YALU CHEN

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EDUCATION

California Institute of Technology *Sep 2016 – Dec 2020*
PhD in Materials Science and Engineering *Pasadena, CA*

Shanghai Jiao Tong University *Sep 2012 – Jun 2016*
Bachelor of Science *Shanghai, China*

PROFESSIONAL EXPERIENCE

California Institute of Technology | Research Assistant
Machine Learning Guided Materials Discovery *Jun 2017 – Dec 2020*

- Engineered high-performance catalysts for clean energy conversion (CO2 reduction) by combining machine learning algorithms and quantum chemistry theories
- Developed ***neural network based algorithm*** to predict specific chemical reaction efficiencies on various types of surfaces with dramatically reduced computational efforts
- Improved the prediction accuracy by 50% and enabled the study of new materials

Computational Biology and Drug Design *Sep 2016 – Jun 2017*

- Investigated activation mechanism of sweet taste receptor using molecular dynamic simulations
- Developed innovative computational model for predicting sweetness of multiple sweeteners
- Designed and tested non-calorie sweeteners for applications in the treatment of obesity

Meta Inc. | Research Scientist *Menlo Park, CA*
Privacy Preserving Machine Learning for Ads Ranking *Jan 2021 – Present*

- Developed advanced privacy preserving machine learning algorithm for ads ranking system
- Developed E2E framework of on-device ads ranking with federated learning, including feature engineering, model training and serving, offline/online consistency optimization, on-device ads delivery accuracy and efficiency;
- Recovered offsite labels and user-side offsite features by directly using offsite signals on-device
- Achieved significant offline modeling metrics gain and online ads score/revenue winback

PUBLICATIONS (google scholar)

Chen, Y.; Huang, Y.; Cheng, T.; Goddard, W. A.
Identifying Active Sites for CO2RR on Dealloyed Gold Surfaces by Combining Machine Learning with Multiscale Simulations. J. Am. Chem. Soc. 2019, 141 (29), 11651–11657.

Chen, Y.; Cheng, T.; Goddard, W. A.
Atomistic explanation of the dramatically improved oxygen reduction reaction of jagged platinum nanowires, 50 times better than Pt. J. Am. Chem. Soc. 2020, 142(19), 8625-8632.

Naserifar, S., **Chen, Y**., Kwon, S., Xiao, H., Goddard, W. A.
Artificial Intelligence and QM/MM with a Polarizable ReaxFF for Next-Generation Electrocatalysts. Matter, 2021, 195-216, 2590-2385.

Huang, Y.; **Chen, Y**.; Cheng, T.; Wang, L.-W.; Goddard, W. A.
Identification of the Selective Sites for Electrochemical Reduction of CO to C2+ Products on Copper Nanoparticles by Combining Reactive Force Field, DFT, and **Machine Learning**. ACS Energy Letters 2018, 2983–2988.

Kim, S.-K.; **Chen, Y.**; Abrol, R.; Goddard, W. A.; Guthrie, B.
Activation Mechanism of the G Protein-Coupled Sweet Receptor Heterodimer with Sweeteners and Allosteric Agonists. Proc Natl Acad Sci USA 2017, 114 (10), 2568–2573.