediction Oct 2020 – Jan 2021

- Machine learning competition to track knowledge states of 1M+ students
- Solo silver medal 20th/3395 teams against top machine learning experts from around the world

OpenVaccine: COVID-19 mRNA Vaccine Degradation Prediction Sep 2020 – Oct 2020

- Machine learning competition to predict degradation properties of COVID-19 mRNA vaccine candidates.
- Achieved final rank of 7th/1636 solo gold medal against top machine learning experts around the world
- Co-authored paper published in *Nature Machine Intelligence*

Prostate cANcer graDe Assessment (PANDA) Challenge Apr 2020 – Jul 2020

- Machine learning competition to accurately diagnose prostate cancer
- Achieved final rank of 19th/1010 silver medal
- Co-authored paper published in *Nature Medicine*

HONORS AND AWARDS

258th Kaggle Competitions Grandmaster in history	Aug 2022
Ranked 29/192,154 (top 0.015%) globally in competitive machine learning	Aug 2022
Second place most innovative method award at MICCAI 2020 PANDA workshop	Nov 2020
Qualifying Exam Excellence Award by Artie Mcferrin Department of Chemical Engineering	Jan 2019
Awarded Tuition Exemption 4 years in a row ($18,000 per year)	2014-2017
University Scholar ($1000), University of Florida	Aug 2014
Dean's list	Sep 2014/Jan 2017

PUBLICATIONS

Bulten, W., Kartasalo, K., Chen, PH.C. et al. (2022) Artificial intelligence for diagnosis and Gleason grading of prostate cancer: the PANDA challenge. *Nature Medicine*

Wayment-Steele HK, Kladwang W, Watkins AM, Kim DS, Tunguz B, Reade W, Demkin M, Romano J, Wellington-Oguri R, Nicol JJ, Gao J, Onodera K, Fujikawa K, Mao H, Vandewiele G, Tinti M, Steenwinckel B, Ito T, Noumi T, He S, Ishi K, Lee Y, Öztürk F, Chiu A, Öztürk E, Amer K, Fares M, Participants E, Das R. (2022) "Predictive models of RNA degradation through dual crowdsourcing". accepted to on *Nature Machine Intelligence*

Shujun He , Baizhen Gao, Rushant Sabnis, Qing Sun (2021), "Nucleic Transformer: Deep Learning on Nucleic Acids with Self-attention and Convolutions", preprint on *bioRxiv*

Dmitry I. Kopelevich , Shujun He , Ryan J. Montes, and Jason E Butler (2021), "Mesoscopic models for electro-hydrodynamic interactions of polyelectrolytes", *Journal of Fluid Mechanics* 915, A59

Asuka A. Orr , Shujun He , Meichen Wang , Alicia Goodall , Sara E. Hearon , Timothy D. Phillips , and Phanourios Tamamis (2020) , "Insights into the Interactions of Bisphenol and Phthalate Compounds with Unamended and Carnitine-Amended Montmorillonite Clays", *Computers & Chemical Engineering* 4 (18), 17702-17713

Meichen Wang, Asuka A. Orr, Shujun He, Chimeddulam Dalaijamts, Weihsueh A. Chiu, Phanourios Tamamis, and Timothy D. Phillips (2019) , "Montmorillonites Can Tightly Bind Glyphosate and Paraquat Reducing Toxin Exposures and Toxicity", *ACS Omega* 4 (1432), 107063

CONFERENCE TALKS

Shujun He, Baizhen Gao, Rushant Sabnis, Qing Sun, "Accurate prediction of mRNA degradation at nucleotide resolution with deep learning", *2022 ACS BIOT*

Shujun He, and Sejun Song, "Prostate cancer grade assessment of whole-slide images using full-image segmentation, self-attention, and multitasking learning", *2020 MICCAI*
Shujun He, Asuka A Orr, Meichen Wang, Sara E Hearon, Timothy D Phillips, Phanourios Tamamis, "Computational Modeling and Simulation Studies on the Binding of Toxic Compounds to Montmorillonite Clay", *2019*

SRP Annual Meeting
Shujun He, Asuka A Orr, Meichen Wang, Sara E Hearon, Timothy D Phillips, Phanourios Tamamis, "Computational Modeling and Simulation Studies on the Binding of Toxic Compounds to Montmorillonite Clay", *2019 AIChE Annual Meeting*

SKILLS

Coding	Python, C, FORTRAN, MATLAB, Latex
Deep Learning Frameworks	Tensorflow, Keras, Pytorch, XGBoost, LightGBM, Sklearn
Software	Microsoft Office, inkscape, git