Hsuan-Chun Lin

(216) 712-2555
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Github: hsuanchunlin

- Accelerated data analysis and visualization pipeline 10-fold faster by using Python, pandas, matplotlib, seaborn, bokeh, plotly, R, C++, scikit-learn, statistical modeling, data visualization, and machine learning.
- 7 cross-functional projects, resulting in 4 scientific collaborations.
- Provide leadership in data creation, formatting, gathering, and standardization to enable efficient and effective machine learning.
- Communicate effectively with cross functional teams
- 7 high-impact publications and 10 conference presentations of research results.

Skills

Programming Languages	Python, R, Perl, Matlab, SQL, C++, LaTeX,MarkDown
Experienced with	High throughput methods development, Excel, PowerPoint, Word, classification, regression, clustering algorithms, Apache Airflow, Tensorflow, PyTorch, pandas, matplotlib, scikit-learn, Data visualization, matplotlib, seaborn, bokeh, plotly, ggplot, Natural language processing, time-management, communication skills
Miscellaneous	SQL, git

Experience

Postdoctoral Associate **Feb 2017 — Dec 2019**
Department of Chemistry, University of Florida *Gainesville FL, USA*

- Managed 4 projects, published 1 article in Journal of the American Chemical Society (in Press 2023), and presented in 2018 national ACS meeting.
- Accelerated data analysis pipeline 10-fold faster by using Unix/Linux shell commands, Python, R,C++, Pandas, scikit-learn, MATLAB, statistical modeling, data visualization, and machine learning algorithms.
- Developed and optimized the method of RNA kinetic isotope effect measurements for drug discovery by introducing HPLC, LC-MS, mass spectrometry, FRET, stopped-flow, CD spectroscopy, and micro-plate assays.
- Translate machine intelligence requirements and product/project vision into prioritized list of user stories, developing and delivering intelligent products to required timelines and quality standards.
- Provide leadership in data creation, formatting, gathering, and standardization to enable efficient and effective machine learning.
- Communicate effectively with teams in wide range of backgrounds.

Technologies: Python, R, Matlab, Tensorflow, Pytorch, Scikit-learn, Data visualization, matplotlib, seaborn, plotly, bokeh, ggplot, Perl

Graduate Research Assistant **Aug 2011 — Jan 2017**
Case Western Reserve University, *Cleveland OH, USA*

- Led 3 projects, presented in 7 national/regional conferences and published 5 papers on top peer reviewed journals.
- Applied Machine learning algorithms (e.g. , k-mean, random forest, neural network, novel linear regression models, PCA, and t-SNE) to predict and visualize the rules of biomolecule interactions and accelerate the data driven experimental design 30-fold faster than current methods.

Technologies: R, Python, Matlab, Scikit-learn, Data visualization, statistical models, matplotlib, seaborn, plotly, bokeh, ggplot, Tensorflow, Pytorch, t-SNE, PCA

Freelance Data Analyst/Self-Employed **Jan 2020 — present**
Orlando FL, USA

- Provide technical and material support of performing **gradient boosting machine** for generating propensity scores in 2 projects entitled "The association between trajectories of prescription opioid use and opioid overdose risk among nonmetastatic breast cancer survivors" and "The association between trajectories of adherence to endocrine therapy and the risk of breast cancer recurrence among nonmetastatic breast cancer survivors" with 2 podium presentations in 2022 The International Society for Pharmacoepidemiology (ISPE) 38th conference.

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Hands-on Experience

Jan 2020 — present
Orlando FL, USA

- Built CycleGAN voice converter and miRNA generator from scratch by Tensorflow 2.0 and Keras.
- Applied Natural language processing, Embedding, LSTM, and Transformer models to generate texts, categorize articles, and visualize the rules of RNA-Protein interactions.

Education

Ph.D. in Biochemistry, *Case Western Reserve University, Cleveland OH, USA* **2011 — 2017**
M.S. in Biochemistry and Molecular Biology, *National Cheng Kung University, Tainan Taiwan* **2005 — 2007**
B.S. in Chemistry, *National Taiwan University, Taipei Taiwan* **2001 — 2005**

Publications

1. Benjamin Weissman, Şölen Ekesan, **Hsuan-Chun Lin**, Shahbaz Gardezi, Nansheng Li, Timothy J. Giese, Erika McCarthy, Michael E Harris, Darrin M York, and Joseph A Piccirilli, A dissociative transition state in Hepatitis Delta Virus ribozyme catalysis. **J. Am. Chem. Soc. in Press** 2023.

2. Jain, N.*; Lin, H. C.*; Morgan, C. E.; Harris, M. E.; Tolbert, B. S., Rules of RNA specificity of hnRNP A1 revealed by global and quantitative analysis of its affinity distribution. **Proc. Natl. Acad. Sci. U.S.A** 2017.
N.J. and H.-C.L. contributed equally to this work.

3. Lin, H. C.; Zhao, J.; Niland, C. N.; Tran, B.; Jankowsky, E.; Harris, M. E., Analysis of the RNA Binding Specificity Landscape of C5 Protein Reveals Structure and Sequence Preferences that Direct RNase P Specificity. **Cell Chem. Biol** 2016, 23 (10), 1271-1281.

4. Lin, H. C., Yandek, L.E., Gjermeni, I. & Harris, M.E. Determination of relative rate constants for in vitro RNA processing reactions by internal competition. **Anal. Biochem.** 467, 54-61 (2014).

5. Niland, C. N.; Zhao, J.; Lin, H. C.; Anderson, D. R.; Jankowsky, E.; Harris, M. E., Determination of the Specificity Landscape for Ribonuclease P Processing of Precursor tRNA 5' Leader Sequences. **ACS Chem. Biol** 2016, 11 (8), 2285-92.

6. Yandek, L.E., Lin, H. C. & Harris, M.E. Alternative substrate kinetics of Escherichia coli ribonuclease P: determination of relative rate constants by internal competition. **J. Biol. Chem** 288, 8342-8354 (2013).

7. Chang, P.C., Wu, H.L., Lin, H. C., Wang, K.C. & Shi, G.Y. Human plasminogen kringle 1-5 reduces atherosclerosis and neointima formation in mice by suppressing the inflammatory signaling pathway. **J Thromb Haemost** 8, 194-201 (2010).

Conference Talks

1. Hsuan-Chun Lin, Benjamin Weissman, Syed Shahbaz Gardezi, Vernon Anderson, Darrin York, Joseph Piccirilli, Michael Harris 2018 ACS National meeting New Orleans, March 22-26
Kinetic isotope effects on catalysis by the HDV ribozyme-precise determination of isotope ratios using electrospray ionization time-of-flight mass spectrometry

2. Hsuan-Chun Lin, 2014 Rustbelt RNA meeting Pittsburgh, October 17-18
Next-generation tools for RNA enzymology: Determination of rate and equilibrium constants for large populations of RNA substrate variants using high throughput sequencing.