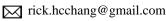
Hung-Ching Chang





Hung-Ching-Chang



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Hung-Ching (Rick) Chang

Education

National Taiwan University (NTU) M.S. in Biostatistics

Taipei, Taiwan Sep 2017 - Jun 2019

Thesis: Development of a knowledge-based and data-driven network construction method for gene sets. Advisor: Chuhsing Kate Hsiao

National Cheng Kung University (NCKU)

Tainan, Taiwan

B.S. in Mathematics / **B.B.A.** in Statistics

Sep 2013 - Jun 2017

Graduate courses: Numerical Analysis, Stochastic Processes, Molecular Biology

Publications

- 1. Chang, H., Chu, C., Lin, S. et al. Network hub-node prioritization of gene regulation with intranetwork association. BMC Bioinformatics 21, 101 (2020).
- 2. Chang, Y., Tung, Y., Lee, K., Chen, T., Hsiao, Y., Chang, H. et al. Potential Therapeutic Agents for COVID-19 Based on the Analysis of Protease and RNA Polymerase Docking. Preprints (2020).
- 3. Chang, H., Hsiao, C. Development of a knowledge-based and data-driven network construction method for gene sets. Master's thesis.

Research Experience

Statistician / Data Scientist

Taiwan AI Labs

Taipei, Taiwan Jan 2020 - present

- Consult with customers/colleagues to explain and implement statistical models
- Design tools for predicting genetic networks with survival analysis
- Build model for antibiotic resistance prediction using deep learning and machine learning techniques, such as Bayesian neural network
- Integrate 3rd party tools into our platform, *Taigenomics*
- Build automated genome-wide association study (GWAS) pipeline including preimpute QC, phasing, imputation and analysis
- Establish the virus transmission tool for COVID-19

Research Assistant

NTU

Advisor: Prof. Chuhsing Kate Hsiao

Taipei, Taiwan Sep 2017 - Jun 2019

- Developed topology-based and network-based methods for pathway/gene set analysis and applied them to breast and ovarian cancer studies
- Focused on gene expression profile and pathway databases, such as KEGG database
- Presented at Research Poster Exhibition 2019, NTU

Guest Scientist in "Mathematics in Life Sciences"

Freie Universität Berlin

Advisor: Prof. Alexander Bockmayr

Berlin, Germany Jul 2018 - Aug 2018

- Research project: Gene regulation in regulatory flux balance analysis (rFBA)
- Recovered the Boolean rules that regulate metabolism from the metabolic network

International Genetically Engineered Machine Competition (iGEM)

NCKU

NCKU Tainan team --- Official team page

Tainan, Taiwan Jul 2016 - Sep 2017

Advisor: Prof. I-Son Ng

- Simulated the diffusion of urine via finite differencing explicit method
- Build a statistical model to classify normal and pre-diabetes parameters
- Completed the project in collaboration with students from six different colleges
- Acquired knowledge in Molecular Biology and Synthetic Biology

Teaching Experience

Teaching Assistant, Applied Bayesian Statistical Analysis [EPM5047]

NTU

Taught OpenBUGS, answered questions and graded homework

Taipei, Taiwan 2018 Fall

• Created video lectures on Youtube, such as the OpenBUGS tutorial [link]

Taiwan

Mathematics/Statistics Tutor

2014 - 2017

Taught a wide range of students from high school to university levels

Tutored international students in Precalculus in 2017

Conference

11th International Conference on Multiple Comparison Procedures

Oral Presentation (invited)

Taipei, Taiwan Dec 2019

4th iGEM Asia-Pacific Conference

Organizer & Poster Presentation

Tainan, Taiwan Aug 2016

Honor & Awards

Research Poster Exhibition 2019

· Outstanding Poster Presentation Award

Taipei, Taiwan May 2019

• 2 recipients/year in Biostatistics

Germany – Taiwan Academic Exchange Scholarship

Germany & Taiwan

• Offered by the German Academic Exchange Service (DAAD) • 10 recipients/year in Taiwan

International Genetically Engineered Machine Competition (iGEM)

MA, USA Óct 2016

Gold Medal & the Best Presentation

Nominated for the Best Diagnostics Project

Achievement of Excellence Study Grant · Offered by Prof. Kwok-Kun Kwong of NCKU

Tainan, Taiwan

Basic Statistics Competition

Tainan, Taiwan

· Distinguished Honor Award

• Top 3% in over 500 competitors

Leadership

Student Association of the Mathematics Department

NCKU

President

Jul 2014 - Jun 2015

United Student Associations

NCKU Jul 2014 - Jun 2015

Executive Director in college of science

Workshop Experience

- Taipei Summer Institute in Statistical Genetics (SISG). Taipei, Taiwan. (2017)
- Workshop on Experimental Design and Uncertainty Quantification. NCKU, Taiwan. (2016)
- Statistical Science Camp. Academia Sinica, Taiwan. (2016)
- Mathematical Modeling (Summer course). NCKU, Taiwan. (2016)
- Taiwan Mathematical Society Annual Meeting, NCKU, Taiwan. (2014)

License

Big Data Analyst – Associate Level

Taiwan

- Certified by the Ministry of Economic Affairs, R.O.C.

2017

Language & Programming Skill

Native Mandarin, Taiwanese | Proficient English | Basic German & Spanish Language

Programming Proficient R, Python, Matlab, Linux, shell, git

Data analysis Statistics, Machine learning frameworks/algorithms, Bioinformatics tools